



**Environment and Climate**

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File No.: 2708.30

July 19, 2023

Scott Toews, P. Eng.  
City of Winkler  
185 Main Street  
Winkler MB R6W 1B4  
[Scott.Toews@cityofwinkler.ca](mailto:Scott.Toews@cityofwinkler.ca)

Dear Scott Toews:

**Re: Environment Act Licence No. 2525 RR**

Please find enclosed Environment Act Licence No. 2525 RR in response to your proposal dated February 1, 2023. The proposal involves the construction and operation of an expanded wastewater treatment facility in S 22-3-4W and SW 23-3-4W.

The City of Winkler must follow all licence requirements and federal, provincial, and municipal regulations and by-laws. The licensee must get approval from the director per The Environment Act to alter the development.

Anyone affected by this decision may appeal, in writing, to the Minister of Environment and Climate at [minec@leg.gov.mb.ca](mailto:minec@leg.gov.mb.ca) by August 18, 2023. The licence is available on the public registry at <https://www.gov.mb.ca/sd/eal/registries/index.html>.

If you have any questions regarding this approval, please contact Tyler Kneeshaw, Regional Supervisor, Environmental Compliance and Enforcement Branch at [EnvCEInterlake@gov.mb.ca](mailto:EnvCEInterlake@gov.mb.ca) or 204-870-1598. For clauses 54 – 57 of the licence, the environment officer of the approvals branch is Bruce Webb at [Bruce.Webb@gov.mb.ca](mailto:Bruce.Webb@gov.mb.ca).

Sincerely,

Original Signed By

Siobhan Burland Ross  
Director  
The Environment Act

Enclosure

c. Bruce Webb

# LICENCE

File: 2708.30

Licence No. / Licence n°: 2525 RR  
Issue Date / Date de délivrance: January 23, 2002  
Date Revised: April 17, 2019  
Date Revised: July 19, 2023

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)

Under sections 11(1) and 14(3) / Conformément au paragraphes 11(1) et 14(3)

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

**CITY OF WINKLER; "the licensee"**

for the construction and operation of the development being a wastewater collection system and a wastewater treatment facility with a maximum daily flow rate not in excess of 42,700 cubic metres over any 24-hour period and an average flow rate of 10,675 cubic metres per day, for a design population of 32,150 in the City of Winkler and the Rural Municipality of Stanley, and located in S 22-3-4W and SW 23-3-4W, with discharge of treated effluent into an outfall to Deadhorse Creek, in accordance with the proposal filed under The Environment Act on February 1, 2023, 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 Environment and Climate to be equivalent to the SCC, or 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;

**"acute lethality"** means a toxic effect resulting in death in an organism by a substance or mixture of substances within a short exposure period (usually 96 hours or less);

**"aerated"** means the bringing about of intimate contact between air and a liquid by bubbling air through the liquid;

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

**"approvals branch"** means the Environmental Approvals Branch of Manitoba Environment and Climate, or any future branch responsible for issuing licences under The Environment Act;

**"approved"** means approved by the director or assigned environment officer in writing;

**"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;

**"bioassay"** means a method of determining toxic effects of industrial wastes and other wastewaters by using viable organisms;

**"composite sample"** means a quantity of undiluted 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;

**"cut-off"** means a vertical or slanted trench filled with compacted clay or a sand and bentonite mixture, or a wall constructed from compacted clay;

**"day"** means any 24-hour period;

**"director"** means an employee so designated under The Environment Act;

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

**"environment officer"** means an employee so designated under The Environment Act;

**"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 the oxygen demand usually associated with biochemical oxidation of organic material within five days at a temperature of 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 five days at a temperature of 20°C, excluding the oxygen demand usually associated with the biochemical oxidation of nitrogenous organic matter;

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

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

**"high water mark"** means the line on the interior surface of a wastewater treatment lagoon cell which is normally reached when the cell is at the maximum allowable liquid level or the line of the exterior of the perimeter dykes which is reached during local flooding;

**"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;

**"industrial use agreement"** means an agreement to discharge industrial wastewater to municipal wastewater collection and treatment systems;

**"industrial wastewater"** means wastewater derived from an industry which manufactures, handles or processes a product and does not include wastewater from commercial or residential buildings;

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

**"low water mark"** means the line on the interior surface of a wastewater treatment lagoon cell 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 or effluent which, in accordance with statistical theory would yield the observed test result with the greatest frequency;

**"mixing zone"** means an area adjacent to a discharge where a receiving water may not meet all water quality objectives included in the most recent version of the "Manitoba Water Quality Standards, Objectives, and Guidelines";

**"noise nuisance"** means an unwanted sound, in an affected area, which is annoying, troublesome, 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 unwanted sound
- 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 unwanted sound 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;

**"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;

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

**"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;

**"SAGR"** means submerged attached growth 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;

**"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;

**"storage cell"** means a cell of the wastewater treatment lagoon system which is a cell that receives partially treated wastewater or sludge and retains the wastewater or sludge for a period of time;

**"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;

**"total residual chlorine"** means the sum of free chlorine and combined chlorine, including inorganic chloramines;

**"UV"** means ultraviolet;

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

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

**"waste disposal facility"** 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 the Waste Management Facilities Regulation, or any future amendments, or a licence under The Environment Act;

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

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

**"wastewater treatment facility"** means the wastewater treatment lagoon, SAGR cells and all ancillary components, exclusive of the wastewater collection system;

**"wastewater treatment lagoon"** means the components of this development which consists of impoundments into which wastewater and sludge is discharged for treatment and storage;

**"wet industry"** means an industry that generates manufacturing or processing wastewater but does not include an industry that generates only cooling process wastewater; and

**"WWTF"** means wastewater treatment facility.

### **GENERAL TERMS AND CONDITIONS**

1. The licensee shall at all times maintain a copy of this licence at the development or at the premises from which the development's operations are managed.
2. The licensee shall direct all wastewater generated with the City of Winkler toward the WWTF as shown in Schedule "A" to this licence or other approved wastewater treatment facilities.
3. In addition to any of the following specifications, limits, terms and conditions specified in this licence, the licensee 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;
  - 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, bioassay data, flow rate measurements and such other information as may from time to time be requested.

4. The licensee shall submit all information required to be provided to the director or environment officer under this licence, in writing, 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 file number associated with this licence.
5. The licensee shall not cause or permit a noise 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 a noise nuisance.
6. The licensee 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 licensee shall actively participate in any future watershed-based management study, plan or nutrient reduction program, approved by the director, for Deadhorse Creek and associated waterways and watersheds.

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

#### **Construction - General**

8. The licensee shall notify the assigned environment officer prior to beginning construction of and upgrades to the WWTF. The notification shall include the intended starting date of construction and the name of the licensee's contact person at the construction site.
9. The licensee shall:
  - a) conduct all ditch related work activities during no flow or dry conditions and not during the April 1 to June 15 fish spawning and incubation period;
  - b) not construct components of the WWTF involving earthwork during periods of heavy rain;
  - c) place and/or isolate all excavated and construction material where it will not erode into any watercourse;
  - d) implement effective long-term sediment and erosion control measures to prevent soil-laden runoff and/or silt from entering any watercourse during construction and until vegetation is established;
  - e) routinely inspect all erosion and sediment control structures and immediately complete any necessary maintenance or repair;
  - f) revegetate soil exposed during the construction of the development with native or introduced grasses or legumes. Native species shall be used to revegetate areas where native species existed prior to construction; and
  - g) use rock that is free of silt and clay for riprap.
10. The licensee shall dispose of non-reusable construction debris from the development at a waste disposal facility operating under the authority of a permit issued under the Waste Management Facilities Regulation or any future amendment, or a licence issued under The Environment Act.

11. The licensee shall comply with the requirements of The Heritage Resources Act, and suspend construction and immediately notify the Historic Resources Branch if heritage resources are encountered during the construction of the development.
12. The licensee shall locate 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 Storage and Handling of Petroleum Products and Allied Products Regulation or any future amendment.
13. The licensee shall, during construction and maintenance of the development, 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 WWTF, the discharge route, and watercourses, and have an emergency spill kit for in-water use available on site during construction.
14. The licensee shall, during construction and maintenance of the development, prevent the introduction and spread of foreign aquatic and terrestrial biota by cleaning equipment prior to its delivery to the site of the development and complying with the requirements of the Aquatic Invasive Species Regulation or any future amendment.
15. The licensee shall construct and maintain an all-weather access road and a wastewater dumping station for truck-hauled wastewater.
16. The licensee shall install and maintain a fence around the WWTF to control access. The fence shall be a minimum of 1.2 metres high and have a locking gate, which shall be locked at all times except to allow access to the WWTF.

#### **Breakdown or Process Upset Reporting**

17. The licensee 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.
18. The licensee shall, following the reporting of an event under clause 17,
  - 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/or the environment officer; and
  - d) submit a report to the director about the causes of breakdown and measures taken, within one week of the repairs being done.



### **Wastewater Treatment Lagoon Cells**

19. The licensee shall maintain all cells of the wastewater treatment lagoon as identified as Cells 1 – 10 on Schedule “A” to this licence with continuous liners, including cut-offs, under all interior surfaces of the cells in accordance with the following specifications:
  - a) the liners shall be made of clay;
  - b) the liners shall be at least one metre in thickness; and
  - c) the liners shall have a hydraulic conductivity of  $1 \times 10^{-7}$  centimetres per second or less at all locations.
20. The licensee shall maintain the continuous liners of the wastewater treatment lagoon cells across the bottom of each cell and up to the top of the dykes. Cell depths from the bottom of the cell to the top of the dykes shall be:
  - a) Cell 1-3 (aerated): 5.3 m;
  - b) Cells 4,5, 6 and 9 (effluent storage): 3.5 m;
  - c) Cells 7 and 8 (effluent storage): 2.5 m; and
  - d) Cell 10 (effluent storage): 3.1 m.
21. The licensee shall, if in the opinion of the environment officer, significant erosion of the interior surfaces of the dykes occurs, repair the dykes of the wastewater treatment lagoon to the satisfaction of the environment officer. Upon approval of the environment officer, install riprap as necessary. The riprap shall be placed on the interior dyke surfaces from 0.6 metres above the high water mark to the bottom of the dykes to protect the dykes from wave action.
22. The licensee shall provide and maintain a grass cover on the dykes of the wastewater treatment lagoon and shall regulate the growth of the vegetation so that the height of the vegetation does not exceed 0.3 metres on all dykes.
23. The licensee shall annually remove by mechanical methods all reeds, rushes and trees located above the low water mark in every cell of the wastewater treatment lagoon.
24. The licensee shall implement an ongoing program to remove burrowing animals from the site of the wastewater treatment lagoon.

### **Sludge in Cell 1 of the Wastewater Treatment Lagoon**

25. The licensee shall dispose of dewatered sludge from Cell 1 of the wastewater treatment lagoon in a waste disposal facility.

### **Operation – General**

26. The licensee shall obtain and maintain classification of the development under the Water and Wastewater Facility Operators Regulation or any future amendment and maintain compliance with all requirements of the regulation including, but not limited to, the preparation and maintenance of a table of organization, emergency response plan and standard operating procedures.

27. The licensee shall carry out the operation of the development with individuals properly certified to do so under the Water and Wastewater Facility Operators Regulation or any future amendment.
28. The licensee shall not allow the discharge of any industrial wastewater from a wet industry into the wastewater collection system and WWTF unless the wet industry discharging the wastewater has first entered into an industrial use agreement with the licensee that specify the quality, quantity and timing of discharges into the wastewater collection system.
29. The licensee shall operate the WWTF in such a manner that:
  - a) all wastewater, septage and sludge transported to the development by means other than the wastewater collection system are transported in enclosed containers and in such a manner to prevent loss of wastewater, septage and sludge to the satisfaction of an environment officer;
  - b) only wastewater as defined in this licence is discharged into the WWTF; and
  - c) sludge removed from aerated cells 2 and 3 is land applied periodically as necessary and in accordance with the requirements of a licence or licences issued under The Environment Act so as to maintain effective and stable operation of the cells.
30. The licensee shall not spill, or allow to be spilled, wastewater and/or sludge in the area around the WWTF.
31. The licensee shall report and remediate spills and other accidental releases of wastewater, effluent and sludge in accordance with the requirements of clauses 17 and 18 of this licence.

#### **Operation – Maximum Depths in Wastewater Treatment Lagoon Cells**

32. The licensee shall maintain a minimum freeboard of 1.0 metres in all cells of the wastewater treatment lagoon and maximum depths of wastewater in each cell as follows:
  - a) Cells 1 - 3 (aerated): 4.3 m;
  - b) Cells 4, 5, 6 and 9 (effluent storage): 2.5 m;
  - c) Cells 7 and 8 (effluent storage): 1.5 m; and
  - d) Cell 10 (effluent storage): 2.1 m.

#### **Operation – Wastewater Treatment Lagoon Aerated Cells**

33. The licensee shall, when operating the aerated wastewater treatment cells of the wastewater treatment lagoon (cells 1 - 3 as identified in Schedule "A" of this licence) to treat wastewater flows at depths exceeding 1.5 metres, maintain a minimum of 2 milligrams of dissolved oxygen per litre in the liquid in the cell.

#### **Operation – Effluent Discharge**

34. The licensee shall not discharge effluent to Deadhorse Creek from the WWTF 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 or *E. coli* content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample, as determined by the monthly geometric mean of 1 grab sample collected at equal intervals on each of a minimum of 3 consecutive days per week;
- c) the total suspended solids content of the effluent, as indicated by the non-filterable residue, is in excess of 25 milligrams per litre;
- d) the total phosphorus is in excess of 1.0 milligram per litre, as determined by the thirty-day rolling average;
- e) the total nitrogen is in excess of 15 milligrams per litre, as determined by the thirty-day rolling average;
- f) the total ammonia content of the effluent of the WWTF expressed as total ammonia nitrogen (N) in milligrams per litre is in excess of the limit specified below:

Effluent pH	Effluent, Total Ammonia expressed as N (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

- g) prior to the commissioning of the WWTF, the unionized ammonia content of the effluent from the cells of the wastewater treatment lagoon is in excess of 1.25 milligrams per litre expressed as nitrogen (N), at 15°C ±1°C;
- h) the total dissolved solids content of the effluent is in excess of 1,165 milligrams per litre;
- i) the chloride content of the effluent is in excess of 120 milligrams per litre;

- j) when freezing conditions are occurring on the discharge route;
- k) when flooding from any cause is occurring along the discharge route; or
- l) when the discharge of effluent will cause or contribute to flooding in or along the discharge route.

Subclauses c), e), f), h) and i) apply after commissioning of the WWTF of the development. Before commissioning of the WWTF, subclause c) applies unless the exceedance is caused by algae.

Subclauses h) and i) may be reviewed on request by the licensee within three years of the date of this licence, in consideration of the finalized operation of the licensee's water treatment plant, the licensee's evaluation of alternatives for the disposal of reject water from the water treatment plant, the quality of wastewater mixed with extraneous flows into the wastewater collection system and the results of monitoring on the effects of effluent on Deadhorse Creek.

35. The licensee shall not release a quality of effluent from the wastewater treatment plant or the wastewater treatment lagoon which:
- a) on any day, causes, or contributes to, the mixing zone for the effluent in Deadhorse Creek being acutely lethal to aquatic life passing through the mixing zone; or
  - b) can be demonstrated to be acutely lethal to fish within the mixing zone for the effluent in Deadhorse Creek by using a 96-hour static acute lethality test which results in mortality to more than 50 percent of the test fish exposed to 100 percent concentration of effluent, with the test carried out in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout: EPS 1/RM/13 Second Edition – December 2000" or any future amendment.

### **Operation - Disinfection**

36. The licensee shall, if UV disinfection is employed to meet the coliform requirements of clause 34 b) of this licence, have adequate instrumentation installed to provide constant monitoring of the UV process to ensure compliance with the UV 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.
37. The licensee shall, if UV disinfection is employed, utilize UV lamps in the UV disinfection process 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.
38. The licensee shall, if UV disinfection is employed, operate and maintain the UV disinfection system to give a germicidal dose of 80% or more of the design UV germicidal dose, at the end of the lamp life.

39. The licensee shall, if chlorine is used as a disinfecting agent:
- a) notify the director in advance;
  - b) dechlorinate effluent prior to discharge;
  - c) obtain grab samples prior to and daily during the discharge period and have them analyzed for total residual chlorine; and
  - d) not discharge effluent where the concentration of the total residual chlorine is in excess of 0.02 milligrams per litre.

### **MONITORING AND REPORTING SPECIFICATIONS**

40. The licensee 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) 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.
41. The licensee shall monitor, and make the records of such monitoring available to the environment officer as may be requested, the wastewater treatment process for the following parameters:
- a) total flow rate(s) into Cell 1 of the WWTF, as determined by the sum of flows in wastewater lift stations delivering wastewater to the WWTF;
  - b) flow rate(s) from the WWTF into Deadhorse Creek; and
  - c) other process parameters approved or required by the director or environment officer.
42. The licensee shall:
- a) inspect the operation of the aeration system blowers once each week;
  - b) annually inspect the aeration system and make any necessary repairs at least once each year;
  - c) maintain a record of aeration system inspection dates, observations, maintenance and repairs completed; and
  - d) make the record of aeration system inspection dates, observations, maintenance and repairs completed available to the environment officer upon request.
43. The licensee shall maintain records of the aeration system operation and/or maintenance requirements including, but not limited to, the aeration system pumps daily elapsed time and make these records available to the environment officer on request.
44. The licensee shall:
- a) construct, maintain, and make available for use by an environment officer, a secured monitoring station, allowing direct access to the WWTF effluent lift station;
  - b) have the monitoring station accessible to an environment officer at all times;
  - c) install and maintain a flow measuring device at the monitoring station capable of measuring the volume of effluent with an accuracy of  $\pm 2$  percent;

- d) have the flow measuring device re-calibrated biannually or on the request of an environment officer;
- e) equip the 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; and
- f) equip the monitoring station with an electrical power source of 15 amperes at 110 volts.

45. The environment officer shall approve the sampling location for the effluent.

### **Effluent Monitoring**

46. The licensee shall:

- a) take one flow proportional composite sample of effluent from the WWTF effluent monitoring station over a 24-hour period once each week when the WWTF is discharging to Deadhorse Creek;
- b) have the flow proportional composite effluent sample analyzed for:
  - i) five-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>);
  - ii) total suspended solids;
  - iii) unionized ammonia;
  - iv) total ammonia;
  - v) total nitrogen;
  - vi) total phosphorus;
  - vii) total dissolved solids;
  - viii) chloride;
  - ix) pH; and
  - x) temperature;
- c) take three daily grab samples on consecutive days of the effluent from the effluent monitoring station during the discharge period once each week;
- d) have the grab samples analyzed for fecal coliform content or *E. coli*; and
- e) determine and record the monthly geometric mean for the fecal coliform or *E. coli* counts based on all the data collected during each month, from a minimum of twelve (12) grab samples.

47. The licensee shall, prior to the commissioning of the WWTF and prior to each discharge of effluent from effluent storage cells of the wastewater treatment lagoon, obtain grab samples of the treated wastewater and have them analyzed for:

- a) five-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>);
- b) fecal coliform or *E. coli*;
- c) total suspended solids;
- d) unionized ammonia;
- e) total nitrogen;
- f) total phosphorus;
- g) total dissolved solids;
- h) chloride;
- i) pH; and
- j) temperature.

48. The licensee shall, during the first year of operation of the development following the commissioning of the WWTF, obtain grab samples of the effluent from the WWTF, have them analyzed and report the results in accordance with Schedule "B" attached to this licence.
49. The licensee shall, for a period of three years commencing with the commissioning of the WWTF, monitor water quality in Deadhorse Creek in the spring and fall of each year at locations approved by the environment officer upstream and downstream of the discharge point of the development into Deadhorse Creek, and report the monitoring in accordance with the requirements of clause 51 of this licence. The monitoring shall include the following:
  - a) total nitrogen;
  - b) total phosphorus;
  - c) total ammonia;
  - d) pH;
  - e) temperature;
  - f) total Kjeldahl nitrogen;
  - g) total suspended solids;
  - h) total dissolved solids; and
  - i) chloride.

#### **Respecting Acute Lethality**

50. The licensee shall:
  - a) take two flow proportional composite samples of effluent from the WWTF effluent monitoring station when discharging to Deadhorse Creek over a 24 hour period every three months each year with a minimum separation time of 90 days between samples;
  - b) have one bioassay sample of the effluent analyzed at 100 percent concentration for acute lethality in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout: EPS 1/RM/13 Second Edition – December 2000", or any future amendment thereof;
  - c) have one sample of the effluent analyzed for chronic toxicity in accordance with a method approved by the director; and
  - d) report the results to the director within 30 days of the end of the month during which the samples were taken.

#### **Records Maintenance and Reporting**

51. The licensee shall during each year maintain the following records and retain them for a minimum period of five calendar years:
  - a) reports of visual inspections conducted at a minimum of once per month;
  - b) wastewater sample dates;
  - c) original copies of laboratory analytical results of the sampled wastewater;
  - d) a summary of laboratory analytical results;
  - e) cell isolation dates (i.e., valve operation records);
  - f) effluent discharge dates;
  - g) monthly effluent discharge volumes from the WWTF;
  - h) maintenance and repairs;

- i) expansions to the wastewater collection system with associated capacity assessment;
  - j) updated organization charts identifying all certified operators, including backup operators; and
  - k) a summary of any sanitary sewer overflows.
52. The licensee shall submit an annual report to the environment officer by February 28 of the following year including all records required by clause 51 of this Licence.

### **Operating Depth and Freeboard Non-Compliance Events**

53. The licensee shall immediately notify the director each time the operating depth of any cell of the wastewater treatment lagoon does not comply with the maximum operating depth and minimum freeboard requirements for that cell as specified in clause 32 of this licence.
54. The licensee shall, if reporting is required under clause 53 of this licence in two consecutive years:
- a) engage the services of a qualified consultant, acceptable to the director, to undertake an investigation of the cells of the wastewater treatment lagoon and related infrastructure, to determine the ability or inability of the existing system to meet the hydraulic loading capacity of the community. The investigation shall include but not be necessarily limited to:
    - i) diagnosis of the cause(s) of the recent exceedances of maximum operating depth;
    - ii) sources of infiltration into the wastewater system including the municipal infrastructure;
    - iii) current hydraulic loading of the system;
    - iv) lack of storage capacity due to sludge build-up within existing cells;
    - v) the organic loading on any cell in terms of the five day biochemical oxygen demand; and
    - vi) operating procedures.
  - b) provide to the director, within four months of the notification given under clause 53 of this licence, an engineering report describing in detail the results and observations concluded by virtue of the investigation; and
  - c) provide to the director, within four months of the report provided under sub-clause b) of this section, a remedial action plan in the form of a detailed engineering report describing recommended modifications, repairs or upgrading works to overcome excessive hydraulic loading of the system.

### **Soil Liner Sampling, Testing and Reporting**

55. The licensee shall arrange with the designated environment officer of the approvals branch 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, unless otherwise approved by the environment officer.
56. The licensee shall take and test undisturbed soil samples, in accordance with Schedule "C" attached to this licence, from the soil liners of the wastewater treatment lagoon cells of the lagoon; the number and location of samples and test methods to be specified by the designated environment officer of the approvals branch up to a maximum of 20 samples.



57. The licensee shall, not less than 2 weeks before the operation of any cell of the wastewater treatment lagoon for which soil sampling has been required, submit for the approval of the environment officer of the approvals branch the results of the tests carried out under clause 56 of this licence.

### **Record Drawings**

58. The licensee shall:
- a) prepare "record drawings" for the development and shall label the drawings "record drawings"; and
  - b) provide to the director, within six months of commissioning the WWTF, an electronic set of "record drawings" of the development.

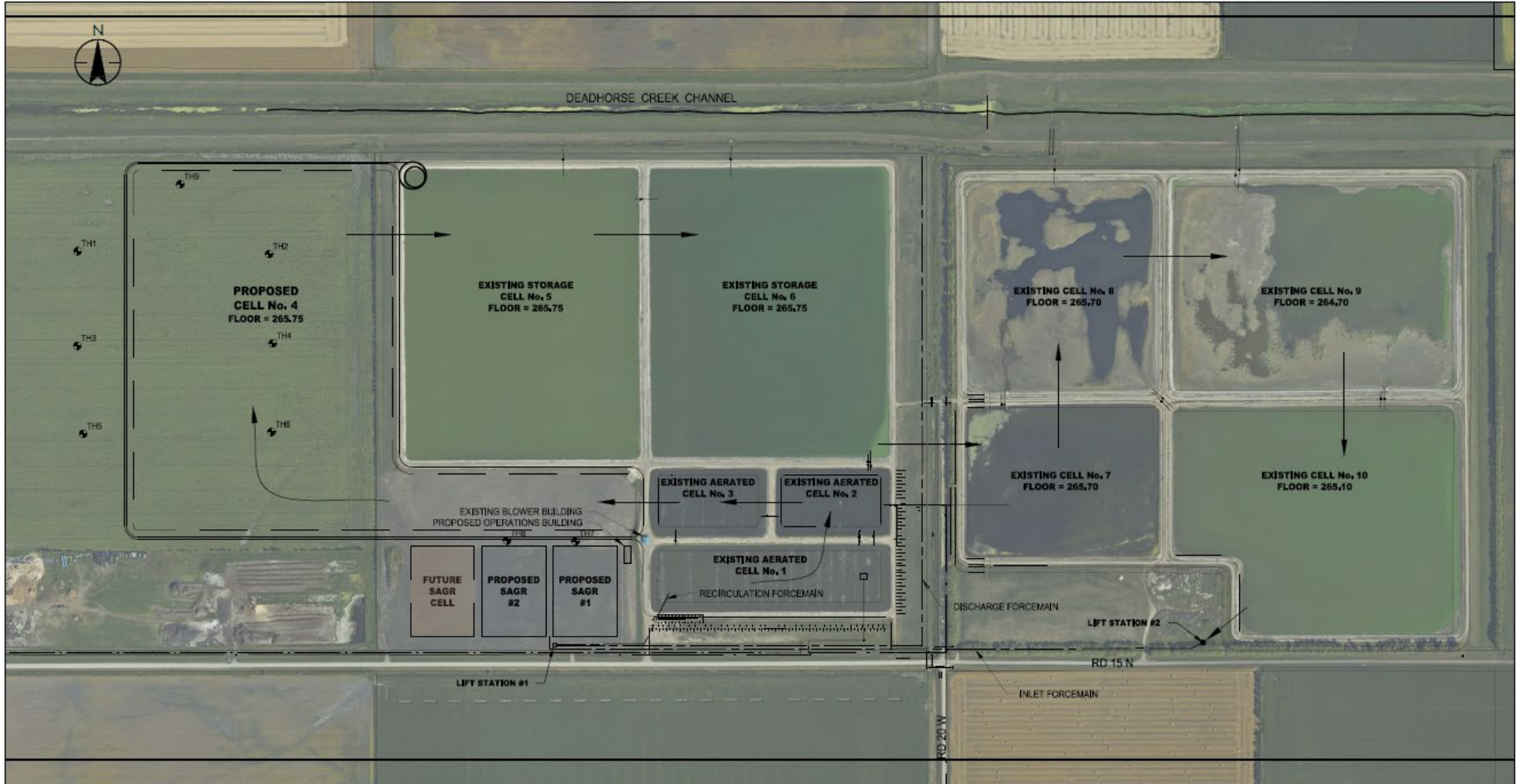
### **REVIEW AND REVOCATION**

- A. Licence No. 2525 R is hereby rescinded.
- B. If, in the opinion of the director, the licensee 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 under section 11 of The Environment Act.

Original Signed By

Siobhan Burland Ross  
Director  
The Environment Act

**Schedule "A" to Environment Act Licence No. 2525 RR**



## Schedule "B" to Environment Act Licence No. 2525 RR

### Initial Characterization of Wastewater from the Wastewater Treatment Facility Under Clause 48

Facility Size: Medium (greater than 2,500 m<sup>3</sup>/day but less than 17,500 m<sup>3</sup>/day)

Facility Type: Sewage Treatment Plant - Continuous discharge

#### Effluent Sampling:

During the first year of operation:

1. a grab sample shall be collected every two weeks;
2. a grab sample shall be collected on a quarterly basis; and
3. a grab sample shall be collected on a daily basis, if chlorine is used.

#### Effluent Analysis:

1. Have the bi-weekly sample analyzed for:
  - a) the organic content as indicated by the five-day biochemical oxygen demand and expressed as milligrams per litre;
  - b) the organic content as indicated by the five-day carbonaceous biochemical oxygen demand and expressed as milligrams per litre;
  - c) the total suspended solids content expressed as milligrams per litre;
  - d) the *Escherichia coli* (*E. Coli*) content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
  - e) the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
  - f) the total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
  - g) total ammonia nitrogen expressed as milligrams per litre;
  - h) nitrate-nitrite nitrogen expressed as milligrams per litre;
  - i) total Kjeldahl nitrogen, TKN ( ammonia + organic N) expressed as milligrams per litre;
  - j) dissolved phosphorus expressed as milligrams per litre;
  - k) total phosphorus expressed as milligrams per litre;
  - l) temperature; and
  - m) pH.
2. Have the quarterly sample analyzed for:
  - a) fluoride;
  - b) nitrate;
  - c) nitrate + nitrite;
  - d) total extractable metals and metal hydrides (full range);
  - e) chemical oxygen demand (COD);
  - f) organochlorine pesticides;
  - g) polychlorinated biphenyls (PCBs);
  - h) polycyclic aromatic hydrocarbon (PAHs);
  - i) cyanide (total);
  - j) pH;
  - k) volatile organic compounds;
  - l) mercury;
  - m) phenolic compounds;

**Schedule "B" to Environment Act Licence No. 2525 RR – cont'd**

- n) surfactants;
- o) acute toxicity; and
- p) chronic toxicity.

3. Have the daily sample analyzed for total residual chlorine (TRC), if required.

**Effluent Reporting:**

1. Report the results to the Director, in writing and in an electronic format acceptable to the Director, within 60 days of the sampling date. The report shall include the sampling date, sample temperature, the dates of the effluent discharge, and copies of the laboratory analytical results of the sampled effluent.

## **Schedule "C" to Environment Act Licence No. 2525 RR**

### Soil Sampling and Testing Under Clause 56

#### Soil Sampling:

1. The licensee shall provide a drilling rig, acceptable to the designated environment officer, to extract soil samples from the liner which is not placed or found at the surface of the lagoon structure. This includes all wastewater treatment lagoons constructed with clay cutoffs at the interior base of the dyke or with a clay cutoff in the centre of the dyke. The drill rig shall have the capacity to drill to the maximum depth of the clay cutoff plus an additional 2 metres. The drill rig shall be equipped with both standard and hollow stem augers. The minimum hole diameter shall be 5 inches.
2. For lagoon liners placed or found at the surface of the lagoon structure, the licensee 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. Soil 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 licensee as to the soil testing method that must be used on each sample. The oedometer method may be used for a sample were 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 and weathered soils.
5. The licensee shall provide a report on the collection of soil samples to the designated environment officer and to the laboratory technician which includes but is not limited to: a plot plan indicating 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.

## **Schedule "C" to Environment Act Licence No. 2525 RR – cont'd**

### **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 which 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, whichever is greater.
  - c) The 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 which 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) The complete laboratory report, as outlined in ASTM D 2435, shall be supplied for each soil sample collected in the field.