Manitoba
Environment, Climate and Parks
Environmental Approvals Branch
1007 Century Street, Winnipeg MB R3H 0W4
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www.manitoba.ca

File No.: 112.20

December 7, 2022

Marc Darker
Chief Administrative Officer
Town of Ste. Anne
14 Centrale Avenue, Ste. Anne MB R5H 1B5
town@steanne.ca

Dear Marc Darker:

Re: Town of Ste. Anne - Wastewater Treatment Lagoon Upgrade - Environment Act Licence No. 739 R

Please find Environment Act Licence No. 739 R enclosed. The licence allows the Town of Ste. Anne to upgrade its wastewater treatment lagoon and land application of biosolids from the present facility.

The town must run the facility according to all licence requirements and federal, provincial, and municipal regulations and by-laws. The town must have approval from a director under The Environment Act to alter the development as licensed.

If you have any questions about this approval, please contact Allan Cyrenne, Acting Regional Supervisor, Environmental Compliance and Enforcement at EnvCEEastern@gov.mb.ca or 204-485-6410. For clauses 22-25, the environment officer of the approvals branch is Bruce Webb, at Bruce.Webb@gov.mb.ca or 204-945-7021.

Any person affected by the issuance of this licence may appeal this decision to the Minister of Environment, Climate and Parks. Appeals may be submitted in writing to the Minister at minecp@leg.gov.mb.ca by January 6, 2023.

Sincerely,

Original Signed By

James Capotosto
Director

Enclosure

c. Jeff Dyck
Allan Cyrenne
Bruce Webb
Public Registry

THE ENVIRONMENT ACT
LOI SUR L'ENVIRONNEMENT

Manitoba

LICENCE

File No.: 112.20

Licence No. / Licence n°: 739 R
Issue Date / Date de délivrance : July 27, 1977
Revised : December 7, 2022

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 section 11(1) / Conformément au paragraphe 11(1)

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

TOWN OF STE. ANNE; "the licensee"

for the construction and operation of the development being a wastewater collection system and a wastewater treatment lagoon with a hydraulic storage capacity of 291,600 cubic metres (1,590 cubic metres per day) located on portions of RL 20 to 23, Parish of Ste. Anne, in the Rural Municipality of Ste. Anne, as shown in Figure 1 attached to this licence, with treated effluent to be discharged to the Seine River Diversion, in accordance with the proposal filed under The Environment Act dated March 19, 2019, and additional information dated August 30, 2022, 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, Climate and Parks 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;

"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, Climate and Parks, 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;

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

"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-side trench filled with compacted clay or a sand and bentonite mixture or a wall constructed from compacted clay;

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

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

"effluent" means wastewater flowing or pumped out of the wastewater treatment lagoon;

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

"fecal coliform" means aerobic and facultative, Gram-negative, non-spore-forming, rod-shaped bacteria capable of growth at 44.5 ^{O}C, and associated with fecal matter of warm-blooded animals;

"five-day biochemical oxygen demand (BOD_5)" means that part of the oxygen demand usually associated with biochemical oxidation of organic matter within 5 days at a temperature of 20^{O}C;

"five-day carbonaceous biochemical oxygen demand ($CBOD_5$)" 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 obtained at a given place and time;

"high water mark" means the line on the interior surface of the aerated and storage cells 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;

"low water mark" means the line on the interior surface of the storage cells which is normally reached when the cell is discharged;

"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";

"MPN Index" means the most probable number of coliform organisms in a given volume of wastewater which, in accordance with statistical theory, would yield the observed test result with the greatest frequency;

"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;

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

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

"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;

"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 and retains the wastewater 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;

"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, industrial and process wastewater;

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

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

"WWTF" means wastewater treatment facility.

GENERAL TERMS AND CONDITIONS

This section of the licence contains requirements intended to provide guidance to the licensee in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. The 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. In addition to any of the limits, terms and conditions specified in this licence, the licensee 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.

3. The licensee 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 file number associated with this licence.

4. The licensee shall direct all wastewater generated within the Town of Ste. Anne toward the WWTF or other approved wastewater treatment facilities.

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 and/or nutrient reduction program, approved by the director, for the Seine River Diversion, Red River, and associated waterways and watersheds.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Construction - General

8. The licensee shall notify the assigned environment officer not less than two weeks prior to beginning construction of the development. The notification shall include the intended starting date of construction and the name of the contractor responsible for the construction.

9. 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.

10. 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 requirements of the Storage and Handling of Petroleum Products and Allied Products Regulation, or any future amendment thereof.

11. The licensee shall dispose of non-reusable construction debris from the development at a waste disposal ground operating under the authority of a permit issued pursuant to the Waste Management Facilities Regulation, or any future amendment thereof, or a licence issued pursuant to The Environment Act.

12. The licensee shall, during construction 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 wastewater treatment lagoon, the discharge route and associated watercourses, and have an emergency spill kit for in-water use available on site during construction.

13. 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 Aquatic Invasive Species Regulation, or any future amendment thereof.

14. 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 the WWTF or wastewater collection system during periods of heavy rain;
    c) place and/or isolate all dredged 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.

15. 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 Manitoba Environment, Climate and Parks' 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, estimated volume and estimated duration of the event and the reason for the event.

16. The licensee shall, following the reporting of an event pursuant to Clause 15:
    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.

17. The licensee shall install and maintain a fence around the WWTF to limit 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.

18. The licensee shall construct and maintain an all-weather access road and a wastewater dumping station for truck-hauled wastewater. The dumping facility shall have a surface splash ramp with a smooth hard surface that can be easily washed free of solids.

Construction – Clay Liner

19. The licensee shall, prior to the construction of the dykes for the wastewater treatment lagoon, remove all organic material from the area where the wastewater treatment lagoon will be constructed.

20. The licensee shall construct and maintain the wastewater treatment lagoon with a continuous liner, including cut-offs, under all interior surfaces of the cells in accordance with the following specifications:
    a) the liner shall be made of clay;
    b) the liner shall be at least 1.0 metre in thickness;
    c) the liner shall have a hydraulic conductivity of 1.0×10^{-7} centimetres per second or less at all locations; and
    d) the liner shall be constructed to an elevation of not less than 1.0 metre above the operating depth of each cell in the wastewater treatment lagoon as specified in clause 21 of this licence.

21. The licensee shall construct and maintain the continuous liner of all 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 exterior dykes shall be:
    a) partial mix cell (aerated): 3.19 metres;
    b) settling cell: 4.3 metres;
    c) existing storage cell: 3.22 metres; and
    d) new storage cell (aerated) 4.3 metres.

22. 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 of the approvals branch.

23. The licensee shall take and test undisturbed soil samples, in accordance with Schedule "A" attached to this licence, from the liner of the wastewater treatment 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.

24. The licensee shall, not less than 2 weeks before the wastewater treatment lagoon is placed in operation, submit for the approval of the environment officer of the approvals branch the results of the tests carried out pursuant to clause 23 of this licence.

Record Drawings

25. The licensee shall:
    a) prepare "record drawings" for the development and shall label the drawings "Record Drawings"; and
    b) provide to the director, within four months of the environment officer's approval of the report required by clause 24 of this licence, an electronic copy of the "record drawings".

Maintenance

26. The licensee shall, if in the opinion of the environment officer, significant erosion of the interior surfaces of the dykes occurs, repair the dyke 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.

27. 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.

28. 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.

29. The licensee shall implement an ongoing program to remove burrowing animals from the site of the wastewater treatment lagoon.

Biosolids Application

30. The licensee shall, during all biosolids land application activities, comply with the requirements of the Nutrient Management Regulation or any future amendment thereof.

31. The licensee shall dispose of biosolids from the existing cells of the wastewater treatment lagoon by land application on the parcels identified in Appendix D of the proposal, and maintain an agreement for this purpose with the owner(s) of the land for the duration of the application program and follow-up soil monitoring.

32. The licensee shall notify the assigned environment officer not less than two weeks prior to beginning any biosolids land application activities. The notification shall include the intended starting date of application and the name of the contractor responsible for the application.

33. The licensee shall:
    a) apply biosolids to the identified agricultural land by incorporating it into the soil a minimum of 15 centimetres below the soil surface within 48 hours of application; and
    b) complete the incorporation of the biosolids such that it is acceptable to an environment officer.

34. The licensee shall apply biosolids such that the amounts of residual nitrate-nitrogen in the 0 - 60 centimetres soil depth and Olsen-P phosphorus in the 0 - 1 centimetres soil depth do not exceed the limits of the most limiting Nutrient Management Zone, regardless of size, set forth in the Nutrient Management Regulation or any future amendment thereof. Testing of biosolids and soil shall be in accordance with Schedule “B” of this licence.

35. The licensee shall not apply biosolids:
    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 biosolids are to be applied);
    d) less than 400 metres from a residential area;
    e) less than 8 metres from a major wetland, bog, marsh or swamp;
    f) less than 15 metres from a first order waterway;
    g) less than 30 metres from a second, third or fourth order waterway and less than 90 metres from any other waterway;
    h) less than 50 metres from any groundwater well; or
    i) on land that is subject to flooding.

36. The licensee shall not allow cattle to pasture on land on which biosolids have been applied, for a period of three years from the date of application of the biosolids. This requirement shall be included in any agreement between the licensee and the landowner.

37. The licensee shall, on all agricultural land onto which biosolids 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 biosolids:
    a) a cereal crop;
    b) a forage crop;
    c) an oil seed crop;
    d) field peas;
    e) lentils; or
    f) soybeans.

This requirement shall be included in any agreement between the licensee and the landowner.

38. The licensee shall apply biosolids 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 biosolids applied to the background level of the same metal, does not exceed the following levels: *

Metal	Kilogram per Hectare
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 shall be carried out in accordance with Schedule "C" of this licence.

Operation - General

39. The licensee shall obtain and maintain classification of the development pursuant to the Water and Wastewater Facility Operators Regulation or any future amendment thereof 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.

40. The licensee shall carry out the operation of the development with individuals properly certified to do so pursuant to the Water and Wastewater Facility Operators Regulation or any future amendment thereof. In the event that the development is reclassified pursuant to the regulation, the licensee shall provide a development plan to the director to have certified operator(s) upgrade their certification.

Operation – Loading and Aeration

41. The licensee shall operate and maintain the WWTF in such a manner that the organic loading, as indicated by the five-day biochemical oxygen demand, is not in excess of 428 kilograms per day;

42. The licensee shall maintain a minimum freeboard depth of 1.0 metres in all cells of the wastewater treatment lagoon. Maximum depths of wastewater in cells are as follows:
    a) partial mix cell (aerated): 2.19 metres;
    b) settling cell: 3.3 metres;
    c) existing storage cell: 2.22 metres; and
    d) new storage cell (aerated): 3.3 metres.

43. The licensee shall when operating the aerated wastewater treatment cells of the WWTF, maintain a minimum of 2 milligrams per litre of dissolved oxygen in the liquid of the cells.

Operation – Effluent Discharge

44. The licensee shall not discharge effluent to the Seine River Diversion from the WWTF where:

a) the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand ($CBOD_5$), 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, unless the exceedance is in the cells of the wastewater treatment lagoon and is caused by algae;
d) the total phosphorus is in excess of 1.0 milligram per litre, as determined by the thirty-day rolling average;
e) 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 limits specified below:
    i) May: 11.58 kg/day
    ii) June 1 – 15: 5.51 kg/day
    iii) Remainder of open water discharge period: as 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

f) prior to the commissioning of the WWTF, the unionized ammonia content of the effluent from the storage cell of the wastewater treatment lagoon is in excess of 1.25 milligrams per litre expressed as nitrogen (N), at 15°C ±1°C;
g) when freezing conditions are occurring on the discharge route;
h) when flooding from any cause is occurring along the discharge route; or
i) when the discharge of effluent will cause or contribute to flooding in or along the discharge route.

Subclause e) applies after commissioning of the WWTF of the development. Prior to the commissioning of the WWTF, effluent shall not be discharged between November 1 of any year and May 15 of the following year.

45. The licensee shall not release a quality of effluent from the WWTF which:
    a) on any day, causes, or contributes to, the mixing zone for the effluent in the Seine River Diversion 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 the Seine River Diversion 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 thereof.

Operation – Disinfection

46. The licensee shall, when UV disinfection is employed, 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.

47. The licensee shall, when 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.

48. The licensee shall, when 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.

49. The licensee shall, when chlorine is used as a disinfecting agent:
    a) notify the environment officer 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

50. The licensee 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 electronic format acceptable to the director, within 60 days of the samples being taken.

Operational Monitoring

51. 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) flow rate into the WWTF;
    b) flow rate from the WWTF into the Seine River Diversion; and
    c) other process parameters approved or required by the director or environment officer.

52. 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.

53. 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.

Effluent Monitoring

54. The licensee shall:
    a) construct, maintain, and make available for use by an environment officer, a secured and heated monitoring station, allowing direct access to the WWTF effluent discharge pipe following UV disinfection;
    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 or at a location acceptable to the director which is capable of measuring the volume of effluent with an accuracy of ± 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.

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

55. 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 the Seine River Diversion;
    b) have the flow proportional composite effluent sample analyzed for:
        i) five-day carbonaceous biochemical oxygen demand ($CBOD_5$);
        ii) total suspended solids;
        iii) unionized ammonia;
        iv) total ammonia;
        v) total nitrogen;
        vi) total phosphorus;
        vii) pH; and
        viii) 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.

56. The licensee shall, prior to the commissioning of the WWTF and prior to each discharge of effluent from the effluent storage cell of the existing wastewater treatment lagoon, obtain grab samples of the treated wastewater and have them analyzed for:
    a) five-day carbonaceous biochemical oxygen demand ($CBOD_5$);
    b) fecal coliform or *E. coli*;
    c) total suspended solids;
    d) unionized ammonia;
    e) total phosphorus;
    f) pH; and
    g) temperature.

57. 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 at times when it is discharging to the Seine River Diversion, have them analyzed and report the results in accordance with Schedule “D” attached to this licence.

58. The licensee shall, for a period of three years commencing with the commissioning of the WWTF of the development, monitor water quality in the Seine River Diversion 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 the Seine River Diversion, and report the monitoring in accordance with the requirements of clauses 62 and 63 of this licence. The monitoring shall include the following:
    a) total phosphorus;
    b) total ammonia;

c) pH;
d) temperature;
e) total Kjeldahl nitrogen; and
f) total suspended solids.

Acute Lethality

59. The licensee shall:
    a) take two flow proportional composite samples of effluent from the WWTF effluent monitoring station 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; and
    c) report the results to the director within 30 days of the end of the month during which the samples were taken.

Operating Depth and Freeboard Non-Compliance Events

60. 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 42 of this licence.

61. The licensee shall, if reporting is required pursuant to clause 60 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 wastewater treatment lagoon and related infrastructure, to determine the ability or inability of the existing system to meet the hydraulic loading capacity of the serviced area. 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 wastewater collection system;
        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 the primary 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 pursuant to clause 36 of this licence, an engineering report describing in detail the results and observations concluded by the investigation; and
    c) provide to the director, within four months of the report provided pursuant to 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.

Records Maintenance and Reporting

62. 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 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 wastewater collection system overflows.

63. The licensee shall submit an annual report to the environment officer by February 28 of the following year including all records required by clause 62 of this licence.

Alterations

64. The licensee shall notify the director and receive the approval of the director for any alterations to the development as licensed, prior to proceeding with such alterations.

REVIEW AND REVOCATION

A. Environment Act Licence No. 739 is hereby rescinded.

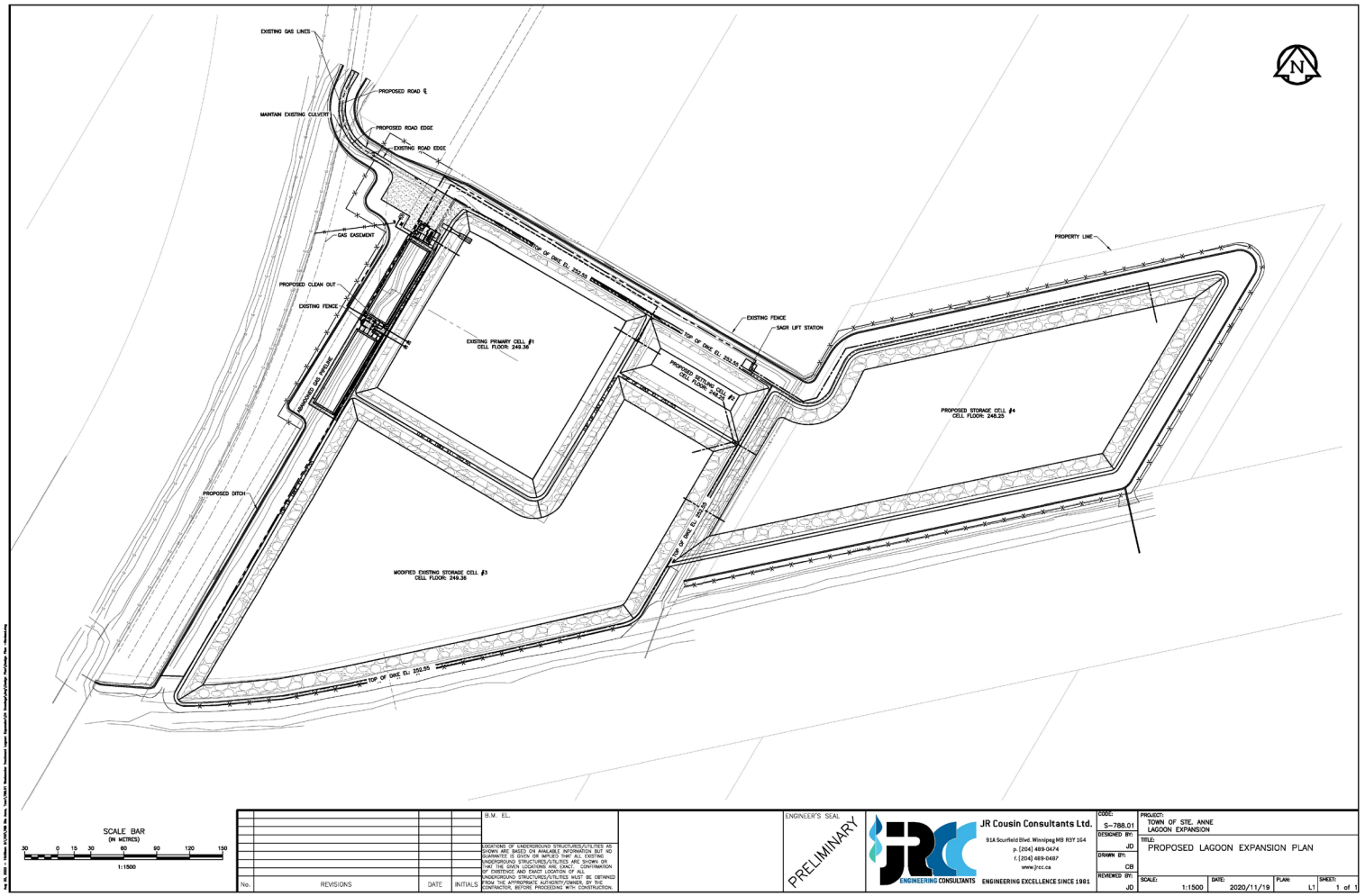
B. If, in the opinion of the director, the licensee has exceeded or is exceeding or has failed or is failing to meet the specifications, limits, terms, or conditions set out in this licence, the director may, temporarily or permanently, revoke this licence.

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 or request the filing of a Notice of Alteration.

Original Signed By

James Capotosto
Director

Figure 1 to Environment Act Licence No. 739 R



Schedule "A" to Environment Act Licence No. 739 R

Liner Sampling and Testing Requirements Pursuant to Clause 23.

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 where the environment officer determines that the soil sample is taken from an undisturbed clay soil which has not been remoulded and which is homogeneous and unweathered. The triaxial test shall be used for all samples taken from disturbed and remoulded soils or from non homogenous 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 the following: a plot plan indicating all drill holes, onsite visual observations, sample location, depth or elevation of sample, length of advance of the sample tube, length of soil sample contained in the tube after its advancement, the soil test method specified by the environment officer for each soil sample and all necessary instructions from the site engineer to the laboratory technician.

6. All drill and sample holes shall be sealed with bentonite pellets after the field drilling and sampling has been completed.

Schedule "A" to Environment Act Licence No. 739 R (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 were 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.

Schedule "B" to Environment Act Licence No. 739 R

Biosolids and Soil Sampling Requirements Pursuant to Clause 34

Biosolids

A representative sample of biosolids shall be collected from each cell from which biosolids will be removed for land application. A representative sample of biosolids from each cell shall be a composite of biosolids samples taken from a minimum of 5 locations distributed over the area of that cell.

1. The sample of biosolids shall be analyzed for the following parameters:*

a.	conductivity	j.	lead
b.	pH	k.	mercury
c.	total solids	l.	nickel
d.	volatile solids	m.	potassium
e.	nitrate nitrogen	n.	cadmium
f.	total Kjeldahl nitrogen	o.	copper
g.	ammonia nitrogen	p.	zinc
h.	organic nitrogen	q.	chromium
i.	total phosphorus	r.	arsenic

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

Soil

1. Composite samples from each field onto which biosolids will be applied shall be taken prior to application of biosolids. 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 to 15 centimetres shall be analyzed for the following: *

a.	pH	g.	cadmium
b.	potassium	h.	chromium
c.	nickel	i.	copper
d.	mercury	j.	lead
e.	zinc	k.	arsenic
f.	sodium bicarbonate extractable phosphorus, as P		

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

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

Schedule "B" to Environment Act Licence No. 739 R (cont'd)

Crops

1. The type of crop grown on lands on which biosolids 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 biosolids.

Schedule "C" to Environment Act Licence No. 739 R

Metals Analysis Requirements Pursuant to Clause 38

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

1. The laboratory performing these analyses shall:
   a) possess and maintain accreditation with the Canadian Association for Laboratories Accreditation Inc. (CALA) and/or the Standards Council of Canada (SCC);
   b) operate a quality assurance program acceptable to the assigned environment officer;
   c) monitor the accuracy of the sludge and soil analyses for each set of ten or less samples of sludge or soil through the use of a suitable reference material acceptable to the assigned environment officer; and
   d) analyze field duplicates of samples 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.

2. A copy of the analytical procedures and the analytical results for associated reference materials used in the laboratory, and any other controls used in the analysis, shall be submitted with the field sample results.

3. If the analytical results of any associated 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 µg/g)
- Cadmium	± 35 percent from the reference value (for values below 1 µg/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

Schedule "D" to Environment Act Licence No. 739 R

Initial Characterization of Wastewater Pursuant to Clause 57

Facility Size: Small (500 - 2500 m^3/day)
Facility Type: Facultative wastewater treatment lagoon – intermittent discharge

Effluent Sampling:

During the first year of operation:

1. Obtain a representative grab sample of the discharging effluent near the beginning of the discharge period and near the end of the discharge period (i.e., two samples for each discharge event);
2. Obtain a representative grab sample of the discharging effluent on a quarterly basis for each quarter there was effluent discharged; and
3. Determine the temperature of each sample at the time of sampling.

Effluent Analysis:

1. Have the discharge period grab samples 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) if chlorine was used as a disinfecting agent, total residual chlorine expressed as milligrams per litre;
    h) total ammonia nitrogen expressed as milligrams per litre;
    i) nitrate-nitrite nitrogen expressed as milligrams per litre;
    j) total Kjeldahl nitrogen (TKN) expressed as milligrams per litre;
    k) dissolved phosphorus expressed as milligrams per litre;
    l) total phosphorus expressed as milligrams per litre;
    m) temperature; and
    n) pH.
2. Have the quarterly grab samples analyzed for:
    a) acute toxicity; and
    b) chronic toxicity.

Effluent Reporting:

1. For each grab sample, report the results to the director, in writing or 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.