

Sustainable Development

Environmental Stewardship Division
Environmental Approvals Branch
1007 Century Street, Winnipeg Manitoba R3H 0W4
T 204 945-8321 F 204-945-5229
www.gov.mb.ca/sd/eal

Client File No. 1069.10

October 22, 2018

Mr. Chris Carroll, P.Eng., MBA
Manager of Wastewater Services Division
City of Winnipeg
110-1199 Pacific Avenue
Winnipeg, MB R3E 1G5

Dear Mr. Carroll:

Re: Notice of Alteration Approval - City of Winnipeg South End Water Pollution Control Centre (SEWPCC) - Environment Act Licence No. 2716 RR

Receipt of your letter dated December 28, 2017, a Notice of Alteration form received on January 3, 2018, and a supporting technical memorandum dated December 7, 2017 is hereby acknowledged as a Notice of Alteration in accordance with Section 14 of The Environment Act.

The intent of your Notice of Alteration request is to remove Clause 20 from Environment Act Licence No. 2716 RR ("Licence"). Clause 19 of the Licence requires the following: implementing an approved leak detection program for new and existing pipes which transport wastewater via river crossings; measuring and recording the data gathered by the leak detection program; and repairing and/or replacing all portions of the existing piping where leaks are detected in accordance with the Licence. Since April 18, 2012, Clause 20 of the Licence requires construction and maintenance of a sleeve encasement around new pipes which transport wastewater via river crossings.

The Notice of Alteration proposed to install new river crossings following a trenchless method (that is, micro tunnel boring methods or horizontal direction drilling method) without any sleeve encasement around the piping and the new crossings are proposed to be installed in bedrock strata in order to provide an additional barrier from the river following the established Fisheries and Oceans Canada guidelines and protocol. In addition, it was proposed to continue routine condition assessments at prescribed intervals in accordance with CSA Z662 and continuous monitoring of all river crossings for their hydrostatic integrity between the condition assessments cycles.

Upon review of the Notice of Alteration request, I am satisfied that the identified change in the environmental effects as would result from the proposed alteration to Clause 20 of the Licence will be insignificant. Therefore, pursuant to Section 14(2) of The Environment Act, I hereby amend Clauses 19 and 20 of the Licence as follows:

- Clause 19:

The Licencee shall:

- a) continuously monitor and record the data gathered by the continuous hydrostatic integrity monitoring of all pipes which transport wastewater via river crossings;
- b) monitor and record the systematic condition assessment of all pipes which transport wastewater via river crossings, and of the river bank stability and riverbed erosion at an interval proposed in the technical memorandum dated December 7, 2017 or otherwise approved by the Director;
- c) repair and/or replace all portions of the piping where leaks are detected;
- d) complete augered, tunneled or bored waterway crossings in accordance with the Fisheries and Oceans Canada Measures to Avoid Causing Harm to Fish and Fish Habitat, and notify the Environment Officer if a frac out occurs; and
- e) where conditions allow, excavate endpoints for directional drilling operations a minimum of 30 m from the high water mark of third and higher order waterways, and a minimum of 15 m from the high water mark of first and second order waterways.

- Clause 20:

The Licencee shall:

- a) submit to the Director of Approvals Branch by February 28 of the following year, for review and approval, an annual river crossing monitoring report including monitoring of hydrostatic integrity of all river crossings and of river bank stability; and
- b) submit to the Director of Approvals Branch, for review and approval, a systematic condition assessment report for all pipelines which transport wastewater via river crossings, and a systematic monitoring report of riverbank stability and riverbed erosion within 60 days from the completion of the formal inspection carried out at a frequency as proposed in the technical memorandum dated December 7, 2017 or otherwise approved by the Director.

Please be advised that this approval is contingent on the acceptance of a revised Environment Act Licence to be issued in the near future.

Should you have any questions concerning this approval, please contact Asit Dey at (204) 945-2614 or at asit.dey@gov.mb.ca.

Sincerely,



Tracey Braun, M.Sc.
Director

Environmental Approvals Branch

- c: Duane Griffin, City of Winnipeg
Don Labossiere/Yvonne Hawryliuk, Environmental Compliance and Enforcement Branch
Elaine Page/Andrew Burton, Water Quality Management Section
Public Registries

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

CLIENT FILE NO.: 1069.10

April 18, 2012

Diane Sacher, P.Eng.,
Director, Water and Waste Department
City of Winnipeg,
112 – 1199 Pacific Avenue
Winnipeg MB R3E 3S8

Dear Ms. Sacher:

Receipt of the September 6, 2011 letter and engineering plan regarding the South End Water Pollution Control Centre Expansion is acknowledged in accordance with Clause 14 of Environment Act Licence No. 2716 R (Licence). Receipt of the letter dated December 22, 2011 from Bill Watters, Acting Manager of Wastewater Services, is also hereby acknowledged.

The concerns identified in your letters have been addressed in a revised licence.

Enclosed is **revised Environment Act Licence No. 2716 RR** dated April 18, 2012 issued in accordance with *The Environment Act* to the **City of Winnipeg**. This Licence supersedes Licence No. 2716 R for the alteration and operation of the Development commonly referred to as the South End Water Pollution Control Centre, in the City of Winnipeg.

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

The licence has been transferred to the Central Region, Environmental Compliance and Enforcement Branch of Manitoba Conservation and Water Stewardship. For further information on the administration and application of the Licence, please feel free to contact Mr. Don Labossiere, Director, at (204) 945-7005 or by e-mail at Don.Labossiere@gov.mb.ca.

Yours truly,



Tracey Braun, M.Sc.
Director
Environment Act

Enc.

c: Don Labossiere, Director, Environmental Compliance and Enforcement
Public Registries

NOTE: Confirmation of Receipt of this Licence No. 2716 RR (*by the Licensee only*) is required by the Director of Environmental Assessment and Licensing. Please acknowledge receipt by signing in the space provided below and faxing a copy (letter only) to the Department by May 2 2012.

On behalf of the City of Winnipeg

Date

LICENCE

Licence No. / Licence n°	<u>2716 RR</u>
Issue Date / Date de délivrance	<u>March 3, 2006</u>
Revised	<u>June 19, 2009</u>
Revised	<u>April 18, 2012</u>

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) and 14(2) / Conformément au Paragraphe 11(1) et 14(2)

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

CITY OF WINNIPEG;
"the Licencee";

for the expansion and alteration and operation of the Development being a wastewater collection system and a wastewater treatment plant commonly referred to as the South End Water Pollution Control Centre, located at 100 Ed Spencer Drive in the City of Winnipeg, with discharge of treated effluent being directed to the Red River, in accordance with the Proposal filed under The Environment Act on March 2, 1990, in consideration of the Manitoba Clean Environment Commission August 2003 Report on Public Hearings, in accordance with the Notice of Alteration filed under The Environment Act on July 17, 1998, and in accordance with the engineering plan submitted on September 7, 2011 and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

“annual 98% compliance limit” means a maximum daily concentration limit that is considered to be in compliance if met 358 days of each calendar year;

“accredited laboratory” means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation and Water Stewardship 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 produced in an organism by a substance or mixture of substances within a short exposure period (usually 96 hours or less);

“affected area” means a geographical area, excluding the property of the Development;

“approved” means approved by the Director in writing;

“calibrate” means to determine, check or rectify the graduation of any instrument giving quantitative measurement;

“combined sewer overflow (CSO)” means the sewage overflow to the river that occurs during high flow conditions from a pipe system that collects both municipal sewage and surface runoff from a service area;

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

“dry weather flow” means the flow of wastewater in a combined sewer during dry weather such that flow consists mainly of wastewater with no storm water included;

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

“Environmental Management System (EMS)” means the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy;

“Environment Officer” means an employee so appointed pursuant to *The Environment Act*;

“Escherichia coli (E. coli)” means the species of bacteria in the fecal coliform group found in large numbers in the gastrointestinal tract and feces of warm-blooded animals and man, whose presence is considered indicative of fresh fecal contamination, and is used as an indicator organism for the presence of less easily detected pathogenic bacteria;

“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 (BOD₅)” means that part of the oxygen demand usually associated with biochemical oxidation of organic matter within five days at a temperature of 20°C;

“five-day carbonaceous biochemical oxygen demand (CBOD₅)” means that part of the oxygen demand usually associated with biochemical oxidation of carbonaceous organic matter within 5 days at a temperature of 20°C, excluding the oxygen demand usually associated with the biochemical oxidation of nitrogenous organic matter;

“flow proportional composite sample” means a combination of not less than ten individual samples of equal volumes of wastewater taken at equal increments of wastewater flow over a specified period of time;

“grab sample” means a quantity of undiluted effluent collected at any given time;

“inflow and infiltration” means the extraneous flow entering a sewer system or portion thereof, excluding sanitary sewage, due to factors including but not limited to, poor construction, corrosion of the pipe from the inside or outside, ground movement, structural overload, roof leaders, basement drains, land drains and manhole covers;

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

“leachate” means liquid that has percolated through solid waste, and that contains dissolved and suspended materials from the solid waste;

“Manitoba Water Quality Standards, Objectives and Guidelines” means Manitoba Water Stewardship Report 2011-01, or future version thereof, entitled *Manitoba Water Quality Standards, Objectives and Guidelines*.

“mixing zone” means an area adjacent to a discharge where a receiving water may not meet all water quality objectives included in 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 the 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 and 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, and from 5 different persons falling within clauses a), b) or c) who do not live in the same household; or
- e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b) or c) and the Director is of the opinion that if the odour, smell or aroma had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90 day period from 5 different persons who do not live in the same household;

“record drawings” means engineering drawings complete with all dimensions which indicate all features of the Development as it has actually been built;

“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;

“storm water” means surface water from rain, snow, or ice melting and running off from the surface of a drainage area;

“thirty-day rolling average” means the arithmetic average of any daily reported data plus the preceding 29 consecutive days of reported data;

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

“UV disinfection” means a disinfection process for treating wastewater using ultraviolet radiation;

“UV dose” means the units of intensity of ultraviolet light that is required to kill bacteria and viruses present in the wastewater effluent;

“wastewater” means the spent or used water of a community or industry that contains dissolved and suspended matter; and

“wastewater treatment plant” means the central facility of wastewater treatment facilities which contains all treatment processes exclusive of the collection system.

GENERAL REQUIREMENTS

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

1. With the exception of the combined sewer overflow (CSO) wastewater, the Licencee shall direct all wastewater from the wastewater collection system area to the South End Water Pollution Control Centre or other facility approved by the Director.
2. In addition to any of the following specifications, limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
 - a) sample, monitor, analyze or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants, ambient quality, aquatic toxicity, leachate characteristics and discharge or

- emission rates, and for such duration and at such frequencies as may be specified;
- b) determine the environmental impact associated with the release of any pollutant from the Development; or
 - c) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used, bioassay data, flow rate measurements and such other information as may from time to time be requested.
3. The Licencee shall, unless otherwise specified in this Licence:
- a) carry out all preservations and analyses on liquid samples in accordance with the methods prescribed in the most current edition of "Standard Methods for the Examination of Water and Wastewater", or in accordance with an equivalent analytical methodology approved by the Director;
 - b) ensure that all analytical determinations are undertaken by an accredited laboratory or a laboratory approved by the Director; and
 - c) report the results of all monitoring and testing to the Director, in writing and in an electronic format acceptable to the Director, within 60 days of the samples being taken.
4. The Licencee shall submit all information required to be provided to the Director under this Licence, in writing, and in electronic format, in such form (including number of copies), and such content as may be required by the Director, and each submission shall be clearly labelled with the Licence Number and Client File Number associated with this Licence.
5. The Licensee shall, in the event of a release, spill, leak, or discharge of a pollutant or contaminant in an amount or concentration, or at a level or rate of release, that exceeds the limit that is expressly provided under this Act, another Act of the Legislature, or an Act of Parliament, or in a regulation, licence, permit, order, instruction, directive or other approval or authorization issued or made under one of those Acts, immediately report the release, spill, leak, or discharge by calling 204-944-4888. The report shall indicate the nature of the release, leak, or discharge, the time and estimated duration of the event and the reason for the release, spill, leak, or discharge.
6. The Licencee shall carry out, as deemed necessary by the Director, any remedial measures or modifications in respect to matters authorized under this Licence.

7. The Licencee shall actively participate in any future watershed based management study, plan or environmental research or monitoring programs approved by the Director, for the Red River, the Assiniboine River, Lake Winnipeg and associated waterways and watersheds.
8. The Licencee shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the wastewater treatment plant and shall take such steps as the Director may require to eliminate or mitigate an odour nuisance.
9. The Licencee shall not cause or permit a noise nuisance to be created as a result of the construction, operation or alteration of the wastewater treatment plant and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.
10. The Licencee shall:
 - a) maintain the Emergency Response Plan (ERP) in accordance with the approval from the Director dated August 26, 2008; and
 - b) Update the ERP to reflect the current state of operation of the wastewater treatment plant.
11. The Licencee shall maintain the Environmental Management System for the Development, in accordance with the approval from the Director dated August 26, 2008.
12. The Licencee shall implement the inflow and infiltration study report for the collection area of the Development, in accordance with the approval from the Director dated October 22, 2009.
13. The Licencee shall not accept leachate for treatment at the wastewater treatment facility.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Design and Construction

14. The Licencee shall:
 - a) submit progress reports every six (6) months on the construction and commissioning of the upgraded wastewater treatment plant; and
 - b) complete the construction and commissioning of the upgraded wastewater treatment plant on or before December 31st, 2015.

15. The Licencee shall notify the assigned Environment Officer prior to beginning construction of the wastewater treatment plant expansion. The notification shall include the intended starting date of construction and the name of the Licencee's contact person at the construction site.
16. The Licencee shall ensure that fuel storage and equipment servicing areas established for the construction of the alteration to the wastewater treatment plant are located a minimum distance of 100 metres from any waterbody, and shall comply with the requirements of *Manitoba Regulation 188/2001* respecting *Storage and Handling of Petroleum Products and Allied Products*.
17. The Licencee shall, from the date of issuance of this Licence, pressure test the integrity of the connections of any underground piping of the Development, which is intended to transport wastewater under pressure, before such pipe connections are backfilled with earth and make repairs as required.
18. The Licencee shall:
 - a) install or utilize existing security fencing, acceptable to the Director, to enclose the wastewater treatment plant or components thereof, that are not enclosed in a building with a security system acceptable to the Director; and
 - b) maintain the security system in a manner acceptable to the Director.
19. The Licencee shall:
 - a) submit a proposal to the Director for a leak detection program, on or before June 30th, 2013, for existing and new pipes which transport wastewater via river crossings, including leak detection technologies and monitoring practices to be implemented;
 - b) implement the leak detection program, as approved by the Director;
 - c) measure and record the data gathered by the leak detection program; and
 - d) repair and/or replace all portions of the existing piping where leaks are detected.
20. The Licencee shall, from the date of issuance of this Licence, construct and maintain new pipes which transport wastewater via river crossings with a sleeve encasement around the piping.
21. The Licencee shall:
 - a) prepare "record drawings" for the upgraded wastewater treatment plant and shall label the drawings "Record Drawings"; and
 - b) provide to the Director, within six (6) months of the commissioning of the upgraded wastewater treatment plant, two copies of the "record drawings" of

the upgraded wastewater treatment plant including its effluent discharge pipeline.

Respecting Operation

22. The Licencee shall, from the date of issuance of this Licence until and including December 31st, 2015, limit the influent wastewater loading to the wastewater treatment plant, such that:
 - a) the hydraulic loading does not exceed 98,600 cubic meters over any 24 hour period during dry weather flow; and
 - b) the organic loading does not exceed 28,600 kilograms BOD₅ over any 24 hour period during dry weather flow.

23. The Licencee shall operate and maintain the upgraded wastewater treatment plant in such a manner that:
 - a) the maximum hydraulic loading does not exceed 435,100 cubic meters over any 24 hour period; and
 - b) the organic loading does not exceed 51,868 kilograms BOD₅ for any 24-hour period.

24. The Licencee shall install instrumentation to provide constant monitoring of the UV disinfection treatment process to ensure compliance with the disinfection requirements. Such instrumentation shall include but not be limited to the following:
 - a) a UV sensor to monitor lamp intensity;
 - b) an appropriate alarm 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.

25. The Licencee shall:
 - a) construct and make available for use by an Environment Officer, a secured and heated influent monitoring station with direct access to the wastewater treatment plant influent wastewater pipelines;
 - b) ensure that the monitoring stations are accessible to an Environment Officer at all times;
 - c) install and maintain a flow measuring device at each monitoring station or at a location acceptable to the Director which is capable of measuring the volume of influent with an accuracy of ± 2 percent;
 - d) have the flow measuring devices re-calibrated every two years or on the request of an Environment Officer;

- e) submit to the Director a certificate of calibration, signed by a person qualified to calibrate the flow measuring device, for each flow measuring device within two weeks of the completion of each calibration, identifying the plus or minus percent error associated with each calibrated flow measuring device; and
- f) ensure that the monitoring stations are each equipped 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.

26. The Licencee shall:

- a) construct and make available for use by an Environment Officer, a secured and heated effluent monitoring station, with direct access to the effluent discharge pipeline at a location acceptable to the Director;
- b) ensure that the monitoring station is accessible to an Environment Officer at all times;
- c) install and maintain a continuous flow measuring device, equipped with an interface compatible with departmentally owned ISCO sampler, 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 every two years or on the request of an Environment Officer;
- e) submit to the Director a certificate of calibration, signed by a person qualified to calibrate the flow measuring device, for each flow measuring device within two weeks of the completion of each calibration, identifying the plus or minus percent error associated with each calibrated flow measuring device; and
- f) ensure that the monitoring station is equipped 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.

27. The Licencee shall, from the date of issuance of this Licence until and including December 31st, 2015, during periods when the wastewater influent flow is less than 98,600 cubic meters per day, not discharge effluent from the wastewater treatment plant, as sampled at the effluent monitoring station, referred to in Clause 26 of this Licence, located prior to the effluent discharge pipeline leading to the Red River where:

- a) the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand (CBOD₅), is in excess of the annual 98% compliance limit of 25 milligrams per litre;
- b) the total suspended solids content of the effluent is in excess of the annual 98% compliance limit of 25 milligrams per litre; and

- c) the 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 time intervals on each of a minimum of 3 consecutive days per week when the level of the Red River does not exceed a geodetic elevation of 229.0 meters, as measured at a location acceptable to the Director.

28. The Licencee shall, on and after December 31st, 2015, not discharge effluent from the wastewater treatment plant, as sampled in the effluent monitoring station, referred to in Clause 26 of this Licence, where:

- a) the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand (CBOD₅), is in excess of the annual 98% compliance limit of 25 milligrams per litre;
- b) the total suspended solids content of the effluent is in excess of the annual 98% compliance limit of 25 milligrams per litre;
- c) the 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 time intervals on each of a minimum of 3 consecutive days per week;
- d) the concentration of total residual chlorine is in excess of 0.02 milligrams per litre, when the wastewater influent flow is greater than 120,000 m³/d and if effluent is chlorinated;
- e) the concentration of total phosphorus of the effluent is in excess of 1.0 milligram per litre as determined by the thirty-day rolling average;
- f) the concentration of total nitrogen of the effluent is in excess of 15 milligrams per litre as determined by the thirty-day rolling average; and
- g) the ammonia nitrogen content (as N) of the effluent is in excess of the following limits:

Period	Ammonia Nitrogen (as N) (kilograms/any 24 hour period)
January	1975
February	2403
March	4196
April	12926
May	5311
June	3103
July	1517
August	607
September	713
October	811
November	1152
December	1550

29. The Licencee shall not release a quality of effluent from the wastewater treatment plant which:
- a) on any day, causes, or contributes to, the mixing zone for the effluent in the Red River being acutely lethal to aquatic life passing through the mixing zone; or
 - b) on or after December 31st, 2015, can be demonstrated to be acutely lethal to fish 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; or in accordance with the conditions of Schedule "A" of this Licence.

Respecting Monitoring

30. The Licencee shall:
- a) continuously measure and record the volume of the wastewater discharged from the wastewater treatment plant every day;
 - b) take one flow proportional composite sample of effluent over a 24 hour period from the wastewater treatment plant every day;
 - c) have the samples analyzed for CBOD₅, BOD₅, total suspended solids, total nitrogen, total phosphorus, ortho phosphorus and ammonia nitrogen content;
 - d) calculate the daily ammonia nitrogen load (kilograms per day), and the thirty-day rolling average values for total nitrogen and total phosphorus for the day during which samples were collected;
 - e) prepare a monthly report on:
 - i) the daily, average, peak, minimum and total monthly volume of wastewater discharged from the wastewater treatment plant; and
 - ii) CBOD₅;
 - iii) 30-day rolling average CBOD₅;
 - iv) BOD₅;
 - v) 30-day rolling average BOD₅;
 - vi) total suspended solids;
 - vii) 30-day rolling average total suspended solids;
 - viii) ortho phosphorus;
 - ix) thirty-day rolling average total nitrogen;
 - x) thirty-day rolling average total phosphorus and
 - xi) ammonia nitrogen loads; and
 - f) file a copy of the report with the Director within 30 days of the end of each month during which the concentrations and loads were determined.

31. The Licencee shall:

- a) once each day, when flows exceed the 75th percentile of the thirty-day rolling average maximum daily flow, collect a grab sample of effluent from the effluent monitoring station referred to in Clause 26 of this Licence;
- b) have the grab sample analyzed for pH and temperature, and E. coli content;
- c) determine and record the monthly geometric mean for E. coli counts based on all the data collected during each month, from a minimum of 12 grab samples; and
- d) report the results to the Director within 60 days of the end of the month during which the samples were taken.

32. The Licencee shall:

- a) once every 3 months, collect a grab sample of the influent, at each influent monitoring station, and a grab sample of the effluent, at the effluent monitoring station at the wastewater treatment plant;
- b) have both the influent and effluent samples analyzed for the concentration of the parameters identified in Schedule "B" of this Licence; and
- c) report the results to the Director in an annual report within 60 days of the end of the 12 month sampling period.

33. The Licencee shall:

- a) maintain a record of all wastewater hauled to the wastewater treatment plant, including the number of loads on a daily and weekly basis, the volume of each load, the name of the hauler, and the source of the contents of each load according to the type of waste and the name and location of each property serviced;
- b) make all records available to an Environment Officer upon request; and
- c) submit an annual report of all the waste hauling information to the Director within 60 days of the end of the 12 month period.

34. The Licencee shall:

- a) once every 3 months 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, or in accordance with the conditions of Schedule "A" of this Licence, collect a bioassay sample of the effluent from the effluent monitoring station at the wastewater treatment plant, and test the sample at 100 percent concentration for acute lethality; and
- b) report the results to the Director in an annual report within 60 days of the end of the 12 month sampling period.

35. The Licencee shall implement the Phased Sewer Upgrade Management Program submitted to the Director on December 27, 2006, in accordance with the approval from the Director, dated February 23, 2007.
36. The Licencee shall, during the first year of operation of the Development following the construction and expansion of the sewage treatment plant, obtain and analyze grab samples of the effluent and report results of the analysis in accordance with Schedule "C" attached to this licence.

REVIEW AND REVOCATION

- A. This Licence replaces Licence No. 2716 R which is hereby rescinded.
- B. If, in the opinion of the Director, the Licencee has failed or is failing to comply with any of the specification, limits, terms or conditions set out herein, 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*.



Tracey Braun, M.Sc.
Director
Environment Act

Client File No.: 1069.10

Schedule "A" to Environment Act Licence No. 2716 RR

For the purposes of demonstrating compliance with Clause 29 b) and/or Clause 34 of this Licence, the Licencee may carry out the acute lethality test as modified by the procedure for pH Stabilization EPS 1/RM/50 with the following conditions:

- a) The pH stabilization procedure does not supersede the existing acute lethality test method (EPS 1/RM/13) but describes an "add on". All tests must meet the requirements and procedures of EPS 1/RM/13 plus the additional monitoring and reporting requirements of EPS 1/RM/50;
- b) The pH stabilization "add on" must be performed as described in EPS 1/RM/50 including the need to stabilize pH rather than reduce pH;
- c) As per EPS 1/RM/50, each test must include measurement of total ammonia (to two decimal places), alkalinity, pH, hardness, temperature, dissolved oxygen, colour, turbidity, odour, and floating or settling solids. Measurements of these parameters must be included as part of any report of the results of the acute lethality test;
- d) The wastewater effluent must have failed an acute lethality test using method EPS 1/RM/13 on a previously collected sample;
- e) pH stabilization techniques may only be used when the un-ionized ammonia concentration present in 100% wastewater effluent sample does not equal or exceed 1.25 mg/L at 15°C or when the total ammonia concentration does not equal or exceed the maximum total ammonia concentration (y) in mg/L as determined using the following formula and the initial pH of the wastewater effluent sample at 15°C:
$$y = 1.25 \times (10^{(9.564136638 - \text{pH})} + 1); \text{ and}$$
- f) For at least one year and until otherwise approved by the Director, the Licencee must demonstrate that a valid pH stabilization procedure can be run reliably by conducting both the routine procedure without pH stabilization and the pH stabilized test.

Schedule "B" to Environment Act Licence No. 2716 RR

Parameter	Monitoring Frequency
Arsenic, Total	Quarterly
Cadmium, Total	Quarterly
Chromium, Total	Quarterly
Chromium, Hexavalent	Quarterly
Copper, Total	Quarterly
Lead, Total	Quarterly
Mercury, Total	Quarterly
Molybdenum, Total	Quarterly
Nickel, Total	Quarterly
Selenium, Total	Quarterly
Zinc, Total	Quarterly
Alkyl-lead	Quarterly
Tributyl tin	Quarterly
PCBs (Polychlorinated Biphenyls)	Quarterly
PCDD (Dioxins) and PCDF (Furans)	Quarterly
Hexachlorobenzene	Quarterly
Octachlorostyrene	Quarterly
Benzo(a)pyrene (PAH)	Quarterly
Benzo(a)anthracene (PAH)	Quarterly
Benzo(b)flurathene (PAH)	Quarterly
Benzo(g,h,i)perylene (PAH)	Quarterly
Perylene (PAH)	Quarterly
Phenanthrene (PAH)	Quarterly
Dinitropyrene	Quarterly
1, 4-Dichlorobenzene	Quarterly
3, 3'-dichlorobenzidine	Quarterly
4,4"-methylnebis(2-chloraniline)	Quarterly
Xylene	Quarterly
Chloroform	Quarterly
Trichlorethelene (1,3-Trichlorethane)	Quarterly
Tetrachlorethelene(1,1,2,2-Tetrachlorethane)	Quarterly
Hexachlorocyclohexane (Lndane)	Quarterly
Total Phenoxy Acid Herbicides including 2,-4 D, and MCPA	Quarterly
Aldrin/dieldrin	Quarterly
Chlordane	Quarterly
Methoxychlor	Quarterly
Mirex	Quarterly
Toxaphene	Quarterly
DDT	Quarterly
Cresol, phenol	Quarterly
Phenols, Total	Quarterly
Pentachlorophenol (PCP)	Quarterly
Nonylphenol and its Ehtoxylates	Quarterly
Oil and Grease	Quarterly

Schedule "C" to Environment Act Licence No. 2716 RR

Initial Characterization of Wastewater

Facility Size: very large (greater than 50,000 m³/day)

Facility Type: Sewage Treatment Plant - Continuous discharge

Effluent Sampling:

During the first year of operation:

1. a grab sample shall be collected 5 days/week;
2. a grab sample shall be collected on a monthly basis;
3. a grab sample shall be collected on a quarterly basis; and
4. a grab sample shall be collected three times per day , if chlorine is used.

Effluent Analysis:

1. Have the 5 days/week 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 *Esherichia coli* (*E. Coli*) content as indicted 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 monthly sample analyzed for:
 - a) acute toxicity; and
 - b) chronic toxicity.
3. 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; and
- n) surfactants.

4. Have the three times/day sample analyzed for total residual chlorine (TRC), if required.

Effluent Reporting:

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, and copies of the laboratory analytical results of the sampled effluent.