

Manitoba



Conservation and Water Stewardship

Climate Change and Environmental Protection Division
Environmental Approvals Branch
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CLIENT FILE NO.: 5483.00

October 15, 2012

Elliot Wach, P. Eng.
Manitoba Hydro
360 Portage Avenue
Winnipeg MB R3C 0G8

Dear Mr. Wach:

Enclosed is **Environment Act Licence No. 3021** dated October 15, 2012 issued in accordance with *The Environment Act* to the **Wuskwatim Power Limited Partnership** for the construction and operation of the Development being a sewage treatment plant with a capacity of 3 m³/day located within the Wuskwatim Generating Station located at SW 33-75-7WPM and with discharge of treated effluent to the Burntwood River, in accordance with the Proposal filed on August 27, 2010, and subsequent information submitted on February 15, 2011.

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

For further information on the administration and application of the Licence, please feel free to contact Robert Boswick, P.Eng. @ 204-945-6030.

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

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. 3021 (*by the Licensee only*) is required by the Director of Environmental Approvals. Please acknowledge receipt by signing in the space provided below and faxing a copy (letter only) to the Department by October 29, 2012

Wuskwatim Power Limited Partnership

Date

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

LICENCE

Licence No. / Licence n°

3021

Issue Date / Date de délivrance

October 15, 2012

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

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

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

WUSKWATIM POWER LIMITED PARTNERSHIP
"the Licencee"

for the construction and operation of the Development being a sewage treatment plant with a capacity of 3 m³/day located within the Wuskwatim Generating Station located at SW 33-75-7WPM and with discharge of treated effluent to the Burntwood River, in accordance with the Proposal filed pursuant to The Environment Act on August 27, 2010, and subsequent information submitted on February 15, 2011 and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"**accredited laboratory**" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

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

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

"**appurtenances**" means machinery, appliances, or auxiliary structures attached to a main structure to enable it to function, but not considered an integral part of it;

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

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"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;

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

"effluent" means treated wastewater flowing or pumped out of the sewage treatment plant;

"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 oxygen usually associated with biochemical oxidation of organic material within 5 days at 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 five days at a temperature of 20°C, excluding the oxygen demand usually associated with the biochemical oxidation of nitrogenous organic matter;

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

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

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

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

"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;

"septage" means the sludge produced in individual on-site wastewater disposal systems such as septic tanks;

"sewage" means household and commercial wastewater that contains human waste;

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

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

"sludge solids" means solids in sludge;

"Standard Methods for the Examination of Water and Wastewater" means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Environment Federation;

"total coliform" means a group of aerobic and facultative anaerobic, Gram-negative, non-spore forming, rod-shaped bacteria, that ferment lactose with gas and acid formation within 48 hours at 35°C, and inhabit predominantly the intestines of man or animals, but are occasionally found elsewhere, and include the sub-group of fecal coliform bacteria;

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

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

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

GENERAL SPECIFICATIONS

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

1. In addition to any of the following specifications, limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
 - a) sample, monitor, analyze or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, handling, treatment and disposal systems, for such pollutants, ambient quality, aquatic toxicity, seepage characteristics and discharge rates and for such duration and frequencies as may be specified;
 - b) determine the environmental impact associated with the release of any pollutant from the Development; or
 - c) provide the director within such time as may be specified, with such reports, drawings, specifications, analytical data, bioassay data, flow rate measurements and such other information as may from time to time be requested.

2. The Licencee shall, unless otherwise specified in this Licence:
 - a) carry out all preservations and analyses of liquid samples in accordance with the methods prescribed in the Standard Methods for the Examination of Water and Wastewater or in accordance with equivalent preservation and analytical methodologies approved by the Director;
 - b) have analytical determinations undertaken by an accredited laboratory; and
 - c) report the results to the Director, in writing, within 60 days of the samples being taken.

3. The Licencee shall, 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.

4. The Licencee shall obtain and maintain classification of the Development pursuant to *Manitoba Regulation 77/2003* respecting *Water and Wastewater Facility Operators* 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.
5. The Licencee shall carry out the operation of the Development with individuals properly certified to do so pursuant to *Manitoba Regulation 77/2003* respecting *Water and Wastewater Facility Operators* or any future amendment thereof.
6. The Licencee shall submit all information required to be provided to the Director under this Licence, in writing, in such form (including number of copies), and of such content as may be required by the Director, and each submission shall be clearly labelled with the Licence Number and Client File Number associated with this Licence.
7. The Licencee shall operate the sewage treatment plant in such a manner that:
 - a) all wastewater generated within the Wuskwatim Generating Station is directed toward the sewage treatment plant or other approved sewage treatment facilities;
 - b) only wastewater as defined in this Licence is discharged into the sewage treatment plant;
 - c) primary screenings are disposed in a waste disposal ground operated under:
 - i) a permit issued in accordance with *Manitoba Regulation 150/91* or any future amendment thereof; or
 - ii) the authority of a Licence issued under *The Environment Act*;
 - d) sludge solids are disposed of in:
 - i) a wastewater treatment lagoon operated under the authority of a Licence issued under *The Environment Act*; or
 - ii) a waste disposal ground operated under:
 - (1) a permit issued in accordance with *Manitoba Regulation 150/91* or any future amendment thereof; or
 - (2) the authority of a Licence issued under *The Environment Act*; and
 - e) sludge solids are contained and transported in containers in such a manner to prevent loss of solids to the satisfaction of an Environment Officer.

8. The Licencee shall install, operate and maintain an effluent discharge pipeline from the sewage treatment plant into the Burntwood River such that freezing of effluent in the pipeline is prevented.
9. The Licencee shall not spill, or allow to be spilled, wastewater and/or sludge in the area around the sewage treatment plant.
10. The Licencee shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate an odour nuisance.
11. The Licencee shall have adequate instrumentation installed to provide constant monitoring of the UV process to ensure compliance with the disinfection requirements. Such instrumentation shall include but not be limited to the following:
 - a) an UV sensor to monitor lamp intensity;
 - b) an appropriate alarm and shutdown systems;
 - c) a lamp monitoring system to identify 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.
12. The Licencee shall actively participate in any future watershed based management study, plan or nutrient reduction program, approved by the Director, for the Burntwood River and associated waterways and watersheds.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

13. The Licencee shall notify the assigned Environment Officer not less than two weeks prior to beginning construction of the sewage treatment plant. The notification shall include the intended starting date of construction and the name of the Licencee's contact person at the construction site.
14. The Licencee shall operate and maintain the sewage treatment plant in such a manner that:
 - a) the maximum daily flow rate is not in excess of 3 cubic metres over any 24-hour period; and
 - b) the organic loading is not in excess of 1.93 kilograms of five-day biochemical oxygen demand over any 24-hour period.
15. The Licencee shall utilize UV lamps in the 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.

16. The Licencee shall 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.
17. The Licencee shall install and maintain a security fence around all components of the sewage treatment plant that are not enclosed within secured buildings.
18. The Licencee shall not discharge effluent from the sewage treatment plant, as sampled at the monitoring station located after UV disinfection, where:
 - a) the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand (CBOD₅), is in excess of 25 milligrams per litre;
 - b) the fecal coliform content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample;
 - c) the total coliform content of the effluent, as indicated by the MPN index, is in excess of 1500 per 100 millilitres of sample;
 - d) the total suspended solids content of the effluent, as indicated by the non-filterable residue is in excess of 25 milligrams per litre;
 - e) the total phosphorus content of the effluent is not in excess of 1.0 milligram per litre; and
 - f) the total ammonia concentration of the effluent is in excess of the concentration specified in Schedule "A" attached to this Licence as determined by the pH of the effluent.
19. The Licencee shall, if chlorine is used to achieve compliance with Clause 18 b) and c) of this Licence,:
 - a) notify the Director in advance;
 - b) dechlorinate effluent prior to discharge;
 - c) obtain grab samples daily and have them analyzed for total residual chlorine; and
 - d) not discharge effluent from the sewage treatment plant where the total residual chlorine content of the effluent is in excess of 0.02 milligrams per litre.

MONITORING AND REPORTING SPECIFICATIONS

20. The Licencee shall monitor, and make the records of such monitoring available to the Director as may be requested, the sewage treatment process for the following parameters:
 - a) total flow rate(s) into the plant;
 - b) flow rate(s) into and through the UV disinfection system; and
 - c) other process parameters approved or required by the Director.

21. The Licencee shall provide a heated and secured effluent monitoring station acceptable to the Director and equipped with:
 - a) a direct access to the discharge pipeline following the UV disinfection chamber; and
 - b) an electrical power source of 15 amperes at 110 volts.

22. The Licencee shall arrange for the taking of samples of influent at the headworks of the sewage treatment plant and of treated sewage effluent at the effluent monitoring station.

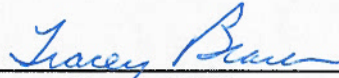
23. The Licencee shall:
 - a) take one composite sample of effluent, from the effluent monitoring station during the discharge period once each month;
 - b) take three grab samples of the effluent from the effluent monitoring station during the discharge period once each month;
 - c) have the composite effluent sample analyzed for five-day biochemical oxygen demand, five-day carbonaceous biochemical oxygen demand, temperature, pH, total ammonia, total phosphorus and total suspended solids;
 - d) have the grab samples analyzed for fecal coliform content and total coliform content;
 - e) report the results to the Director within 60 days of the samples being taken; and
 - f) notwithstanding sub-clause e) above, if the results of the fecal coliform and/or total coliform analysis exceed the discharge criteria specified in Clause 18 of this Licence, report the results to the Director within 48 hours of the receipt of the results.

24. The Licencee shall:
 - a) prepare "record drawings" for the Development, including the effluent discharge pipeline, complete with final elevations, and shall label the drawings "record drawings"; and
 - b) provide to the Director, within four months of the approved commissioning of the sewage treatment plant, two sets of "record drawings" of the Development.

25. The Licencee shall, during the first year of operation of the Development following the construction of the sewage treatment plant, obtain and analyze grab samples of the effluent and report the results of the analysis in accordance with Schedule "B" attached to this Licence.

REVIEW AND REVOCATION

- A. If, in the opinion of the Director, the Licencee has exceeded or is exceeding or has or is failing to meet the specifications, limits, terms, or conditions set out in this Licence, the Director may, temporarily or permanently, revoke this Licence.
- B. If the Licencee has not commenced construction of the Development within three years of the date of this Licence, the Licence is revoked.
- C. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of *The Environment Act*.



Tracey Braun, M.Sc.
Director
Environment Act

Client File No.: 5483.00

Schedule "A" to Environment Act Licence No. 3021

Maximum total ammonia effluent discharge limits pursuant to Clause 18

Effluent pH	Total Ammonia (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

Schedule "B" to Environment Act Licence No. 3021

Initial Characterization of Wastewater Pursuant to Clause 25 of this Licence

Facility Size: Very small (less than 500 m³/day)

Facility Type: Wastewater treatment plant - continuous discharge

Effluent Sampling:

During the first year of operation:

1. a grab sample shall be collected on a monthly basis; and
2. a grab sample shall be collected on a daily basis, if chlorine is used.

Effluent Analysis:

1. Have the monthly sample analyzed for:
 - a) the organic content as indicated by the five-day biochemical oxygen demand and expressed as milligrams per litre;
 - b) the organic content as indicated by the five-day carbonaceous biochemical oxygen demand and expressed as milligrams per litre;
 - c) the total suspended solids content expressed as milligrams per litre;
 - d) the *Escherichia coli* (*E. Coli*) content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - e) the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - f) the total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - g) total ammonia nitrogen expressed as milligrams per litre;
 - h) nitrate-nitrite nitrogen expressed as milligrams per litre;
 - i) total kjeldahl nitrogen, TKN (ammonia + organic N) expressed as milligrams per litre;
 - j) dissolved phosphorus expressed as milligrams per litre;
 - k) total phosphorus expressed as milligrams per litre;
 - l) temperature; and
 - m) pH.
2. Have the daily sample analyzed for Total Residual Chlorine (TRC), if required.

Effluent Reporting:

1. 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.