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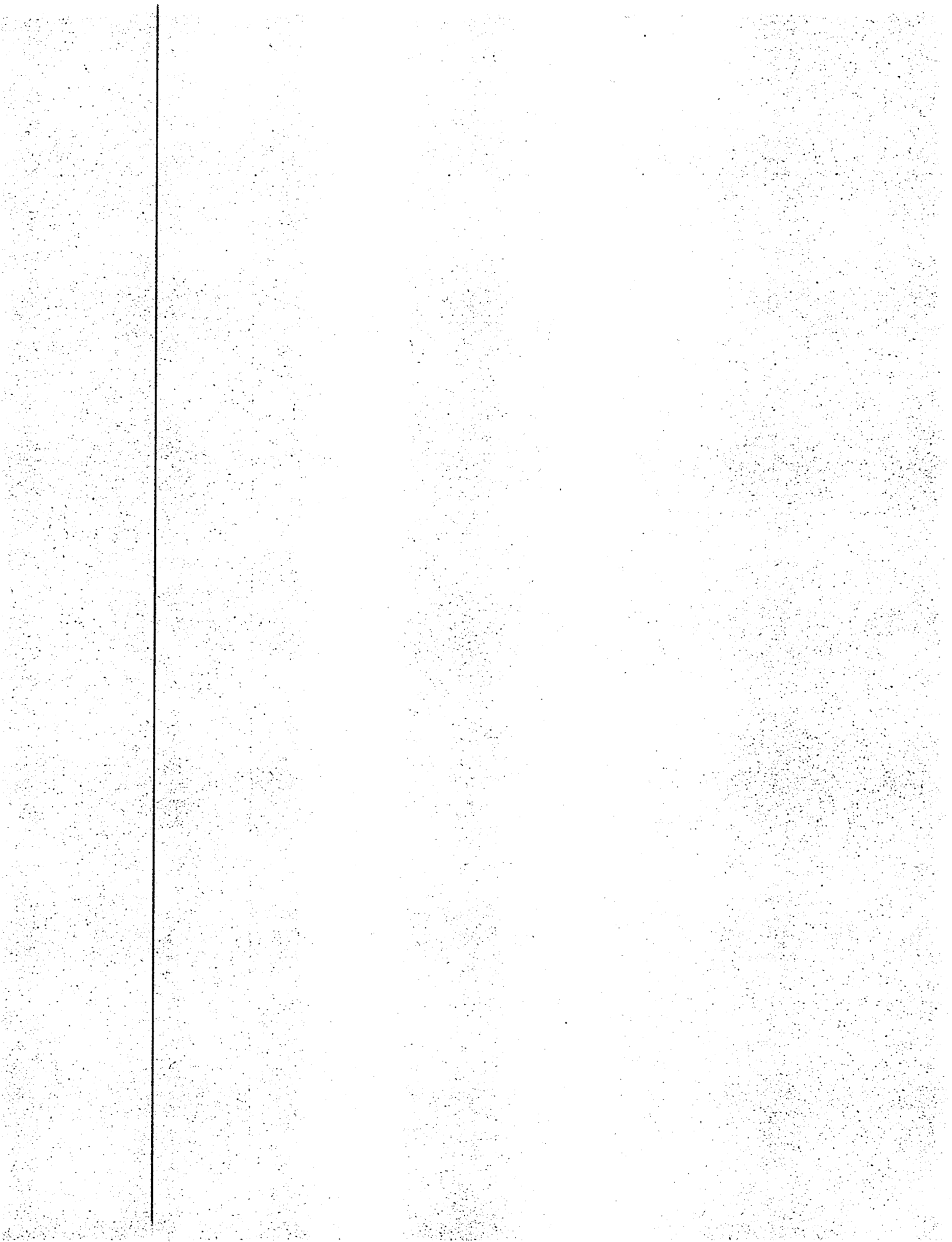


LATCHFORD DRINKING WATER SYSTEM  
1 MCLEOD ST, LATCHFORD, ON, P0J 1N0  
**Inspection Report**

System Number: 210000960  
Entity: CORPORATION OF THE TOWN  
OF LATCHFORD  
Inspection Start Date: 10/18/2022  
Inspection End Date: 11/16/2022  
Inspected By: Scott Hanselman  
Badge #:



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(signature)



**NON-COMPLIANCE/NON-CONFORMANCE ITEMS**

The following item(s) have been identified as non-compliance/non-conformance, based on a "No" response captured for a legislative or best management practice (BMP) question (s), respectively.

**Question Group: Other Inspection Findings**

<b>Question ID</b>	MRDW1116001	<b>Question Type</b>	BMP
<b>Question:</b> Were the inspection questions sufficient to address other identified best practice issues?			
<b>Legislative Requirement</b>	Not Applicable		
<b>Observation/Corrective Action(s)</b>			
<p>The following issues were also noted during the inspection:</p> <p>1) Procedure for Drinking Water Complaints Section 16.2.7 of Schedule B of MDWL requires that operations and maintenance manual or manuals include "Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint".</p> <p>The owner provides a form for recording and following up on general complaints, including drinking water complaints. However, there were no associated procedures available in operations and maintenance manuals or other manuals for the drinking water system.</p> <p><b>**RECOMMENDED ACTION(S):</b> The owner should ensure operations and maintenance manuals, or other manuals for the drinking water system, includes procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint.</p>			



### INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

**Ministry Program: DRINKING WATER | Regulated Activity:**

Question ID	MRDW1001001	Question Type	Information
<p><b>Question:</b> What was the scope of this inspection?</p>			
<b>Legislative Requirement</b>		Not Applicable	
<b>Observation</b>			
<p>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 drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices.</p> <p>This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.</p> <p>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.</p> <p>On October 18, 2022, Ministry of the Environment, Conservation and Parks Water Inspector Scott Hanselman conducted an announced, focused inspection of the Latchford Drinking Water System (DWS). The inspector was accompanied by Rico Guindon, Overall Responsible Operator, Town of Latchford.</p> <p>The Corporation of the Town of Latchford is the owner and operating authority of the Latchford DWS.</p> <p>This drinking water system inspection included a physical inspection of the Cobalt water treatment plant, as well as a document review for the period of November 1, 2021 to September 30, 2022. This period is referred to as the 'inspection period' in this report.</p>			

Question ID	MRDW1000001	Question Type	Information
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<b>Question:</b> Does this drinking water system provide primary disinfection?	
<b>Legislative Requirement</b>	Not Applicable
<b>Observation</b>	
This Drinking Water System provides for both primary and secondary disinfection and distribution of water.	

<b>Question ID</b>	MRDW1018001	<b>Question Type</b>	Legislative
<b>Question:</b> Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
<b>Legislative Requirement</b>	SDWA   31   (1);		
<b>Observation</b>			
The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.			

<b>Question ID</b>	MRDW1024001	<b>Question Type</b>	Legislative
<b>Question:</b> Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated as required?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   1-2   (2);		
<b>Observation</b>			
Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.			

<b>Question ID</b>	MRDW1038001	<b>Question Type</b>	Legislative
<b>Question:</b> Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format?			

<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   6-5   (1)1-4;
<b>Observation</b>	
Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.	

<b>Question ID</b>	MRDW1035001	<b>Question Type</b>	Legislative
<b>Question:</b> Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   6-5   (1)1-4; SDWA   O. Reg. 170/03   6-5   (1)5-10;		
<b>Observation</b>			
Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.			

<b>Question ID</b>	MRDW1037001	<b>Question Type</b>	Legislative
<b>Question:</b> Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   6-5   (1)1-4; SDWA   O. Reg. 170/03   6-5   (1)5-10; SDWA   O. Reg. 170/03   6-5   (1.1);		
<b>Observation</b>			
All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.			
Subsection 6-5(1)(5) of Schedule 6 of O. Reg. 170/03 requires that, when continuous monitoring equipment malfunctions, loses power, or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard, there must be an immediate alarm or immediate shutdown of equipment. As a result, delays are not permitted on regulatory alarms.			
Schedule 6-5 (1.1)(1) of O. Reg. 170/03 requires that the continuous monitoring equipment			

causes an alarm to sound when a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard specified in the regulation.

**TURBIDITY**

The maximum alarm standard for turbidity is 1.0 Nephelometric Turbidity Units (NTU).

On the day of the inspection, filter effluent turbidity callout alarms were set at 0.95 NTU with no delay. Additional controls include:

- a lockout alarm set at 0.9 NTU, and
- automatic backwashing at turbidities above 0.3 NTU.

**FREE CHLORINE RESIDUAL (PRIMARY DISINFECTION)**

The minimum alarm standard for free chlorine residual required to achieve primary disinfection is 0.1 mg/L less than the concentration of free chlorine residual that is required to achieve primary disinfection.

Under worst-case conditions of flow (15 L/s), temperature (0.5 deg. C), pH (8), and clearwell level (2.5 m), a free chlorine residual of 0.7 mg/L is sufficient to achieve CT disinfection. The minimum alarm standard under worst-case conditions is therefore 0.6 mg/L. The low free chlorine residual alarm for primary disinfection is conservatively set at 0.8 mg/L. This alarm condition is immediately communicated to an on-call, certified operator.

If the fire pump activates, the worst-case flow would increase to 38 L/s, resulting in a higher minimum required free chlorine residual for CT. It is important to note that an alarm sounds to notify an operator when the fire pump is activated, at which time it is standard operating procedure for operators to begin assessing CT using the "LATCHFORD WTP – CT CALCULATION SOP FIRE PUMP RUNNING" procedure.

<b>Question ID</b>	MRDW1040000	<b>Question Type</b>	Legislative
<b>Question:</b>			
Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   6-5   (1)1-4; SDWA   O. Reg. 170/03   6-5   (1)5-10;		
<b>Observation</b>			
All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.			
1) Continuous Monitoring of Free Chlorine Residual for Primary Disinfection: A HACH CL-17 is used for continuous monitoring of free chlorine residual for primary disinfection. The manufacturer's instructions do not specify a regular calibration schedule.			



Therefore the owner must calibrate the analyzers as often as necessary to ensure that test results are within a margin of error of 0.05 mg/L in accordance with section 6-5(1) (10)(i) of Schedule 6 of O. Reg. 170/03.

A review of the Monthly CL-17 Chlorine Analyzer Maintenance Record sheets indicates that the chlorine analyzer was verified monthly and cleaned/maintained every two weeks.

Instrumentation Calibration/Maintenance Records for the inspection period indicate the HACH CL-17 was calibrated on October 1st, 2021, and April 4, 2022.

**2) Continuous Monitoring of Turbidity on Each Filter Effluent Line:**

Two HACH 1720E (continuous turbidity analyzers) are used for continuous monitoring of turbidity on each filter effluent line. The manufacturer states instrument must be recalibrated before use to meet published accuracy specifications. Therefore, the owner must calibrate the analyzers as often as necessary to ensure that test results are within a margin of error of 0.1 NTU in accordance with section 6-5(1)(10)(iii) of Schedule 6 of O. Reg. 170/03.

Instrumentation Calibration/Maintenance Records indicate that filter effluent turbidity meters No. 1 and No. 2 were calibrated on October 4th, 2021, January 3, 2022, April 12, 2022, and July 5, 2022.

<b>Question ID</b>	MRDW1108001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   6-5   (1)1-4; SDWA   O. Reg. 170/03   6-5   (1)5-10; SDWA   O. Reg. 170/03   6-5   (1.1);		
<b>Observation</b>			
Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.			

<b>Question ID</b>	MRDW1033001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?			

<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   7-2   (3); SDWA   O. Reg. 170/03   7-2   (4);
<b>Observation</b>	
The secondary disinfectant residual was measured as required for the large municipal residential distribution system.	

<b>Question ID</b>	MRDW1099001	<b>Question Type</b>	Information
<b>Question:</b>			
Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03)?			
<b>Legislative Requirement</b>	Not Applicable		
<b>Observation</b>			
Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03).			

<b>Question ID</b>	MRDW1081001	<b>Question Type</b>	Legislative
<b>Question:</b>			
For LMR systems, are all microbiological water quality monitoring requirements for distribution samples being met?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   10-2   (1); SDWA   O. Reg. 170/03   10-2   (2); SDWA   O. Reg. 170/03   10-2   (3);		
<b>Observation</b>			
All microbiological water quality monitoring requirements prescribed by legislation for distribution samples in a large municipal residential system were being met.			
Based on an estimated service population of 300 people, section 10-2 of Schedule 10 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure at least eight (8) water samples are collected monthly from distribution system sites and tested for E. coli and total coliforms, with 25% of those samples tested for general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).			
Two distribution system locations are typically sampled each week. All samples are submitted to an accredited laboratory for total coliform and E. coli. At least one sample (50%) is also submitted for HPC analysis each week.			

<b>Question ID</b>	MRDW1096001	<b>Question Type</b>	Legislative
<b>Question:</b> Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   6-3   (1);		
<b>Observation</b>			
Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.			

<b>Question ID</b>	MRDW1086001	<b>Question Type</b>	Legislative
<b>Question:</b> Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   13-6.1   (1); SDWA   O. Reg. 170/03   13-6.1   (2); SDWA   O. Reg. 170/03   13-6.1   (3); SDWA   O. Reg. 170/03   13-6.1   (4); SDWA   O. Reg. 170/03   13-6.1   (5); SDWA   O. Reg. 170/03   13-6.1   (6);		
<b>Observation</b>			
All haloacetic acid water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.			
Section 13-6.1 of Schedule 13 of O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids (HAAs).			
During this inspection period, HAA samples were collected from 10 Main Street (Town Office) on January 4, 2022 (44 ug/L), April 4, 2022 (35 ug/L), July 4, 2022 (86 ug/L), and October 3, 2022 (86 ug/L).			
The maximum acceptable concentration is 80 ug/L (expressed as a running annual average of quarterly results). It is noted that two most recent quarterly samples had HAA concentrations of 86 ug/L. However, the current running annual average is 62.75 ug/L (below the maximum acceptable concentration).			

<b>Question ID</b>	MRDW1087001	<b>Question Type</b>	Legislative
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<b>Question:</b>	
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?	
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   13-6   (1); SDWA   O. Reg. 170/03   13-6   (2); SDWA   O. Reg. 170/03   13-6   (3); SDWA   O. Reg. 170/03   13-6   (4); SDWA   O. Reg. 170/03   13-6   (5); SDWA   O. Reg. 170/03   13-6   (6);
<b>Observation</b>	
All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.	
Section 13-6 of Schedule 13 of O. Reg. 170/03 requires the owner and the operating authority for the system to ensure that at least one water sample is collected every three months from points in the distribution system (including connecting plumbing) likely to have an elevated potential for formation of trihalomethanes (THM).	
During this inspection period, THM samples were collected at 64 Sullivan Street on January 4, 2022 (40 ug/L), April 4, 2022 (51.9 ug/L), July 4, 2022 (74.1 ug/L), and October 3, 2022 (96.3 ug/L).	
The maximum acceptable concentration is 100 ug/L (expressed as a running annual average of quarterly results). The current running annual average is 65.6 ug/L.	

<b>Question ID</b>	MRDW1060000	<b>Question Type</b>	Legislative
<b>Question:</b>			
Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?			
<b>Legislative Requirement</b>	SDWA   31   (1);		
<b>Observation</b>			
The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.			

<b>Question ID</b>	MRDW1062001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5?			

<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   7-5;
<b>Observation</b>	
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.	

<b>Question ID</b>	MRDW1071000	<b>Question Type</b>	BMP
<b>Question:</b>			
Has the owner provided security measures to protect components of the drinking water system?			
<b>Legislative Requirement</b>	Not Applicable		
<b>Observation</b>			
The owner had provided security measures to protect components of the drinking water system.			

<b>Question ID</b>	MRDW1073001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 128/04   23   (1);		
<b>Observation</b>			
The overall responsible operator had been designated for each subsystem.			
Rico Guindon is the overall responsible operator of the water treatment plant and the distribution system. He is adequately licensed to be the overall responsible operator.			

<b>Question ID</b>	MRDW1074001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Have operators-in-charge been designated for all subsystems for which comprise the drinking water system?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 128/04   25   (1);		
<b>Observation</b>			

Operators-in-charge had been designated for all subsystems which comprise the drinking water system.

<b>Question ID</b>	MRDW1075001	<b>Question Type</b>	Legislative
<b>Question:</b> Do all operators possess the required certification?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 128/04   22;		
<b>Observation</b>			
All operators possessed the required certification.			

<b>Question ID</b>	MRDW1076001	<b>Question Type</b>	Legislative
<b>Question:</b> Do only certified operators make adjustments to the treatment equipment?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   1-2   (2);		
<b>Observation</b>			
Only certified operators made adjustments to the treatment equipment.			

<b>Question ID</b>	MRDW1116001	<b>Question Type</b>	BMP
<b>Question:</b> Were the inspection questions sufficient to address other identified best practice issues?			
<b>Legislative Requirement</b>	Not Applicable		
<b>Observation</b>			
The following issues were also noted during the inspection:			
<p>1) Procedure for Drinking Water Complaints Section 16.2.7 of Schedule B of MDWL requires that operations and maintenance manual or manuals include "Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint".</p> <p>The owner provides a form for recording and following up on general complaints, including drinking water complaints. However, there were no associated procedures available in operations and maintenance manuals or other manuals for the drinking water system.</p>			

**\*\*RECOMMENDED ACTION(S):** The owner should ensure operations and maintenances manuals, or other manuals for the drinking water system, includes procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint.

<b>Question ID</b>	MRDW1012001	<b>Question Type</b>	Legislative
<b>Question:</b> Does the owner have a harmful algal bloom monitoring plan in place that meets the requirements of the MDWL?			
<b>Legislative Requirement</b>	SDWA   31   (1);		
<b>Observation</b>			
<p>The owner had a harmful algal bloom monitoring plan in place.</p> <p>Condition 6.1 of Schedule C of Licence No. 277-101, Issue No. 4 issued on March 3rd, 2021 requires that the owner shall develop and keep up to date a Harmful Algal Bloom (HAB) monitoring, reporting and sampling plan, to be implemented when a potential harmful algal bloom is suspected or present.</p> <p>The Town of Latchford's DWQMS Procedures for 'Harmful Algae Bloom Monitoring' and 'Emergency Response – Harmful Algae Bloom' sets requirements for visual monitoring, sampling, notifications, and corrective actions to be taken in the event that a HAB is suspected or confirmed.</p>			

<b>Question ID</b>	MRDW1014001	<b>Question Type</b>	Legislative
<b>Question:</b> Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?			
<b>Legislative Requirement</b>	SDWA   31   (1);		
<b>Observation</b>			
<p>There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.</p> <p>Section 2 of Schedule C of MDWL 277-101 requires the continuous measurement and recording of:</p> <ul style="list-style-type: none"> <li>-2.1.1 The flow rate (L/s) and daily volume (m3/day) of treated water that flows from the treatment subsystem to the distribution system.</li> <li>- 2.1.2 The flow rate (L/s) and daily volume (m3/day) of water that flows into the treatment subsystem.</li> </ul>			

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<b>Question ID</b>	MRDW1016001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?			
<b>Legislative Requirement</b>	SDWA   31   (1);		
<b>Observation</b>			
The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.			
Condition 1.1 of Schedule C of the Licence specifies that the maximum daily volume of treated water that flows from the Latchford Water Treatment Plant to the distribution system shall not exceed the rated capacity of 500 m3/day.			
The maximum daily flow during the inspection period occurred on July 17, 2022 with a daily total of 237 m3.			

<b>Question ID</b>	MRDW1023001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   1-2   (2);		
<b>Observation</b>			
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under O. Reg. 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.			
Section 1-4 of Schedule 1 of O. Reg. 170/03 requires the owner of a surface water supply to provide treatment equipment that is designed to be capable of achieving, at all times, primary disinfection in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario, including, at least:			
<ul style="list-style-type: none"> <li>- 2-log removal/inactivation of Cryptosporidium oocysts</li> <li>- 3-log removal/inactivation of Giardia cysts*</li> </ul>			



- 4-log removal/inactivation of viruses\*\*

\* At least 0.5-log removal/inactivation of Giardia cysts must be provided by disinfection (e.g. CT)

\*\* At least 2-log removal/inactivation of viruses must be provided by disinfection

For the Latchford WTP, the required log removal for cryptosporidium, giardia and viruses are achieved through:

- i) Conventional filtration, and
- ii) CT disinfection with free chlorine.

#### FILTRATION

MDWL #277-101 credits the filtration process with:

- 2 log inactivation credit for Cryptosporidium oocyst,
- 2.5 log inactivation credits for Giardia Cysts, and
- 2 log inactivation credit for viruses.

Log inactivation credits can only be claimed when the following criteria is met:

1. A chemical coagulant is used at all times when the treatment plant is in operation;
2. Chemical dosages are monitored and adjusted in response to variations in raw water quality;
3. Effective backwash procedures, including the filter-to-waste, to ensure that the effluent turbidity requirements are met at all times;
4. Filtrate turbidity is continuously monitored from each filter, and
5. Performance Criterion for filtered water turbidity of less than or equal to 0.3 NTU in 95% of the measurements each month shall be met for each filter.

A review of operational records for the plant, and discussions with the Operator with Overall Responsible Operator, indicates the filtration process met the criteria listed above during the inspection period.

#### CT DISINFECTION

Chlorination and contact time (CT) is required to provide the remaining;

- 0.5 log removal credit for Giardia Cysts, and
- 2 log removal credit for viruses.

The 'CT Calculation SOP' for the Latchford Water Treatment Plant' indicates that a minimum free chlorine residual of 0.7 mg/L is required in the treated water leaving the plant to achieve primary disinfection under the following 'worst-case' conditions.

- maximum treated flow rate of 15 L/s (fire pump not running)
- minimum clearwell level of 2.5 m
- maximum pH of 8
- minimum temperature of 0.5 deg C

If the fire pump is activated, an operator is alerted by an alarm and the standard operating

procedure is to monitor CT disinfection using the 'CT Calculation SOP – Fire Pump Running'. This SOP indicates a minimum free chlorine residual of 1.4 mg/L is required in the treated water leaving the plant to achieve primary disinfection under the following 'worst-case' conditions;

- maximum treated flow rate of 38 L/s (fire pump running)
- minimum clearwell level of 2.8 m\*
- maximum pH of 8
- minimum temperature of 0.5 deg C

\* a CT calculation trigger of 2.8m was accepted by MECP Approvals Branch during the MDWL renewal in March 2021.

Records reviewed during the inspection indicate primary disinfection was achieved at all times. Records reviewed include;

- continuous monitoring trends for filter effluent turbidity, flow, free chlorine residual (for CT) and CT achieved.
- DWS data summary reports,
- operators logs, and
- analytical reports.

<b>Question ID</b>	MRDW1030000	<b>Question Type</b>	Legislative
<b>Question:</b>			
Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   7-2   (1); SDWA   O. Reg. 170/03   7-2   (2);		
<b>Observation</b>			
Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.			
Primary disinfection chlorine monitoring in the Latchford Water Treatment Plant is conducted on the high lift pump discharge line exiting the clearwells.			

<b>Question ID</b>	MRDW1032001	<b>Question Type</b>	Legislative
<b>Question:</b>			
If the drinking water system obtains water from a surface water source and provides filtration, is continuous monitoring of each filter effluent line being performed for turbidity?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   7-3   (2);		

**Observation**

Continuous monitoring of each filter effluent line was being performed for turbidity.

**Question ID**

MRDW1083001

**Question Type**

Legislative

**Question:**

For LMR systems, are all microbiological water quality monitoring requirements for treated samples being met?

**Legislative Requirement**

SDWA | O. Reg. 170/03 | 10-3;

**Observation**

All microbiological water quality monitoring requirements prescribed by legislation for treated samples were being met.

Section 10-3 of Schedule 10 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure at least one sample of treated water is collected weekly and tested for E. coli, total coliforms and HPC.

A review of the microbiological sample data indicated that the owner and operating authority have complied with the treated water sampling requirements of Schedule 10 of O. Reg. 170/03.

**Question ID**

MRDW1084001

**Question Type**

Legislative

**Question:**

Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?

**Legislative Requirement**

SDWA | O. Reg. 170/03 | 13-2;

**Observation**

All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Schedule 13-2 of O. Reg. 170/03 requires the owner and operating authority for the system to ensure at least one sample of treated water is collected every 12 months and tested for every parameter set out in Schedule 23 (Inorganics).

Records reviewed indicate samples for Schedule 23 (Inorganic) parameters were collected on April 12, 2021, and April 11, 2022.

<b>Question ID</b>	MRDW1088000	<b>Question Type</b>	Legislative
<b>Question:</b> Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?			
<b>Legislative Requirement</b>		SDWA   O. Reg. 170/03   13-7;	
<b>Observation</b>			
All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.			
Section 13-7 of Schedule 13 of O. Reg. 170/03 requires the owner and the operating authority for the system to ensure that at least one treated water sample is collected every three months and tested for nitrate/nitrite.			
For this inspection period, nitrate/nitrite samples were collected on January 4, 2022, April 4, 2022, July 4, 2022, and October 3, 2022.			

<b>Question ID</b>	MRDW1089000	<b>Question Type</b>	Legislative
<b>Question:</b> Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
<b>Legislative Requirement</b>		SDWA   O. Reg. 170/03   13-8;	
<b>Observation</b>			
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
Schedule 13-8 of O. Reg. 170/03 requires the owner and operating authority for the system to ensure at least one treated water sample is collected every 60 months and tested for sodium.			
Treated water samples for sodium analysis were last collected on April 6, 2020.			

<b>Question ID</b>	MRDW1090000	<b>Question Type</b>	Legislative
<b>Question:</b> Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
<b>Legislative Requirement</b>		SDWA   O. Reg. 170/03   13-9;	

<b>Observation</b>
All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.
Section 13-9 of Schedule 13 of O. Reg. 170/03 requires that, if a drinking water system does not provide fluoridation, the owner of the system and the operating authority for the system shall ensure that a treated water sample is taken at least once every 60 months and tested for fluoride.
Treated water samples for fluoride analysis were last collected on April 6, 2020.

<b>Question ID</b>	MRDW1085001	<b>Question Type</b>	Legislative
<b>Question:</b>			
Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
<b>Legislative Requirement</b>	SDWA   O. Reg. 170/03   13-4   (1); SDWA   O. Reg. 170/03   13-4   (2); SDWA   O. Reg. 170/03   13-4   (3);		
<b>Observation</b>			
All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
Section 13-4 of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure at least one sample of treated water is collected every 12 months and tested for every parameter set out in Schedule 24 (Organics).			
Records reviewed indicate samples for Schedule 24 (Organic) parameters were collected on April 12, 2021, and April 11, 2022.			



## **APPENDIX A**

### **DWS Component Information Report**



**Ministry of the Environment, Conservation, and Parks  
Drinking Water System Inspection Report**



# DWS Component Information Report for 210000960

as of 29-NOV-2022

## Drinking Water System Profile Information

**DWS #** 210000960  
**MOE Assigned Name** Latchford Drinking Water System  
**Category** LMRS  
**Regulation** O.REG 170/03  
**DWS Type** Water Treatment Plant  
**Source Type** Surface Water  
**Address** 1 Mcleod Street, Latchford, Ontario, P0J 1N0, Canada  
**Region** Northern Region  
**District** North Bay Area Office  
**Municipality** Latchford  
**Public Health Unit** Timiskaming Health Unit

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
Distribution System	Other	Other		<p>The water distribution system for the Town of Latchford services an approximate population of 300 residents and 190 homes (First Engineer's Report, Earth Tech, 2001).</p> <p>Based on this information, the Latchford Drinking Water System is classified as a Large Municipal Residential Drinking Water System under O. Reg. 170/03.</p> <p>The Latchford distribution system is comprised of piping, valves, and fire hydrants. It also includes a 100 mm diameter return line back to the water treatment plant, complete with a 19 mm diameter by-pass, solenoid actuated flow valve and totalizing flow meter. The discharge from the return line is to the clearwell.</p> <p>The return line originated from historical problems with freezing lines in the distribution system during the winter months due to the frost penetrating into the ground deeper than the depth of the water lines. According to the First Engineer's Report, the return line assists in the maintenance of good chlorine residuals in the distribution system; allows for frequent and reliable measurements of water quality in the distribution system; reduces the freezing of the water lines; and moderates the water temperature.</p> <p>Additionally, each year Aqua-Flo™ tanks are installed in approximately 50 homes. These in-home water recirculation systems provide greater water movement in the service connections, helping to raise the water temperature and thus reduce the likelihood of frozen waterlines.</p>
Raw Water	Source	Surface	1 Mcleod St., Lot: 17, Conc.: 1,	<p>The source water for the Latchford Drinking Water System is Bay Lake which was created with the construction of the Latchford dam on the Montreal River. The First Engineer's Report for the Latchford facility (Earth Tech, 2001) states that Bay Lake water is very soft with very low alkalinity. It is also characterized by low turbidity but high colour.</p> <p>As a surface water source, Bay Lake and the Montreal River are susceptible to seasonal effects and changing raw water quality typical of a riverine system. The watershed</p>

# DWS Component Information Report for 210000960

as of 29-NOV-2022

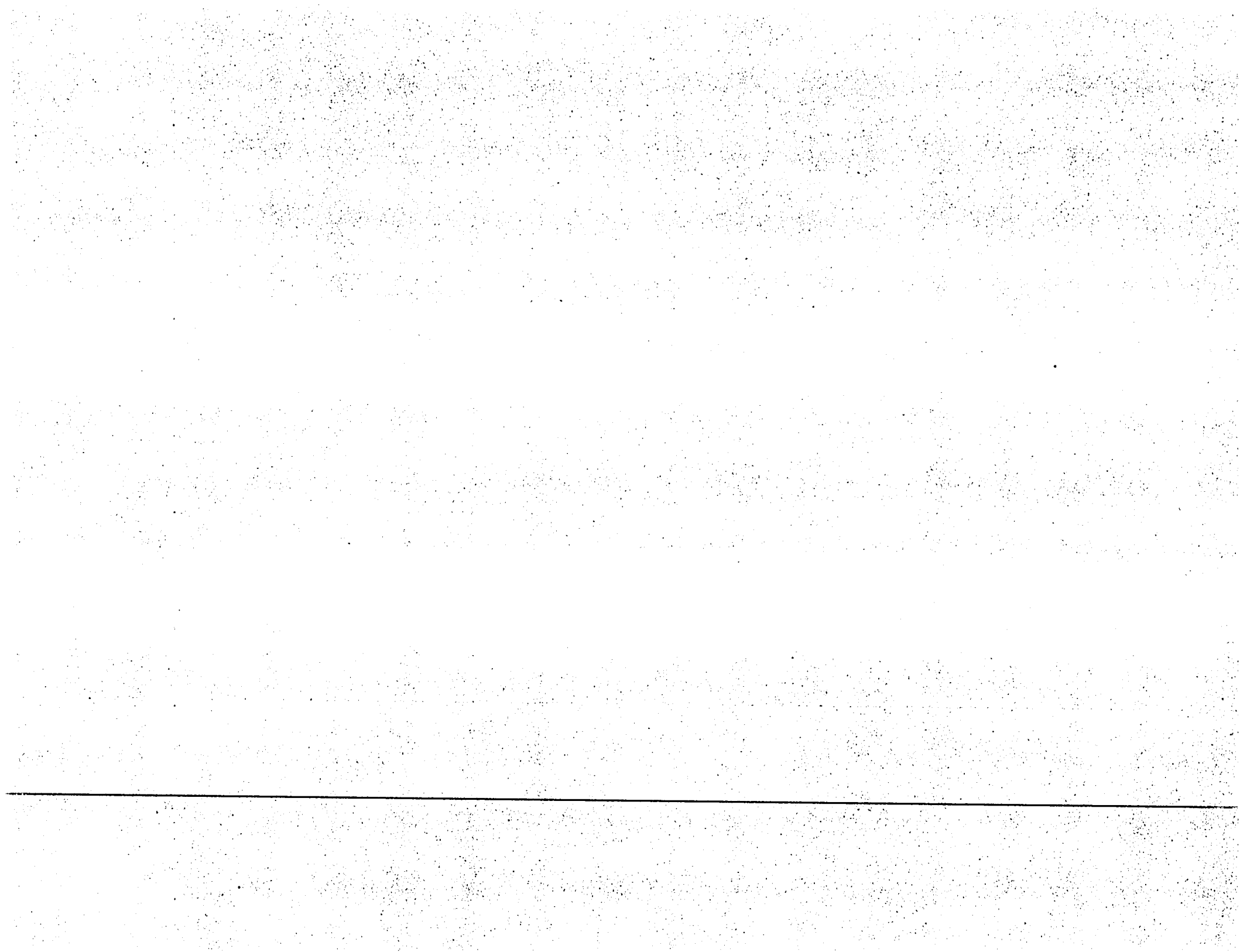
LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
				<p>for Bay Lake is large and includes the upper reaches of the Montreal River. Active and inactive mining facilities activities are located within the watershed which makes Bay Lake possibly more susceptible to contamination from spills. However, there have been no specific incidents in recent history.</p> <p>According to the First Engineer's Report and the Drinking Water Works Permit (DWWP) 277-201 (Issue No. 3), the intake structure for the water treatment plant is located approximately 140 m offshore. The structure is a timber crib and sits approximately 1.15 m off the bottom of Bay Lake in at least 5.5 m of water. Located upstream of the dam, the intake structure resides in an area which is below the low water level for the Lake. Raw water flows by gravity from the intake structure to the water treatment plant via 210 metres of 250 mm diameter pipe.</p>
Treatment System	Treated Water Poe	Treatment Facility	1 Mcleod St., Lot: 17, Conc.: 1,	<p>Surface water is drawn from Bay Lake via gravity and the low lift pumping station. According to DWWP 277-201 (Issue No. 3), the treatment system is comprised of the following:</p> <p>Low lift Pumping Station: A raw water intake well is equipped with a 250 mm diameter raw water intake pipe, an intake screen and a 100 mm diameter intake flush line from the high lift pumps. The low lift pumping station contains a wet well and is equipped with three (3) vertical turbine pumps (two duty and one standby); each rated at 2.9 L/s.</p> <p>Coagulation, Flocculation, Clarification and Filtration: Two parallel trains, each capable of treating water at a rate of 6.3 L/second. Each unit is equipped with a coagulation vessel, an upflow adsorption clarifier and a multimedia filter. There is provision to direct effluent from each filter unit to waste (Filter-to-Waste). Alum is injected into the raw water pump discharge pipe located immediately downstream of the raw water flow meter, upstream of the flocculation tanks and treatment units. The coagulant dosing system includes two chemical metering pumps (on duty and one standby) each delivering a flow of 1.6 GPH (6.0 L/hr) and one 600 L chemical storage tank with spill containment.</p> <p>Polymer is injected into the coagulated water supply using one of two chemical metering pumps (one duty and one standby) each capable of delivering a flow of 2.0 GPH (7.6 L/hr) from one 380 L chemical storage tank with spill containment. There are two optional injection points (one upstream and one downstream of the flocculation tanks, both prior to the treatment units).</p> <p>pH/Alkalinity: There are three pH/Alkalinity adjustment systems; one pre-coagulation, one post-filtration and one distribution. The pre-coagulation injection point is in the raw water pump discharge header and is comprised of two metering pumps (one duty and one standby) each capable of delivering a flow of 1.6 GPH (6.1 L/hr) and one 350 L</p>



# DWS Component Information Report for 210000960

as of 29-NOV-2022

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
				<p>chemical storage tank with spill containment. The post filtration injection point is into the filter effluent discharge header upstream of the treated water storage reservoir (clear wells). It is comprised of one metering pump capable of delivering a flow of 1.1 GPH (4.2 L/hr) and one 600 L chemical storage tank with spill containment. The distribution injection point is into the treated water distribution header, immediately prior to discharge from the plant. It uses the same dosing system as the post-filtration system and typically is only used when the post-filtration system is not in service. Liquid soda ash is current used for pH/Alkalinity adjustment.</p> <p>Disinfection: The chlorine disinfection dosing system is comprised of two primary dosing metering pumps (one duty and one standby) each capable of delivering a flow of 1.4 L/hr, injecting into the inlet of the clear well for primary disinfection. Sodium hypochlorite storage consists of one storage tank with spill containment.</p> <p>Process Waste Management System: This system is comprised of a backwash holding tank that is approximately 3.3 m x 2.65 m x 2.4 m with a usable volume of 21 m<sup>3</sup> and two submersible backwash pumps (one duty and one spare) each rate at 22.7 L/s. The pumps discharge wastewater from the holding tank to the sanitary sewer via a 100 mm diameter forcemain.</p> <p>Clearwell and High Lift Pumping System: The clearwell is a 340 m<sup>3</sup> reinforced concrete reservoir comprised of two cells (one with a volume of 248 m<sup>3</sup> and the other of 92 m<sup>3</sup>); two pump wells, one with a volume of 76 m<sup>3</sup> housing high lift pumps #1 and #2 and the other housing high lift pump #3 and a high capacity pump). The total storage capacity of the clearwell is approximately 484 m<sup>3</sup> at water depth of 3.65 m. The high lift pumps consist of one vertical turbine pump rated at 3.7 L/s (variable speed), two vertical turbine pumps each rated at 7.3 L/s (variable speed) and one vertical turbine high capacity pump rated at 38 L/s with fixed speed drive.</p> <p>Standby Power System: There is one outdoor 141 kW standby power diesel engine generator.</p> <p>Instrumentation and Control Equipment: The instrumentation and control system is comprised of; a PLC and in-plant SCADA system; raw water and treated water flow meters; four chlorine residual analyzers (raw water discharge line, filter effluent discharge line, high lift pump discharge line, treated water plant discharge header); pH indicator on the raw water discharge line and treated water plant discharge; three hydropneumatic tanks; one pressure transmitter on the plant discharge, and turbidity meters (located upstream of water treatment units, on each filter effluent line and on the treated water plant discharge).</p>



## **APPENDIX B**

### **Key Reference and Guidance Material for Municipal Residential Drinking Water Systems**



# Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water 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 [waterforms@ontario.ca](mailto:waterforms@ontario.ca).

For more information on Ontario's drinking water visit [www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater)



PUBLICATION TITLE	PUBLICATION NUMBER
<b>FORMS:</b> Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website



# Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable 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 [waterforms@ontario.ca](mailto:waterforms@ontario.ca) si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site [www.ontario.ca/eaupotable](http://www.ontario.ca/eaupotable)

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable	012-2149F
Avis de demande de services de laboratoire	012-2148F
Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau potable en Ontario	Site Web
Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection	Site Web
Filtration Processes Technical Bulletin (en anglais seulement)	Site Web
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	Site Web
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable	Site Web
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	Site Web
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802F
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	Site Web
Liste des personnes-ressources du réseau d'eau potable	Site Web
L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche	Site Web
Procédure de désinfection des conduites principales	Site Web
Laboratoires autorisés	Site Web