

Ministry of the Environment,
Conservation and Parks
Drinking Water and Environmental
Compliance Division
West Central Region
Guelph District Office

1 Stone Road West
4th Floor
Guelph, Ontario N1G 4Y2
Tel.: 519 826-4255
Fax: 519 826-4286

Ministère de l'Environnement
de la Protection de la nature et des Parcs
Division de la conformité en matière d'eau
potable et d'environnement
Direction régionale du Centre-Ouest
Bureau de district de Guelph

1, chemin Stone ouest
4e étage
Guelph (Ontario) N1G 4Y2
Tél.: 519 826-4255
Télééc.: 519 826-4286



April 4th, 2019

Mr. Michael Givens
CAO
Township of Wellington North
7490 Sideroad 7W
Kenilworth, Ontario
N0G 2E0

*** Sent by e-mail only ***

Dear Mr. Givens,

SUBJECT : 2019 MECP Inspection Report – ARTHUR WPCP (DWS # 110000882)

Please find enclosed the Ministry of the Environment, Conservation and Parks (MECP) Inspection Report for the inspection of the Arthur WPCP, which was recently conducted. The primary focus of this inspection was to confirm compliance with MECP legislation and control documents, as well as conformance with Ministry related policies for the inspection period.

A stakeholder appendix for information regarding the municipal wastewater program has been attached to this report.

If you have any questions regarding any other aspects of this report, please feel free to contact myself or the Water Supervisor (Lisa Williamson) at this office at (519) 826-4255.

Thankyou.

Yours truly,

A handwritten signature in black ink, appearing to read "Rick Neubrand".

Rick Neubrand
Senior Environmental Officer / Inspector
Safe Drinking Water Branch
Ministry of the Environment
Guelph District Office

Encl: Reports (1)

CC : Don Irvine – OCWA - Senior Operations Manager
: Sandra Cooke – GRCA
: Shawn Zentner - WDGHU



Ministry of the Environment, Conservation and Parks

WW ARTHUR WPCP

Inspection Report

Site Number:	110000882
Inspection Number:	1-I7502
Date of Inspection:	Mar 05, 2019
Inspected By:	Richard Neubrand

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APPENDIX A – MECP Wastewater Appendix

OWNER INFORMATION:

Company Name: WELLINGTON NORTH, THE CORPORATION OF THE TOWNSHIP OF
Street Number: 7490 **Unit Identifier:**
Street Name: SIDEROAD 7 W
City: KENILWORTH
Province: ON **Postal Code:** N0G 2E0

CONTACT INFORMATION

Type: CAO **Name:** Michael Givens
Phone: (519) 323-2900 x25 **Fax:** (519) 848-3228
Email: mgivens@wellington-north.com
Title: CAO

Type: Operating Authority - OCWA **Name:** Don Irvine
Phone: (519) 925-1938 **Fax:** (519) 925-0322
Email: dirvine@ocwa.com
Title: Senior Operations Manager - OCWA

Type: Main Contact **Name:** Barry Trood
Phone: (519) 848-5327 **Fax:** (519) 848-5291
Email: btrood@wellington-north.com
Title: Water & Sewer Superintendent

INSPECTION DETAILS:

Site Name: WW ARTHUR WPCP
Site Address: 160 PRESTON Street ARTHUR ON N0G 1A0
County/District: WELLINGTON NORTH
MECP District/Area Office: Guelph District
Health Unit: WELLINGTON-DUFFERIN-GUELPH HEALTH UNIT
Conservation Authority:
MNR Office:
Site Number: 110000882
Inspection Type: Announced
Inspection Number: 1-I75O2
Date of Inspection: Mar 05, 2019
Date of Previous Inspection: Mar 12, 2014

COMPONENTS DESCRIPTION

Site (Name): Arthur WPCP
Type: Plant Classification **Sub Type:** Class III
Comments:
The Arthur WPCP has a certificate # 418 issued on 1994/11/24.

Site (Name): Arthur WPCP
Type: Mechanical Sewage Treatment System **Sub Type:** Pre-treatment

Comments:
 Two manually cleaned grit channels, each measuring approximately 5.4 m long x 0.75 m wide x 0.5 m SWD, sized for a peak flow of 5045 m³/d and equipped with a proportional weir to provide a control velocity of 0.3 m/s.
 A weatherproof comminutor at the downstream side of the grit channels and a manually raked bypass screen sized for screenings removal when the comminutor is out of service.

Site (Name): Arthur WPCP
Type: Mechanical Sewage Treatment System **Sub Type:** Secondary Treatment

Comments:
 The Arthur WPCP has an extended aeration tank and air diffusion system consisting of:
 -A two cell annular ring type aeration tank with a total liquid storage volume of 1073 m³, to provide a minimum hydraulic retention time of 17.5 hours at the average flow of 1465 m³/d; and,
 - Two fine bubble aeration systems for two biological treatment aeration tanks and two blowers (one as a standby), each rated at 486 L/s against 45 kPa discharge pressure at standard conditions.
Final Clarifier:
 One 13.5 m diameter centre inlet clarifier with 3.8 SWD, having a maximum surface settling rate of 0.41 L/m³.s, weir loading of approximately 1.38 L/m³.s at a peak flow of 5045 m³/d and equipped with sludge collector mechanism, inlet well and scum skimming mechanism.

Site (Name): Arthur WPCP
Type: Mechanical Sewage Treatment System **Sub Type:** Chemical Addition

Comments:
 The Arthur WPCP has a phosphorous removal/chemical addition system consisting of:
 - One 23 m³ double-shell insulated tank furnished with heating taps, to be stored outside in a concrete spill containment structure, for the storage of liquid alum or ferric chloride;
 - 2 metering pumps (one as standby), each having a minimum rated output of 250 L/d, with at least 10:1 turndown capability to be installed in a chemical room; and,
 -One 450 L plastic "day tank" in the chemical room.

Site (Name): Arthur WPCP
Type: Mechanical Sewage Treatment System **Sub Type:** Tertiary Treatment

Comments:
 The Arthur WPCP contains an effluent filter system consisting of:
 - Six continuous backwash, up flow, deep bed granular media filter modules with total filtration area of 27.9 m² and a loading rate of 9.7 m/h when treating a peak flow of 6500 m³/d;
 -Six air lift/filtrate dispersion modules;
 -Two air compressors, each having a capacity of 38 L/s (standard) at 690 kPa pressure, mounted on approximately 300L air receiver tank; and,
 -Two wash water reject pumps, one installed and one kept on site as standby (or as a spare RAS pump), each rated at 6.1 L/s against 3.5 m TDH.
 - filter bypass to disinfection basin in high flow periods

Site (Name): Arthur WPCP
Type: Method of Disinfection **Sub Type:** Ultraviolet

Comments:

The facility has ultraviolet irradiation disinfection system with rated capacity of 6500 m³/d which includes:

- One flow channel;
- Two banks of ultraviolet lamps in series, each bank containing 8 modules with 4 lamps per module; and,
- One automatic level controller to maintain an average liquid depth of 250mm in the flow channel.

Effluent flow enters a Parshall Flume with an ultrasonic flow meter for final discharge to the Conestogo River.

Site (Name): Arthur WPCP

Type: Effluent Discharge Receiver

Sub Type: Surface Water

Comments:

Final effluent is discharged into the Conestogo River, which is part of the Upper Grand River watershed, on seasonal basis, based on the river flow.

Site (Name): Arthur WPCP

Type: Effluent Discharge Frequency

Sub Type: Seasonal

Comments:

The Arthur WPCP effluent is discharged on seasonal basis depending upon the river flow. During May to September, due to low flow in the Conestogo River, the secondary treated effluent from the secondary clarifier is directed to the holding ponds. In the fall, based on the river levels, the effluent from the holding tanks is directed back to the treatment plant and is combined with the effluent from the extended aeration tanks for sand filtration and UV disinfection treatment before entering the Conestogo River.

Site (Name): Arthur WPCP

Type: Biosolids Stabilization Process

Sub Type: Aerobic Digestion

Comments:

The Arthur WPCP contains one primary and one secondary aerobic digestion tank.

Site (Name): Arthur WPCP

Type: Stand-by Power Generation

Sub Type: STP Generator

Comments:

The treatment facility and the pumping stations are fenced and are equipped with a stand-by diesel generator. It is rated at 160 kW and includes an automatic transfer switch and 900 L fuel storage tank.

Site (Name): Arthur WPCP

Type: Sewage Collection System

Sub Type: Nominally separated sewers

Comments:

The Arthur WPCP operates on a separated sewer system, which is considered a Wastewater Class 2 system..

Site (Name): Arthur WPCP

Type: Collection System Component

Sub Type: Pumping station

Comments:

The Arthur WPCP has two Pumping stations:

- Wells Street Pumping Station, having a reinforced concrete wet well with a volume of approximately 120 m³ and two submersible sewage pumps
- Frederick Street Pumping Station, having a reinforced concrete wet well, two submersible pumps and a 60kW backup generator.

Site (Name): Arthur WPCP

Type: Biosolids Storage Method **Sub Type:** On-Site Storage Capacity

Comments:

The Arthur WPCP has an on-site storage capacity of 600 m³ over four sludge storage tanks, with a retention time of approximately 3-4 months. The plant also has Ministry approval to utilize sludge storage capacity at Mount Forest WPCP.

Site (Name): Arthur WPCP
Type: Biosolids Disposal Method **Sub Type:** Land application

Comments:

The Arthur WPCP has contracts with haulers to land apply the treated biosolids. There is also an option to have biosolids hauled to the Mount Forest WPCP, if weather conditions do not allow spreading. The owner has an agreement to haul biosolids to the Lystek processing plant in Dundalk, Ontario (during winter months).

Site (Name): Arthur WPCP
Type: Lagoon Sewage Treatment System **Sub Type:** On-Site Storage Capacity

Comments:

The existing lagoon structure has been modified to be used as three-celled effluent holding ponds with a total storage capacity of 343,000m³.

Site (Name): Arthur WPCP
Type: Mechanical Sewage Treatment System **Sub Type:** Treatment Facility

Comments:

Return Sludge and Waste Sludge Pumping

Return Sludge and waste sludge pumping system consisting of:

- one (1) sludge hopper with liquid volume of approximately 50 m³ ;
- two (2) variable speed submersible sludge pumps, each rated at a maximum capacity of 34 L/s for pumping either return sludge to the aeration cells or waste sludge to the digester.

Site (Name): Arthur WPCP
Type: Mechanical Sewage Treatment System **Sub Type:** Treatment Facility

Comments:

Final Effluent Pumping, Storage and Disposal Facilities

Effluent Pumps

Effluent pumping systems consisting of:

- two (2) centrifugal submersible pumps installed in the effluent trough, each rated at 6 L/s against 61m TDH to supply utility and lawn water at the plant;
- two (2) horizontal split case pumps, installed in the effluent pump room, each rated at 58.5 L/s against 64 m TDH to pump effluent from the plant to Holding Ponds from May 1 to September 30;
- one (1) wet well measuring approximately 7.8 m x 2.6 m x 1.7 m SWD for the horizontal split case pumps;
- one (1) magnetic flow meter and accessories to monitor and record the quantity of effluent pumped to the Holding Ponds;

Site (Name): Arthur WPCP
Type: Mechanical Sewage Treatment System **Sub Type:** Treatment Facility

Comments:

Stream Gauging Station

Conestogo River at Arthur hydrometric station (17T 536350E 4853113N) near the outfall to monitor and record flow in Conestogo River;

INSPECTION SUMMARY:

Introduction

- **The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry policies and guidelines during the inspection period.**

This wastewater treatment and collection system is subject to the legislative requirements of the Ontario Water Resources Act (OWRA) and the Environmental Protection Act (EPA) and regulations made therein. This inspection has been conducted pursuant to Section 15 of the OWRA and Section 156 of the EPA.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

The Arthur Wastewater Treatment Plant (WWTP) is owned by the Township of Wellington North (TWN) and serves a population of approximately 2500 people having approximately 1052 service connections. It is an extended aeration activated sludge facility with filtration (residential, commercial and industrial) in the Town of Arthur. It is operated by the Ontario Clean Water Agency (OCWA).

The Arthur WWTP was commissioned in 1990 and currently has an average daily flow (ADF) rated capacity of 1,465 m³/d (ECA No. 3773-ABJKXX, 2016). Raw wastewater is conveyed to the treatment plant via the Wells St. Sewage Pumping Station (SPS) and Frederick St. SPS and the Preston St. gravity sewer.

During the period of May 1 to September 15 annually, flow from the secondary treatment system is pumped to off-site storage lagoons. During the period of September 16 to April 30 annually, effluent from the plant can be discharged to the Conestogo River, if flows in the river are adequate.

This report is based on the inspection initiated for this facility on March 5th, 2019. The inspection review period for this inspection is from January 1, 2017 to January 31, 2019. The treatment facility and the two pumping stations were also visited during this inspection. The holding ponds could not be physically inspected due to poor weather conditions and excessive snow buildup around them.

Authorizing/Control Documents

- **The owner had a valid Environmental Compliance Approval for the sewage works.**

The inspection period for this inspection was an approximately 2 year period from January 1, 2017 - January 31, 2019. During this period, ECA # 3773-ABJKXX was applicable and was utilized for the inspection. As of February 1, 2019, a new ECA was issued being # 9614-B5FJV7. This new ECA was not utilized as part of this inspection.

Capacity Assessment

- **The annual average daily flow was approaching the rated capacity of the sewage works.**

In accordance with the Environmental Compliance Approval (ECA), the rated capacity for the extended aeration system is 1465 m³/d .

The Annual Average Daily Flow was 1517 m³/day in 2017 (or 103.5% of the rated capacity) and was 1360 m³/day (or 92.8% of the rated capacity) in 2018.

The maximum peak flow occurred on June 23, 2017 at 5844 m³/day and represents a peaking factor of 3.9 times design flow. This was due to an extremely heavy rainfall event.

Capacity Assessment

A Schedule C Class Environmental Assessment (EA) (XCG, 2016) was completed for the facility, which recommended the phased expansion of the existing facility. This EA was completed and a new ECA was issued February 1, 2019. Some upgrades were completed in 2016 (bubbler upgrades) but more significant upgrades are planned.

Actions Required:

The Arthur WWTP will shortly be commencing these upgrades to the plant in order to address these flows. At the end of Phase 1 construction the WWTP will have a rated capacity of 1860 m³/day and at the end of Phase 2 construction the maximum rated capacity will be 2300 m³/day.

- **The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity prescribed by the Environmental Compliance Approval.**

Allowable discharge is determined via ammonia-based discharge curves (apply river flow and TAN to curves). The maximum discharge that treatment equipment can allow is 6,500 m³/d, based on the design capacity of the effluent filters and UV disinfection system. During this inspection period the maximum daily discharge rate was 5726 m³/day.

- **Flow measuring devices were installed, calibrated and maintained in accordance with the requirements of the Environmental Compliance Approval.**

The facility has three main flow measuring devices and a river level sensor for calculating river flow. The flow meters are as follows:

- 1.) A 'Parshall Flume' with ultrasonic equipment to permit monitoring and transmission of effluent flow data, having a data recorder in the control room building.
- 2.) A magnetic flow meter to record the flow from the treatment plant to the holding ponds.
- 3.) A magnetic flow meter to record the flow from the holding ponds to the treatment plant.

The flow meters and level analyzer were professionally calibrated / checked (by an external agency) on September 21, 2017 and again on September 21, 2018. All testing indicated readings were well within acceptable tolerances.

- **Flow rates were recorded at a frequency prescribed by the Environmental Compliance Approval.**

Section 9(7) of the ECA requires continuous flow meters to measure the flow rate of the effluent from the works with an accuracy to within plus or minus 15% of the actual flowrate, and record the flow rate on a daily basis. Staff enter on site daily and record flow rates.

Treatment Processes

- **The owner had ensured that all equipment/components associated with the works was installed in accordance with the Environmental Compliance Approval.**

The physical inspection of the facility was conducted on March 5, 2019. Existing equipment listed in the ECA was assessed against the equipment found on site (of what could be observed and/or checked) and was found to be accurate.

- **The works, related equipment and appurtenances were being operated and maintained to achieve compliance prescribed by the Environmental Compliance Approval.**

Although the treatment plant has been treating flows above the design limit and has been operating within legislated limits, there was one exceedance of the ECA TAN parameter operating limit during the inspection period. This is discussed in detail later in this report.

The data review indicated that the operators are conducting various process control measures such as: monitoring daily inflow to the plant, daily chemical usage, dissolved oxygen and temperature in the extended aeration tank to support the nitrification process and BOD removal, sludge blanket in the clarifier and return activated sludge (RAS)

Treatment Processes

flow to the aeration tank to control MLSS for the activated sludge process.

Section 6.3.2 of the operations manual for the Arthur WPCP (prepared by Triton Engineering Services Limited) provides a testing outline from a process control point of view. This outline includes:

- testing of mixed liquor suspended solids (MLSS) and mixed liquor volatile suspended solids (MLVSS) in the mixed liquor and RAS - at least twice per week,
- clarifier sludge concentration - once per day,
- clarifier sludge blanket- twice per week,
- MLSS and MLVS in digested sludge- twice per week and
- nutrients and suspended solids (SS) testing for digester supernatant- twice per week, along with the other testing recommendations.

Log book record reviews indicated that the operating authority is not performing the complete process control testing (as recommended by the operations manual). Results of in-house laboratory testing can be found on in-house laboratory check sheets.

It is recommended that the operating authority, in coordination with the Township, develop a schedule for the sampling and monitoring of the process control parameters, that takes into consideration the recommendations of the operations manual (as well as what is feasible/practical) based on the historical performance of the plant. The operating authority should perform testing as per the newly-developed schedule. The Operating Authority advised that the operations Manual will be updated shortly, as a result of all the proposed upgrades that will be taking place.

During the site visit it was observed that the operating authority is using only one bank of ultraviolet (UV) lamps instead of the two banks found on site. The effluent quality was meeting the pathogen limit provided in the ECA utilizing only one UV lamp bank. The operator indicated that they maintain both UV banks and are flexible to use both banks when required.

It was also observed that the operating authority is not using the comminutor. Operators stated that utilization of the bypass screen was sufficient; the comminutor was constantly getting clogged by rags and was therefore left off.

Also, during the site visit, some algae build-up could be observed along the perimeter and on the rake in the clarification tank, but this was cleaned up during the inspection. Operators have indicated that it is typical for algae to build up during the winter months when cold weather affects outside water hydrants used for maintenance of such algae.

- **The operator-in-charge had ensured that all equipment used in the processes was monitored, maintained, inspected, tested and evaluated.**

It was indicated that an operator is present at the facility during the day shift, five days per week and records treatment process parameters. An operator also visits the facility on weekends to monitor and record the critical treatment process parameters. An operator is available on-call to respond to any emergencies at the plant. The log book review indicated that all major treatment equipment items are checked and inspected on daily basis. The operator indicated that they follow their standard operating procedures (SOP) for regular maintenance of the facility equipment.

- **The sewage works effluent was essentially free of foreign substances on the day of the inspection.**

During the inspection of the facility, the operator took a sample of the effluent. It appeared to be (relatively) clear and colourless.

Effluent Quality and Quantity

- **The sewage works effluent limits were prescribed by the Environmental Compliance Approval.**

Effluent Quality and Quantity

The C of A # 3773-ABJKXX issued on November 28, 2016 has effluent operational limits listed in section 6 of the ECA. These are as follows:

CBOD5

CBOD5 - Annual Average Concentration (mg/L) - 10
CBOD5 - Monthly Average Concentration (mg/L) - 15
CBOD5 - Annual Average Waste Loading (kg/day) - 14.65

Total Suspended Solids (TSS)

TSS - Annual Average Concentration (mg/L) - 10
TSS - Monthly Average Concentration (mg/L) - 15
TSS - Annual Average Waste Loading (kg/day) - 14.65

Total Phosphorus (TP)

TP - Annual Average Concentration (mg/L) - 1
TP - Monthly Average Concentration (mg/L) - 1
TP - Annual Average Waste Loading (kg/day) - 1.47

Total Ammonia Nitrogen (TAN)

TAN - Annual Average Concentration (mg/L) - 1.5
TAN - Monthly Average Concentration (mg/L) - 2.3
TAN - Annual Average Waste Loading (kg/day) - 2.20

The pH of the effluent is to be maintained between 6.0 - 9.5 at all times.

- **The sewage works effluent sample results demonstrated compliance with BOD5 or CBOD5 limits prescribed by the Environmental Compliance Approval.**

The ECA Annual Average Concentration effluent limit for CBOD5 is 10 mg/L and the monthly average concentration limit is 15 mg/L. The 2017 Arthur STP Annual Average CBOD5 effluent reading was 2.713 mg/L and for 2018 was 3.190 mg/L

The annual average CBOD5 loading limit for Arthur is 14.65 kg/day.

The 2017 annual average CBOD5 loading for BOD was reported to be 6.538 kg/day and for 2018 was 9.295 kg/day.

- **The sewage works effluent sample results demonstrated compliance with total suspended solids limits prescribed by the Environmental Compliance Approval.**

The total suspended solids annual average concentration limit is 10 mg/L. The 2017 annual average concentration was reported as 2.802 mg/L and 2018 was 3.607 mg/L.

The total suspended solids annual average loading limit is 14.65 kg/d. The 2017 annual average loading concentration was reported as 6.746 kg/d and for 2018 was 8.997 kg/day.

- **The sewage works effluent sample results demonstrated compliance with total phosphorous limits prescribed by the Environmental Compliance Approval.**

The total phosphorus annual average concentration limit is 1 mg/L. The 2017 annual average concentration was reported as 0.153 mg/L and the 2018 was 0.133 mg/L.

The total phosphorus annual average loading limit is 1.47 kg/d. The 2017 annual average loading concentration was reported as 0.388 kg/day and for 2018 was 0.323 kg/day.

Effluent Quality and Quantity

- **The sewage works effluent sample results did not demonstrate compliance with total ammonia/total ammonia nitrogen/un-ionized ammonia limits prescribed by the Environmental Compliance Approval.**

The Town of Arthur WWTP monthly average TAN concentration limit (under ECA # 3773-ABJKXX) is 2.3 mg/L. Five samples were taken in January 2019 having values of 0.1, 1.9, 4.6, 6.4 and 0.7 mg/L. When averaged out, these come to 2.74 mg/L. OCWA reported this upon discovery. This exceedance was caused by a sudden abnormal increase in raw influent TAN levels.

The total ammonia / nitrogen annual average concentration limit is 1.5 mg/L. The 2017 annual average concentration was reported as 0.216 mg/L and for 2018 was 0.355 mg/L.

The total ammonia / nitrogen annual average loading limit is 2.2 kg/day. The 2017 annual average loading concentration was reported as 0.532 kg/d and for 2018 was 0.919 kg/day.

Actions Required:

The operating authority is currently investigating the cause of the increased TAN in the influent and is continuing to divert influent to the holding ponds.

- **The sewage works effluent sample results demonstrated compliance with microbiological parameter limits prescribed by the Environmental Compliance Approval.**

The E.coli (EC) limit is listed in section 6(3) of the ECA as 200 org/100 mL as a monthly Geometric Mean Density (GMD). The monthly max GMD listed for 2017 was 4.309 org/100 mL and for 2018 was 98.679 org/100 ml. This peak occurred in April 2019. The GMD EC readings were back below 3 org/100 mL from October to December 2018.

A new ECA has been issued as of February 1, 2019. In this ECA, the monthly GMD limit for EC is now 100 org/100 ml. The operating authority may wish to begin using the 2nd bank of UV lights in the plant, if EC levels return to values close to this limit.

- **The sewage works effluent sample results demonstrated compliance with pH limits prescribed by the Environmental Compliance Approval.**

The final effluent allowed pH range is 6.0 - 9.5. The final effluent pH range reported for 2017/18 was 6.47 - 8.57.

- **The sewage works effluent was discharged in accordance with Environmental Compliance Approval.**

Section 7 of the ECA requires the effluent from the plant to be discharged as follows:

" a) From May 1 to September 15, the effluent for the plant should be transmitted to the holding ponds for storage.
b) From September 16 to April 30, the effluent from the plant should be discharged directly to the Conestogo River provided that there is adequate flow in the river.

c) From September 16 to April 30, the effluent stored in the holding pond may be transmitted to the plant, filtered and then discharged to the river provided that there is adequate flow in the river.

d) Effluent from the holding pond may be discharged to the Conestogo River during emergencies provided that prior written authorization has been obtained from the Water Supervisor.

e) The February 11, 1991 ammonia-based discharge curves generated by the Ministry and the accompanying guidance shall be used to determine the maximum permissible discharge rates. The maximum discharge rate may also be limited by the design capacity of the effluent filters which is 6500 cubic meters per day."

The data review indicated that there was no incident of direct effluent flow from the holding ponds to the Conestogo River during the inspection period.

The facility has established a gauging station to record depth of the flow in the river. The Ministry of Environment provided an effluent discharge rate flow control scale in a memorandum sent to the Township in February, 1991.

Effluent Quality and Quantity

The scale shows the allowed discharge based on a minimum river flow for the various months of the year based on allowable un-ionized ammonia limits. The allowable discharge deviates for the same river depth from month to month, allowing nutrient control in the Conestogo Lake which is downstream of the WPCP effluent discharge point.

During the effluent discharge data review, these monthly flow graphs were compared with effluent discharge data for the inspection period and the compliance with the effluent discharge condition was confirmed.

- **The sewage works effluent was discharged during the prescribed period.**

During the period of May 4-9, 2017, an emergency discharge to the Conestogo River was required to occur due to repairs needed to be undertaken at the WWTP (a large diverter valve for lagoon wastewater transfer was in need of replacement). This was reported to the Ministry of the Environment, Conservation and Parks (MECP) as per section 5A of the ECA. Discharged material was UV disinfected.

Monitoring Requirements

- **The sampling requirements were prescribed by the Environmental Compliance Approval.**

The ECA contains sampling requirements for the raw as well as the treated effluent from the plant to the pond and to the river under Section 9 "Monitoring and Recording" section.

- **All sewage works effluent sampling requirements prescribed by the Environmental Compliance Approval were not met.**

Section 9 of the ECA lists a complex schedule of sampling to be undertaken. Effluent sampling consists of both composite and grab sampling, from the following locations:

- Effluent Monitoring - plant outfall pipe after disinfection channel, and pond effluent liquid (when discharging to Conestogo River); and;
- Effluent monitoring - pond outfall pipe (when discharging directly to Conestogo River).

More specifically, Section 9 (3) requires CBOD5 to be taken from the plant effluent on a weekly basis. In examining the 2017 sampling data, it was determined that only 2 samples were taken in the following months: January and December 2017, January - April 2018, October - December 2018, and January 2019. Closer examination determined that the operator was using an older Chain of Custody (COC) for sampling that only required BOD5 during these missed months.

As well, in the month of September 2018, records indicated that 25,759 m³ of raw sewage flow occurred. Although the majority of this influent sewage was directed to the lagoons, on September 24-26 a total of 194.4 m³ were indicated as being comprised of treated final effluent and was discharged to the Conestogo River. Records further did not indicate any sampling having occurred of the 194.4 m³ of treated effluent. Staff indicated that this small amount of effluent was as a result of complications involving a broken valve and a leaking gate seal. These 194.4 m³ reportedly received UV disinfection and the river flow was adequate.

Actions Required:

These errors were brought to light during the inspection and the operating authority has given the operator the proper COC to utilize for further sampling. With respect to the missed sampling of 194.4m³ final effluent, the operating authority has been reminded that any effluent that is discharged to the receiver is required to be sampled according to the ECA. The operating authority has been advised that they should contact the Ministry of the Environment, Conservation and Parks (MECP) if exigent circumstances arise to discuss any anomalies involving abnormal discharges to the receiver.

- **All sewage works influent (raw sewage) sampling requirements prescribed by the Environmental Compliance Approval were met.**

Monitoring Requirements

- **The owner had maintained the monitoring records since the date of the last inspection.**
- **All exceedances of any prescribed parameters were reported in accordance with the Environmental Compliance Approval.**

The Town of Arthur WWTP monthly average TAN concentration limit (under ECA # 3773-ABJKXX) is 2.3 mg/L. Five samples were taken in January 2019 having values of 0.1, 1.9, 4.6, 6.4 and 0.7 mg/L. When averaged out, these come to 2.74 mg/L. The limit is 2.3 mg/L. The Ontario Clean Water Agency (OCWA) is the operating authority (OA) for the owner. OCWA reported this upon discovery. Corrective Actions that the OA is going to undertake include:

- Operational staff are in the process of identifying the source of the increased TAN in the collection system
- A meeting with Township of North Wellington has occurred to identify the source through extra sampling
- OCWA Process & Optimization person is reviewing the operations for the month of January along with the reports
- OCWA management and operations staff will continue to work diligently towards a goal of meeting the ECA Limit for this facility.

Upon inquiry with OCWA staff by the MECP Inspector, OCWA was not sure as to the cause of the increased TAN results. Some hypothesis was given involving wastewater emissions coming from a local chicken processing plant but this was not verified. OCWA staff and the owner are to investigate this and report back to MECP Inspector.

During the inspection of the Arthur WWTP the operators were asked how this issue was progressing. They advised that they have spoken with management personnel at the local chicken processing plant and have taken samples - sample results were still pending.

Reporting Requirements

- **The reporting requirements were prescribed by an Environmental Compliance Approval.**

The ECA lists a variety of different reporting requirements, which include;

- ownership changes
- completion of upgrades
- bypass and overflow events and reports
- sewage pumping station overflow events and reports
- analytical results from sampling reports
- Annual Performance Reports

- **The annual performance reports met the submission and contents requirements of the Environmental Compliance Approval.**
- **All other reporting requirements prescribed by the Environmental Compliance Approval were met.**
- **The owner/operator maintained a logbook and/or records of all bypasses/overflows which occurred from any portion of the sewage works in accordance with the Environmental Compliance Approval.**

Bypasses and Overflows

- **Bypasses/overflows had occurred at the sewage works during the inspection period.**

There was one bypass event on June 23, 2017 due to an extremely heavy rainfall event. The bypass lasted 9.5

Bypasses and Overflows

hours with a total of 707 m³ that went to the receiving stream (Conestogo River). This bypassed effluent was disinfected with ultraviolet light (but not filtration), prior to discharge.

There was also one overflow event at the Frederick Street Pumping Station on June 23, 2017 due to the same high rainfall event. This overflow lasted approximately 5 hours. No volume was able to be recorded.

From the previous years' file review, it was noticed that the Ministry's district officer had asked the Township to take actions to minimize these overflows, as these overflows enter into Conestogo River, which has sensitive users downstream to this facility.

The Township has indicated that they previously conducted an Inflow and Infiltration (I & I) study within which included flushing and camera surveillance of the collection system and the manholes to identify the locations of concern in the system. The Township has been working to upgrade the infrastructure to minimize the raw sewage overflow incidents.

It is recommended that the Township continue its efforts to investigate and address inflow and infiltration concerns. It is requested that the Township provide a summary of any significant findings encountered and actions taken to the Ministry on an ongoing basis.

- **For all bypasses/overflows which occurred from the sewage treatment plant, samples were collected and analyzed in accordance with the Environmental Compliance Approval.**
Representative samples were collected and analyzed from the bypass events.
- **Notices and written reports of all bypasses/overflows were provided to the Ministry in accordance with the Environmental Compliance Approval.**
- **A process was in place for the monitoring and reporting of bypasses and overflows should they occur.**
The operating authority follows a standard operating procedure provided in their "Facility Emergency Plan" (or "FEP Binder") requiring informing the Ministry's Spills Action Centre (SAC) along with their internal agency communication. The operating authority also submits a "GRCA form" developed by the conservation authority and the Ministry, to the district officer with the detailed information on the bypass/overflow events.

Biosolids Management

- **The owner was maintaining records of the amount of biosolids generated and the locations where biosolids were sent.**
The Arthur WWTP had 2002 m³ of sludge hauled in 2017, averaging 222.44 m³ per month. The Arthur WWTP had 1,954 m³ of sludge hauled in 2018, averaging 217.111 m³ per month.
- **The owner had a program for the routine removal of sludge from the lagoon system.**
The three lagoons for this plant have been modified to be effluent holding ponds. The operating authority (OCWA) indicated that the holding ponds have very little sludge settling at the bottom and do not anticipate sludge removal within the next 15-20 years. The operator also indicated that they will remove sludge from the holding ponds on as required basis.
- **Records confirm that biosolids were transferred to a Ministry approved facility for disposal or utilization.**
The biosolids from the Arthur WPCP were hauled to various agricultural sites as well as to Lystek International Inc. during the inspection period.

Biosolids Management

Below are the NASM plan numbers for the sites which received the biosolids:

2017 - NASM # , 23002, 23220, 23166,
2018 - NASM # , 23284, 23002, 23344, 23536

According to the last Annual Report, no sludge was transported to the Mount Forest Sludge Storage facility during the reporting period.

- **Records confirm that biosolids were transported for disposal or utilization by Ministry approved haulers.**

Two haulers are utilized for biosolid haulage from the Arthur WPCP. One hauler (Saugeen Agri Service - C of A # 0162-AQRQ9R (formerly `Eden Environmental Services') under C of A # 9566-6HYKC3 and # 2336-84CPFV) hauls biosolids to Lystek International Inc., located in Dundalk, Ontario. This facility converts biosolids into "market ready" fertilizer products. The other hauler (Wessuc Inc - C of A #1603-4LGJBN) hauls biosolids to farmers for land application.

OCWA maintains a `Daily Record of Sludge Haulage' form at the WWTP which documents various aspects of sludge data, but these forms were found to be filled out to various levels of completeness. The Operating authority advised these were primarily internal documents for their use only. The Operating Authority was able to provide the required information through spreading records and annual reports from the hauler.

The hauling agency also provide the operating authority with a post land application report on behalf of the biosolids receiving authority, which includes the information on biosolids' sampling results and biosolids' land application details.

- **The owner of the facility had written contingency plans or other management methods in place to be used in the event that the facility's sludge storage capacity was not sufficient.**

This WPCP has an onsite sludge storage capacity of 600 cubic meters. The facility is also approved to utilize the sludge storage facility located in Mount Forest WPCP (651 Cork Street Mount Forest, under Certificate of Approval # 6134-73FHHU) under contingency conditions. Sludge can also be sent to the Lystek processing facility if need be.

- **There was a process in place to ensure biosolids sample results are reviewed and interpreted by the Municipality.**

The lab automatically sends a copy of biosolid reports to the owner.

- **Testing for biosolids required by legislation was conducted by accredited laboratories.**

Biosolids testing is conducted by the `SGS Lakefield Research Limited' laboratory, which is audited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada (SCC).

Certification and Training

- **The classification certificates of the subsystems were conspicuously displayed at the workplace or at premises from which the subsystem was managed.**

The classification certificate classifying the Arthur Waste Pollution Control Plant as Class 3 facility was conspicuously displayed at the treatment plant in Arthur.

The classification certificate for the Arthur collection system, which is owned and operated by the Township of Wellington North, classifies the collection system as Class 2 system.

- **Operator licences were displayed in a conspicuous location at the workplace or at the premises from which**

Certification and Training

the subsystem was managed.

The operator certificates for the treatment plant were posted at the site as well as (reportedly) available at the OCWA's office in Shelburne.

- **The overall responsible operator had been designated for the wastewater treatment and collection works.**
- **An adequately licensed operator was designated to act in place of the overall responsible operator when the overall responsible operator was unable to act.**

The Arthur WPCP is a Class 3 system (Certificate # 418 issued in September 1987) and the Overall Responsible Operator (ORO) must have a Class 3 or higher operator certificate. In cases of emergency, a back-up operator who has a certificate with one class lower can act as the ORO for a period of no more than 150 days in a 12 month period. No instances were reported where the ORO was unable to act or one wasn't available.

- **All operators had the appropriate level of licences for the wastewater treatment and collection works.**
As mentioned earlier, the WPCP is operated by OCWA operators. For the collection system, the Township has two certified operators responsible for the operation and maintenance of the system.
- **All operators have the appropriate level of training and or experience for the wastewater treatment and collection facilities in accordance with the requirements of the Environmental Compliance Approval.**
- **Only licenced operators made adjustments to the treatment equipment.**
- **Operators-in-charge were designated for the wastewater treatment plant and all associated collection works.**
Generally the operator who reports to the WWTP is the OIC.
- **The operator-in-charge ensured that records were maintained of all adjustments made to the processes within his or her responsibility.**

Logbooks

- **The logs and other record keeping mechanisms complied with the record keeping requirements.**
The operating authority is maintaining various record keeping systems which includes entries in daily logbooks, monthly data flow sheets, in-house lab sheets and 14" daily check sheets. Alarm call-outs used to be documented in logbooks and separate log sheets but are now maintained in the OCWA 'Maximo' computerized system. Alarms at the plant appeared to have been responded to.
- **Logs and other record keeping mechanisms were available for at least two (2) years.**

Operations Manuals

- **The operations and maintenance manuals met the requirements of the Environmental Compliance Approval.**
The treatment facility has an operations and maintenance manual prepared by Triton Engineering Services Limited. The manual has detailed information on operation, equipment, maintenance, sampling and troubleshooting, as required by the section 8(2) of the ECA. The ECA also requires procedures to be developed for spill, bypass/overflow and emergency situations. These procedures are available in OCWA owned manual called the FEP ("Facility Emergency Plan").

Operations Manuals

Section 8(2)(g) of the ECA requires the Operations Manual to contain procedures for receiving, responding and recording of complaints, and any follow-up activities. Although OCWA did have special procedures for receiving, responding and recording of complaints, they were not specifically found in the Operations Manual. References as to where to find these procedures were also not found in the Operations Manual.

Actions Required

During the course of the inspection, the owner included a reference in the Operations Manual as to where to find such procedures.

- **Operators and maintenance personnel had ready access to operations and maintenance manuals.**

The Operations and Maintenance Manual is kept at the office of the treatment facility for ready access to the operators. The Operating Authority has explained that the Operations Manual will be updated shortly, as a result of all the proposed upgrades that will be taking place.

- **The operations and maintenance manuals contained up-to-date plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

Contingency/Emergency Planning

- **A spill prevention control and countermeasures plan was established.**

The operators follow their agency's contingency manual for spill prevention control and counter measures plan.

- **Spill containment was provided for the process chemicals and/or standby power generator fuel.**

Both backup generators had concrete enclosures for spill containment.

- **The owner had provided security measures for the facility.**

Site is secured by fencing and an alarm system.

Other Inspection Findings

- **The following issues were also noted during the inspection:**

1.) The Township has indicated that they previously conducted an Inflow and Infiltration (I & I) study within which included flushing and camera surveillance of the collection system and the manholes to identify the locations of concern in the system. The Township has been working to upgrade the infrastructure to minimize the raw sewage overflow incidents. It is recommended that the Township continue its efforts to investigate and address inflow and infiltration concerns. It is requested that the Township provide a summary of any significant findings encountered and actions taken to the Ministry on an ongoing basis.

2.) Log book record reviews indicated that the operating authority is not performing the complete process control testing (as recommended by the operations manual). Results of in-house laboratory testing can be found on in-house lab check sheets.

It is recommended that the operating authority, in coordination with the Township, develop a schedule for the sampling and monitoring of the process control parameters, that takes into consideration the recommendations of the operations manual (as well as what is feasible / practical) based on the historical performance of the plant. The operating authority should perform testing as per the newly-developed schedule. The Operating Authority also indicated that the Operations Manual will be updated shortly, as a result of proposed upgrades that will be taking place.

Other Inspection Findings

3.) It is noted in both the new and older ECAs that the river beside the STP (and the lake downstream) is named both Conestoga and Conestogo. The river which receives effluent from the STP is 'Conestogo'. This should be corrected in the newest ECA.

4.) The Operations Manual did not list the dates and times it was revised. It is recommended such dates/times (and a summary of changes made) be included in the front of the Operations Manual.

5.) Section 5.A.3 and 5.B.3 require quarterly bypass reports to be submitted to the MECP. Periods occurred in which no bypasses occurred so no bypass reports were submitted to the MECP. Since August 2017, the Operating Authority has submitted most quarterly bypass reports even if no bypasses occurred in a period. It is recommended that all quarterly bypass reports be submitted even if no bypasses occurred in a period.

6.) The E.coli (EC) limit is listed in section 6(3) of the ECA as 200 org/100 mL as a monthly Geometric Mean Density (GMD). The monthly max GMD listed for 2017 was 4.309 org/100 mL and for 2018 was 98.679 org/100 ml. This occurred in April 2019. The GMD EC readings were back below 3 from Oct-Dec 2018.

A new ECA has been issued as of February 1, 2019. In this ECA, the monthly GMD limit for EC is now 100 org/100 ml. The operating authority may wish to begin using the 2nd bank of UV lights in the plant, if EC levels return to values close to this limit.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

1. The sewage works effluent sample results did not demonstrate compliance with total ammonia/total ammonia nitrogen/ionized ammonia limits prescribed by the Environmental Compliance Approval.

The Town of Arthur WWTP monthly average TAN concentration limit (under ECA # 3773-ABJKXX) is 2.3 mg/L. Five samples were taken in January 2019 having values of 0.1, 1.9, 4.6, 6.4 and 0.7 mg/L. When averaged out, these come to 2.74 mg/L. OCWA reported this upon discovery. This exceedance was caused by a sudden abnormal increase in raw influent TAN levels.

The total ammonia / nitrogen annual average concentration limit is 1.5 mg/L. The 2017 annual average concentration was reported as 0.216 mg/L and for 2018 was 0.355 mg/L.

The total ammonia / nitrogen annual average loading limit is 2.2 kg/day. The 2017 annual average loading concentration was reported as 0.532 kg/d and for 2018 was 0.919 kg/day.

Action(s) Required:

The operating authority is currently investigating the cause of the increased TAN in the influent and is continuing to divert influent to the holding ponds.

2. All sewage works effluent sampling requirements prescribed by the Environmental Compliance Approval were not met.

Section 9 of the ECA lists a complex schedule of sampling to be undertaken. Effluent sampling consists of both composite and grab sampling, from the following locations;

- Effluent Monitoring - plant outfall pipe after disinfection channel, and pond effluent liquid (when discharging to Conestogo River)
- Effluent monitoring - pond outfall pipe (when discharging directly to Conestogo River)

More specifically, Section 9 (3) requires CBOD5 to be taken from the plant effluent on a weekly basis. In examining the 2017 sampling data, it was determined that only 2 samples were taken in the following months; January and December 2017, January - April 2018, October - December 2018, and January 2019. Closer examination determined that the operator was using an older Chain of Custody for sampling that only required BOD5 during these months.

As well, in the month of September 2018, records indicated that 25,759 m3 of raw sewage flow occurred. Although the majority of this influent sewage was directed to the lagoons, on September 24-26 a total of 194.4 m3 were indicated as being comprised of treated final effluent and was discharged to the Conestogo River. Records further did not indicate any sampling having occurred of the 194.4 m3 of treated effluent. Staff indicated that this small amount of effluent was as a result of complications involving a broken valve and a leaking gate seal. These 194.4 m3 reportedly received UV disinfection and the river flow was adequate.

Action(s) Required:

These errors were brought to light during the inspection and the operating authority has given the operator the proper COC to utilize for further sampling. With respect to the missed sampling of 194.4m3 final effluent, the operating authority has been reminded that any effluent that is discharged to the receiver is required to be sampled according to the ECA. The operating authority has been advised that they should contact the MECPC if exigent

circumstances arise to discuss any anomalies involving abnormal discharges to the receiver.

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

1. The following issues were also noted during the inspection:

1.) The Township has indicated that they previously conducted an Inflow and Infiltration (I & I) study within which included flushing and camera surveillance of the collection system and the manholes to identify the locations of concern in the system. The Township has been working to upgrade the infrastructure to minimize the raw sewage overflow incidents.

2.) Log book record reviews indicated that the operating authority is not performing the complete process control testing (as recommended by the operations manual). Results of in-house laboratory testing can be found on in-house lab check sheets.

3.) It is noted in both the new and older ECAs that the river beside the STP (and the lake downstream) is named both Conestoga and Conestogo. The river which receives effluent from the STP is 'Conestogo'.

4.) The Operations Manual did not list the dates and times it was revised.

5.) Section 5.A.3 and 5.B.3 require quarterly bypass reports to be submitted to the MECP. Periods occurred in which no bypasses occurred so no bypass reports were submitted to the MECP. Since August 2017, the Operating Authority has submitted most quarterly bypass reports even if no bypasses occurred in a period.

6.) The E.coli (EC) limit is listed in section 6(3) of the ECA as 200 org/100 mL as a monthly Geometric Mean Density (GMD). The monthly max GMD listed for 2017 was 4.309 org/100 mL and for 2018 was 98.679 org/100 ml. This occurred in April 2019. The GMD EC readings were back below 3 from Oct-Dec 2018.

A new ECA has been issued as of February 1, 2019. In this ECA, the monthly GMD limit for EC is now 100 org/100 ml.

Recommendation:

1.) It is recommended that the Township continue its efforts to investigate and address inflow and infiltration concerns. It is requested that the Township provide a summary of any significant findings encountered and actions taken to the Ministry on an ongoing basis.

2.) It is recommended that the operating authority, in coordination with the Township, develop a schedule for the sampling and monitoring of the process control parameters, that takes into consideration the recommendations of the operations manual (as well as what is feasible / practical) based on the historical performance of the plant. The operating authority should perform testing as per the newly-developed schedule. The Operating Authority also indicated that the Operations Manual will be updated shortly, as a result of proposed upgrades that will be taking place.

3.) The improper naming of the river and lake should be corrected in the newest ECA.

4.) It is recommended such dates/times (and a summary of changes made) be included in the front of the Operations Manual.

-
- 5.) It is recommended that all quarterly bypass reports be submitted even if no bypasses occurred in a period.
 - 6.) The operating authority may wish to begin using the 2nd bank of UV lights in the plant, if EC levels return to levels close to the new 100 CFU/100 mL limit.

SIGNATURES

Inspected By:

Richard Neubrand

Signature: (Provincial Officer)



Reviewed & Approved By:

Lisa Williamson

Signature: (Supervisor)



Review & Approval Date:

04 APR 2019

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.



WWTP – MOECC Sampling Results

Helpful Resources for Municipal Wastewater Owners and Operators

Many useful materials are available to help you operate your wastewater system. Below is a list of key materials owners and operators of municipal wastewater systems frequently use. To access these materials online click on their titles in the table below or use your web browser to search for their titles.

Contact the Ministry if you need assistance or have questions at:

1-866-793-2588 or
AskMECPWastewaterCompliance@ontario.ca.

For more information on wastewater visit
www.ontario.ca/page/wastewater-operators-training-and-licences



PUBLICATION TITLE	PUBLICATION NUMBER
Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater	Website
Guide to Applying for an Environmental Compliance Approval	Website
Environmental Registration – Standby Power Systems Fact Sheet	8544E
F-5-1 Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works Discharging to Surface Waters	Website
F-8 Provision And Operation Of Phosphorus Removal Facilities At Municipal, Institutional And Private Sewage Treatment Works	Website
F-10-1 Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only)	Website
Water Management, Policies, Guidelines: Provincial Water Quality Objectives	Website
Licensing Guide for Operators of Wastewater Treatment Facilities	Website

Ressources utiles pour les propriétaires et les exploitants d'installations municipales d'eaux usées

De nombreux documents utiles peuvent vous aider à exploiter votre installation d'eaux usées. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants d'installations municipales d'eaux usées utilisent fréquemment.

Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le ministère au 1-866-793-2588, ou encore à

AskMECPWastewaterCompliance@ontario.ca

si vous avez des questions ou besoin d'aide.

Pour plus de renseignements sur l'eau potable en Ontario, consultez le site

<https://www.ontario.ca/fr/page/exploitants-de-reseaux-deaux-usees-formation-et-permis>



PUBLICATION TITLE	PUBLICATION NUMBER
Protocole sur l'échantillonnage et l'analyse des eaux usées industrielles et municipales	Site Web
Guide pour soumettre une demande d'autorisation environnementale	Site Web
Environmental Registration – Standby Power Systems Fact Sheet (en anglais seulement)	8544F
F-5-1 Établissement des exigences visant le traitement des effluents d'usines de traitement des eaux usées municipales ou privées lorsque ces effluents se déversent dans les eaux de surface	Site Web
F-8 Fournitures et utilisation d'installations d'élimination du phosphore dans les usines de traitement des eaux d'égout municipales, institutionnelles et privées	Site Web
F-10-1 Procédures d'échantillonnage et d'analyse des eaux provenant d'usines de traitement des eaux d'égouts municipales, institutionnelles ou privées (flux de déchets liquides seulement)	Site Web
Gestion de l'eau : politiques, lignes directrices, objectifs provinciaux de qualité de l'eau	Site Web
Guide sur l'accréditation des exploitants d'installations d'eaux usées	Site Web