



Englehart Drinking Water System

2017 ANNUAL/SUMMARY REPORT



Prepared by the Ontario Clean Water Agency
on behalf of the Town of Englehart



TABLE OF CONTENTS

INTRODUCTION 2

Section 11 - ANNUAL REPORT 3

 1.0 INTRODUCTION..... 3

 2.0 DESCRIPTION OF THE DRINKING WATER SYSYTEM (DWS No. 220000353)..... 4

 3.0 LIST OF WATER TREATMENT CHEMICALS USED OVER THE REPORTING PERIOD 6

 4.0 SIGNIFICANT EXPENSES INCURRED IN THE DRINKING WATER SYSTEM..... 6

 5.0 DETAILS ON NOTICES OF ADVERSE TEST RESULTS AND OTHER PROBLEMS REPORTED TO &
 SUBMITTED TO THE SPILLS ACTION CENTER..... 7

 6.0 MICROBIOLOGICAL TESTING PERFORMED DURING THE REPORTING PERIOD..... 9

 7.0 OPERATIONAL TESTING PERFORMED DURING THE REPORTING PERIOD..... 9

Schedule 22 - SUMMARY REPORTS FOR MUNICIPALITIES 15

 1.0 INTRODUCTION..... 15

 2.0 REQUIREMENTS THE SYSTEM FAILED TO MEET 15

 3.0 SUMMARY OF FLOWS AND COMPARISON TO REGULATORY LIMITS 15

CONCLUSION 19

LIST OF APPENDICES

APPENDIX A – Monthly Summary of Microbiological Test Results

APPENDIX B – Monthly Summary of Operational Data



INTRODUCTION

Municipalities throughout Ontario have been required to comply with Ontario Regulation 170/03 made under the *Safe Drinking Water Act* (SDWA) since June 2003. The Act was enacted following recommendations made by Commissioner O'Conner after the Walkerton Inquiry. The Act's purpose is to protect human health through the control and regulation of drinking water systems. O. Reg. 170/03 regulates drinking water testing, use of licensed laboratories, treatment requirements and reporting requirements.

Section 11 of Regulation 170/03 requires the owner to produce an Annual Report. This report must include the following:

1. Description of system & chemical(s) used
2. Summary of any adverse water quality reports and corrective actions
3. Summary of all required testing
4. Description of any major expenses incurred to install, repair or replace equipment

This annual report must be completed by February 28th of each year.

Schedule 22 of the regulation also requires a Summary Report which must be presented & accepted by Council by March 31st of each year for the preceding calendar year.

The report must list the requirements of the Act, its regulations, the system's Drinking Water Works Permit (DWWP), Municipal Drinking Water Licence (MDWL), Certificate of Approval (if applicable), and any Provincial Officer Order the system failed to meet during the reporting period. The report must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.

The *Safe Drinking Water Act* (2002) and the drinking water regulations can be viewed at the following website: <http://www.e-laws.gov.on.ca>.

To enable the Owner to assess the rated capacity of their system to meet existing and future planned water uses, the following information is also required in the report.

1. A summary of the quantities and flow rates of water supplied during the reporting period, including the monthly average and the maximum daily flows,
2. A comparison of the summary to the rated capacity and flow rates approved in the systems approval, drinking water works permit or municipal drinking water licence or a written agreement if the system is receiving all its water from another system under an agreement.

The reports have been prepared by the Ontario Clean Water Agency (OCWA) on behalf of the Owner and presented to council as the 2017 Annual/Summary Report.



Englehart Drinking Water System

Section 11

2017 ANNUAL REPORT



Section 11 - ANNUAL REPORT

1.0 INTRODUCTION

Drinking-Water System Name: Englehart Drinking Water System
Drinking-Water System No.: 220000353
Drinking-Water System Owner: The Corporation of the Town of Englehart
Drinking-Water System Category: Large Municipal, Residential System
Period being reported: January 1, 2017 to December 31, 2017

Does your Drinking Water System serve more than 10,000 people? No

Is your annual report available to the public at no charge on a web site on the Internet? Yes
at <http://www.engehart.ca/>

Location where the report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Englehart Town Office
61 Fifth Avenue
Englehart, Ontario POJ 1H0

Drinking Water Systems that receive drinking water from the Englehart Drinking Water System

The Englehart Drinking Water System provided drinking water to the Town of Englehart and five neighbouring distribution systems:

- | | |
|------------------------|------------------------|
| 1. Bradley Subdivision | MOECC DWS #: 260069927 |
| 2. First St North | MOECC DWS #: 260078871 |
| 3. Kap-kig-iwan Road | MOECC DWS #: 260078650 |
| 4. Bryans' Road | MOECC DWS #: 260080574 |
| 5. Brown's Road | MOECC DWS #: 260078663 |

The Annual Report was provided to all Drinking Water System owners that are connected to the Englehart Drinking Water System.

The Ontario Clean Water Agency prepared the 2017 Annual/Summary Report for the Englehart Drinking Water System and provided a copy to the system owner; the Town of Englehart. A copy was also provided to the Municipality of Charlton and Dack (Bradley Subdivision) and the following list of representatives for the remaining private lines:



- | | | |
|----|----------------------|-------------------|
| 1. | Ms. Cindy Kirkbride | First St North |
| 2. | Mr. Len Fisher | Kap-kig-iwan Road |
| 3. | Ms. Marie Bryan | Bryans' Road |
| 4. | Mr. Daryl Rowlandson | Brown's Road |

Notification to system users that the Annual Report is available for viewing is accomplished through:

- A notice inserted with Water Bill

2.0 DESCRIPTION OF THE DRINKING WATER SYSTEM (DWS No. 220000353)

The Englehart Drinking Water System is owned by the Corporation of the Town of Englehart and consists of a Class 1 water treatment subsystem and a Class 1 water distribution subsystem. The Ontario Clean Water Agency is designated as the Overall Responsible Operator for both the water treatment and water distribution facilities. It is a communal ground water well supply that services the Town of Englehart and five neighbouring distribution systems.

Raw Water Supply

The water treatment plant is located on 56 First Street in Eanturel Township in the district of Timiskaming and is supplied by two deep-drilled wells; Well No. 2 and Well No. 3.

Well No. 2 is located in a separate well house situated approximately 40 meters south of the treatment plant (approximately 52 m east of 1st Street and 15 m north of 6th Avenue). The well is drilled to a depth of 89.3 meters and consists of a stainless steel intake screen and a 400 mm diameter steel casing which reduces to a 200 mm diameter steel casing. It is equipped with vertical turbine pump and fixed-rate control system to pump at the maximum rate of 15.15 L/second. It includes a magnetic flow meter and pump-to-waste provisions.

Well No. 3 is located in a separate well house situated approximately 20 meters east of the treatment plant (approximately 75 m east of 1st Street and 53 m north of 6th Avenue). The well is drilled to a depth of 90.5 meters and consists of stainless steel intake screen and a 300 mm diameter casing that later reduces to a 150 mm diameter steel casing. It is equipped with vertical turbine pump and fixed-rate control system to pump at the maximum rate of 18.9 L/second. It also includes a magnetic flow meter and pump-to-waste provisions.

Water Treatment

The production wells feed the main water treatment plant that has a maximum rated capacity of 2488 cubic meters per day (m³/d).

The process consists of a Filtronics Electromedia iron and manganese removal/pressure filtration system rated at 2998 m³/d. It consists of two reaction vessels; one for sodium hypochlorite and



one for sodium bisulphite (which is currently not in use) and one filter tank. Sodium hypochlorite is injected into the low lift pumping station prior to the reaction vessels. It is used as an oxidant for iron and manganese removal and as a disinfectant. Primary disinfection is achieved in the filter system and a 210 foot, 8 inch diameter contact pipe and is continuously monitored using a free chlorine residual analyzer. The system is also equipped with a turbidity analyzer, backwash flow meter and a filter backwash pump. The backwash residue discharges to the sanitary sewer. A treated water flow meter is located on the common header just downstream of the pressure filter system.

The sodium hypochlorite feed system consists of two (2) chemical storage tanks with spill containment and two (2) flow paced chemical metering pumps with automatic backup/switch over.

Water Storage and Pumping Capabilities

The reservoir consists of a twin cell underground clear well with a 3 meter depth and an overall storage volume 1360 m³. Ammonia sulphate is added before entering the clearwell to produce a combined residual before entering the distribution system. The ammonia sulphate system consists of one 730 liter chemical tank with spill containment and two metering pumps (one duty and one shelf spare).

Each cell is vented and is accessible by an access hatch with ladder. A butterfly valve provides isolation of each cell if required. Two vertical turbine high lift pumps and fixed-rate control systems direct water into the distribution system at maximum rates of 37.8 L/second and 45.4 L/second. A distribution water flow meter and a continuous total chlorine analyzer are installed on the high lift discharge header.

Emergency Power

A 100 kW diesel generator is located outside the water treatment building and can maintain all aspects of the operation during a power outage.

Distribution System

The Englehart Drinking Water System is classified as a Large Municipal Residential Drinking Water System and serves an estimated population of 1700 residents. Information regarding the age of the distribution system indicated that it was originally installed in 1914. The water mains consists primarily of 12, 10, 8, and 6 inch diameter ductile iron constructed pipe with approximately 50 fire hydrants connected to the system to aid in fire protection. Over the past few years, the Town has replaced several sections of water mains with new PVC DR18 piping of the same diameter. Residential service connections consist of 1/2, 5/8, and 3/4 inch copper tubing. There are no off site water storage facilities in the system. Additionally, the distribution system does not receive water from other sources but it provides drinking-water to five neighbouring regulated drinking water systems (one small municipal residential system and four non-municipal year-round residential systems) as listed below:



Distribution System	DWS #	Owner/Operating Authority	# of Service Connections
Town of Englehart	220000353	Town of Englehart	750
Bradley Subdivision	260069927	Municipality of Charlton & Dack	49
First St North	260078871	Ms. Cindy Kirkbride	9
Kap-kig-iwan Road	260078650	Mr. Len Fisher	8
Bryan’s Road	260080574	Ms. Marie Bryan	13
Brown’s Road	260078663	Mr. Daryl Rowlandson	12

Note:

A Water Supply Agreement between the Corporation of the Town of Englehart and the Corporation of the Municipality of Charlton and Dack came into effect on August 3, 2016. The terms of the agreement allow the Town of Englehart to monitor and sample the Bradley Subdivision System as part of the Englehart System except for lead sampling and testing under Ontario Regulation 170/03, Section 15.1.

3.0 LIST OF WATER TREATMENT CHEMICALS USED OVER THE REPORTING PERIOD

The following chemicals were used in the treatment process at the Englehart Water Treatment Plant.

- Sodium Hypochlorite - Disinfection
- Ammonium Sulphate - Chloramination
- Sodium Bisulphite - available at the plant, but is currently not in use.

All treatment chemicals meet AWWA and NSF/ANSI standards.

4.0 SIGNIFICANT EXPENSES INCURRED IN THE DRINKING WATER SYSTEM

OCWA is committed to maintaining the assets of the drinking water system and maintains a program of scheduled inspection and maintenance activities using a computerized Work Management System (WMS).

Significant expenses incurred in the drinking water system include:

- OCWA assumed full operations of the water treatment system and overall responsible operations of the Englehart distribution system on February 1, 2017,
- Installed two new dehumidifiers,
- Replaced one sodium hypochlorite pump,
- The Owners received funding to convert the electrical system at the water plant from 240V 3-phase to 600V 3-phase system. This project began at the end of 2017 and is ongoing into 2018. Once the conversion is complete, all 3 phase pump motors along with



associated hardware and wiring will be changed (high lift pumps #1 and #2, well pumps #2 and #3 and the backwash pump),

- Installed Variable Frequency Drives (VFDs) on high lift #1 and #2 which will be operational once the electrical conversion is complete,
- Replaced and relocated approximately 1172.6m of 150mm diameter watermain on First, Queen, King, Prince Streets, River Road, and Laneway 6/7 and in conjunction with this work, replaced eight fire hydrants,
- Replaced and relocated 1156 meters of 50 mm watermains with 150 mm watermain and installed nine fire hydrants in the Bradley Subdivision.

5.0 DETAILS ON NOTICES OF ADVERSE TEST RESULTS AND OTHER PROBLEMS REPORTED TO & SUBMITTED TO THE SPILLS ACTION CENTER

Based on information kept on record by OCWA, the following water quality incidents were reported to the Ministry's Spills Action Centre.

1. **AWQI No. 132206 – Failed to meet Primary Disinfection (CT), January 12th:** The Free Chlorine Residual (FCR) at the plant fell to 0.27 mg/L (FCR required to meet CT = 1.03 mg/L) for 2 minutes, from 0728 to 0730 hours due to a sodium hypochlorite pump failure. CT was calculated and failed (1.4 mg/L.min.; 4.0 mg/L.min. required). Chlorine was increased and primary disinfection was restored at 0730 hours when the FCR was 0.83 mg/L (CT = 4.48). The incident was resolved on January 12th.
2. **AWQI No. 132780 – Watermain Break/Loss of Pressure, April 3rd @ 1305 hrs:** A watermain break at 14 8th Avenue affected about 20 homes. A main stop needed to be replaced. The main was isolated to conduct repairs (category 2). The local Health Unit was notified and did not issue a boil water advisory (BWA). Flow continued until an air gap was created and maintained throughout the repair. The repair was completed and service was restored at approximately 1320 hours. After the affected area was sufficiently flushed, one bacteriological sample was collected and results indicated no detectable total coliforms or *E.coli*. The Incident was resolved on April 6th.

Note: Incident was called in as an AWQI as the Health Inspector was going to issue a BWA, but rescinded because an air gap was maintained throughout the repair.

3. **AWQI No. 136379 – Watermain Break/Loss of Pressure/Boil Water Advisory, September 6th @ 0845 hrs:** A planned watermain repair required the complete isolation of First Street North in Englehart which affected approximately 60 homes. Valves were replaced due to deterioration. The main was isolated to conduct repairs (category 2). The Spills Action Center and the local Health Unit were notified and a precautionary boil water advisory (BWA) was issued. The repair was completed and service was restored on September 14th at 1514 hours. After the affected area was sufficiently flushed, two sets of 3



bacteriological samples were collected. Sample results indicated no detectable total coliforms or *E.coli*. The BWA was lifted on September 18th at approximately 1018 hours.

- 4. AWQI No's. 136748, 136794 and 136826 - Total Coliforms, starting on September 18th:** Two (2) Total coliforms detected in a drinking water sample collected from Hydrant #2 on September 18, 2017 after a watermain repair (valve replacement). Resamples were collected upstream, downstream and at the site of the adverse result on September 19th. Two Total Coliforms were detected in the re-sample collected at Hydrant #2 (AWQI 136794). Disinfection was increased and the area was flushed. Re-samples were collected on September 20th and again Total Coliforms were detected in the sample collected from Hydrant #2 (AWQI 136826). Disinfection was increased and the area was flushed again. Re-samples collected on the 21st and 22nd had no detectable Total Coliforms or *E. coli*. The incident was resolved on September 25th.

- 5. AWQI No. 136754 - Watermain Break/Loss of Pressure/Boil Water Advisory, September 19 @ 1730 hrs -** Water main repair at Furguson & Christopher St. in the Bradley Subdivision affected approximately 22 homes. A broken joint was repaired with a clamp. The local Health Unit was notified and issued a precautionary boil water advisory (BWA) for the affected area. The water main was isolated and an air gap created but contamination was suspected (category 2). All materials were disinfected and the area flushed as per MOECC's Watermain Disinfection procedure. Repair was completed and service was restored on September 19th at 2000 hours.

Two sets of bacti samples were collected (upsteam, downstream and at the site of the break). Sample results indicated no total coliforms or *E.coli* and less than detectable HPC. The BWA was lifted on September 22nd at 1030 hours.

- 6. AWQI No. 137646 - Watermain Break/Loss of Pressure/Boil Water Advisory, October 27 @ 1230 hrs:** Water main break/repair in the Clarksville section of the Bradley subdivision affected about 18 homes and 2 businesses. Contractor broke pipe during construction. The local Health Unit was notified and issued a precautionary boil water advisory (BWA) for the affected area. The water main was isolated (category 2). All materials were disinfected and the area flushed as per MOECC's Watermain Disinfection procedure. Repair was completed and service was restored on October 27 @ 1508 hours.

Two sets of bacti samples were collected (upsteam, downstream and at the site of the break). The sample collected at the Junction Restaurant (site) during the second sampling round was contaminated with 2 total coliforms. Two additional sets of 5 samples were collected 24 hours apart and these sample results indicated no total coliforms or *E.coli* and less than detectable HPC. The BWA was lifted on November 2nd at approx. 1600 hours. Resolution submitted on November 6, 2017.

- 7. AWQI No. 137713 – Total Coliforms, October 31st –** Two (2) total coliforms were detected in a drinking water sample collected at the Junction Restaurant on October 30, 2017 after a watermain repair. Resamples were collected upstream, downstream and at the site of the adverse result as well as 2 additional samples in the Clarksville area on October 31st and



November 1st. Re-sample results indicated no total coliforms or *E.coli* and less than detectable HPC. The incident was resolved on November 6th.

6.0 MICROBIOLOGICAL TESTING PERFORMED DURING THE REPORTING PERIOD

Summary of Microbiological Data

Sample Type	# of Samples	Range of <i>E. coli</i> Results (min to max)	Range of Total Coliform Results (min to max)	# of HPC Samples	Range of HPC Results (min to max)
Raw (Well No. 2)	52	0 to 0	0 to 0	0	N/A
Raw (Well No. 3)	52	0 to 0	0 to 0	0	N/A
Treated	52	0 to 0	0 to 0	52	< 10 to 20
Distribution	156	0 to 0	0 to 0	52	< 10 to 60

Maximum Allowable Concentration (MAC) for *E. coli* = 0 Counts/100 mL

MAC for Total Coliforms = 0 Counts/100 mL

"<" denotes less than the laboratory's method detection limit.

Notes: One microbiological sample is collected and tested each week from the raw (each well) and treated water supply. A total of three microbiological samples are collected and tested each week from the Englehart distribution system which includes one sample from the Bradley Subdivision. At least 25% of the distribution samples must be tested for HPC bacteria.

The above sample results only include regulatory sampling as required under O. Regulation 170/03 and does not include bacteriological samples collected after a watermain repair.

Refer to *Appendix A* for a monthly summary of microbiological test results.

7.0 OPERATIONAL TESTING PERFORMED DURING THE REPORTING PERIOD

Summary of Raw Water Turbidity Data

Parameter	# of Samples	Range of Results (min to max)	Unit of Measure
Turbidity (Well No. 2)	16	0.32 to 2.86	NTU
Turbidity (Well No. 3)	16	0.27 to 1.99	NTU

Note: Samples required once every month.

Continuous Monitoring in the Treatment Process

Parameter	# of Samples	Range of Results (min to max)	Unit of Measure	Standard
Free Chlorine Residual	8760	0.27* to 4.98	mg/L	CT**

Notes: For continuous monitors 8760 is used as the number of samples.

CT is the concentration of chlorine in the water times the time of contact that the chlorine has with the water. It is used to demonstrate the level of disinfection treatment in the water. CT calculations are performed for the Englehart water plant if the free chlorine residual level drops below 0.85 mg/L to ensure primary disinfection is achieved.

*January 12th – Free chlorine residual fell to 0.27 mg/L and CT failed (AWQI No. 132206)



Summary of Chlorine Residual Data in the Distribution System

Parameter	# of Samples	Range of Results (min to max)	Unit of Measure	Standard
Combined Chlorine Residual	365	0.59 to 2.08	mg/L	≥ 0.25 and <3.0

Note: A total of seven operational checks for chlorine residual in the distribution system are collected each week. Four (4) samples are tested one day and three (3) on a second day. The sample sets are collected at least 48-hours apart and samples collected on the same day are from different locations.

Refer to *Appendix B* for a monthly summary of the above operational data.

Summary of Nitrate & Nitrite Data (sampled at the water treatment plant every quarter)

Date of Sample	Nitrate Result Value	Nitrite Result Value	Unit of Measure	Exceedance
January 5	0.20	< 0.03	mg/L	No
April 3	0.10	< 0.03	mg/L	No
July 4	< 0.1	< 0.03	mg/L	No
October 2	0.21	< 0.03	mg/L	No

Maximum Allowable Concentration (MAC) for Nitrate = 10 mg/L

MAC for Nitrite = 1 mg/L

Summary of Total Trihalomethane Data (sampled in the distribution system every quarter)

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 5	33.1	ug/L	44.4	No
April 3	82.4	ug/L		
July 4	26.3	ug/L		
October 2	35.7	ug/L		

Maximum Allowable Concentration (MAC) for Total Trihalomethanes = 100 ug/L (Four Quarter Running Average)

Haloacetic Acid (HAAs) Sampling and Testing Required under Schedule 13-6.1

New sampling requirements for Haloacetic Acids (HAAs) came into effect on January 1st, 2017. At least one distribution must sample taken in each calendar quarter, from a point in the drinking water system’s distribution system, or plumbing that is likely to have an elevated potential for the formation of HAAs.

The maximum allowable concentration (MAC) of 80 ug/L is effective January 1st, 2020 and is based on a running annual average of quarterly results (similar to THMs). Results that exceed the MAC must be reported as an adverse water quality incident (AWQI) starting January 1st, 2020. HAA results for 2017 are summarized below.



Summary of Total Haloacetic Acid Data (sampled in the distribution system)

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 5	26	ug/L		
April 3	< 8	ug/L	16.2	N/A
July 4	17.5	ug/L		
October 2	13.1	ug/L		

Summary of Most Recent Lead Data under Schedule 15.1

(applicable to the following drinking water systems; large municipal residential systems, small, municipal residential systems, and non-municipal year-round residential systems)

The Englehart Drinking Water System was eligible to follow the “Exemption from Plumbing Sampling” as described in section 15.1-5(9) and 15.1-5(10) of Schedule 15.1 of Ontario Regulation 170/03. The exemption applies to a drinking water system if, in two consecutive periods at reduced sampling, not more than 10% of all samples from plumbing exceed the maximum allowable concentration (MAC) of 10 ug/L for lead. As such, the system was required to test for total alkalinity and pH in two distribution sample collected during the periods of December 15 to April 15 (winter period) and June 15 to October 15 (summer period). This testing is required in every 12-month period with lead testing in every third 12-month period.

In 2017, the Englehart Drinking Water System completed its third 12-month period of the lead testing. Two rounds of lead, alkalinity and pH testing were conducted on April 13th and October 3rd. Results are summarized in the table below.

Summary of Lead Data (sampled in the distribution system)

Date of Sample	# of Samples	Field pH (min to max)	Field Temperature (°C) (min to max)	Alkalinity (mg/L) (min to max)	Lead (ug/L) (min to max)
April 13	2	6.95 to 7.42	6.5 to 6.6	250 to 260	< 0.1 to 0.56
October 3	2	7.80 to 7.90	11.8 to 12.3	246 to 249	< 0.1 to 0.16

Note: Next lead sampling scheduled for April and October 2020

The Bradley Subdivision Distribution System was also eligible to follow the “Exemption from Plumbing Sampling” as described in section 15.1-5(9) and 15.1-5(10) of Schedule 15.1 of Ontario Regulation 170/03 and in 2017, completed its third 12-month period of the lead testing on April 13th and October 3rd. Results are summarized in the table below.

Summary of Lead Data (sampled in the distribution system)

Date of Sample	# of Samples	Field pH	Field Temperature (°C)	Alkalinity (mg/L)	Lead (ug/L)
April 13	1	8.0	9.4	248	0.1
October 3	1	7.7	14.5	240	< 0.1

Note: Next lead sampling scheduled for April and October 2020



Most Recent Schedule 23 Inorganic Data Tested at the Water Treatment Plant

Parameter	Result Value	Unit of Measure	MAC	MAC Exceedance	½ MAC Exceedance
Antimony	< 0.5	ug/L	6	No	No
Arsenic	< 1	ug/L	25	No	No
Barium	401	ug/L	1000	No	No
Boron	246	ug/L	5000	No	No
Cadmium	< 1.0	ug/L	5	No	No
Chromium	1.8	ug/L	50	No	No
Mercury	< 0.01	ug/L	1	No	No
Selenium	< 1	ug/L	50	No	No
Uranium	< 1	ug/L	20	No	No

Note: Sample required every 36 months (sample date = October 2, 2017). Next sampling scheduled for October 2020

Most Recent Schedule 24 Organic Data Tested at the Water Treatment Plant

Parameter	Result Value	Unit of Measure	MAC	MAC Exceedance	½ MAC Exceedance
Alachlor	< 0.2	ug/L	5	No	No
Atrazine + N-dealkylated metabolites	< 0.5	ug/L	5	No	No
Azinphos-methyl	< 0.2	ug/L	20	No	No
Benzene	< 0.1	ug/L	1	No	No
Benzo(a)pyrene	< 0.005	ug/L	0.01	No	No
Bromoxynil	< 0.09	ug/L	5	No	No
Carbaryl	< 1	ug/L	90	No	No
Carbofuran	< 1	ug/L	90	No	No
Carbon Tetrachloride	< 0.2	ug/L	2	No	No
Chlorpyrifos	< 0.2	ug/L	90	No	No
Diazinon	< 0.2	ug/L	20	No	No
Dicamba	< 0.08	ug/L	120	No	No
1,2-Dichlorobenzene	< 0.2	ug/L	200	No	No
1,4-Dichlorobenzene	< 0.3	ug/L	5	No	No
1,2-Dichloroethane	< 0.2	ug/L	5	No	No
1,1-Dichloroethylene (vinylidene chloride)	< 0.3	ug/L	14	No	No
Dichloromethane	< 1	ug/L	50	No	No
2-4 Dichlorophenol	< 0.2	ug/L	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	< 0.08	ug/L	100	No	No
Diclofop-methyl	< 0.08	ug/L	9	No	No
Dimethoate	< 0.2	ug/L	20	No	No
Diquat	< 0.6	ug/L	70	No	No
Diuron	< 6	ug/L	150	No	No
Glyphosate	< 20	ug/L	280	No	No
MCPA	< 10	ug/L	100	No	No



Most Recent Schedule 24 Organic Data Tested at the Water Treatment Plant

Parameter	Result Value	Unit of Measure	MAC	MAC Exceedance	½ MAC Exceedance
Malathion	< 0.2	ug/L	190	No	No
Methoxychlor		ug/L	900	No	No
Metolachlor	< 0.1	ug/L	50	No	No
Metribuzin	< 0.1	ug/L	80	No	No
Monochlorobenzene	< 0.5	ug/L	80	No	No
Paraquat	< 0.3	ug/L	10	No	No
Pentachlorophenol	< 0.3	ug/L	60	No	No
Phorate	< 0.1	ug/L	2	No	No
Picloram	< 0.08	ug/L	190	No	No
Polychlorinated Biphenyls (PCB)	< 0.06	ug/L	3	No	No
Prometryne	< 0.06	ug/L	1	No	No
Simazine	< 0.2	ug/L	10	No	No
Terbufos	< 0.1	ug/L	1	No	No
Tetrachloroethylene	< 0.3	ug/L	30	No	No
2,3,4,6-Tetrachlorophenol	< 0.3	ug/L	100	No	No
Triallate	< 0.1	ug/L	230	No	No
Trichloroethylene	< 0.2	ug/L	10	No	No
2,4,6-Trichlorophenol	< 0.2	ug/L	5	No	No
Trifluralin	< 0.1	ug/L	45	No	No
Vinyl Chloride	< 0.1	ug/L	1	No	No

Note: Sample required every 36 months (sample date = October 2, 2017). Next sampling scheduled for October 2020

Inorganic or Organic Test Results that Exceeded Half the Standard Prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards.

No inorganic or organic parameter(s) listed in Schedule 23 and 24 of Ontario Regulation 170/03 exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standard (O. Reg. 169/03) during the reporting period.

Most Recent Sodium Data Sampled at the Water Treatment Plant

Date of Sample	# of Samples	Result Value	Unit of Measure	Standard	Exceedance
October 7, 2015	1	56.9	mg/L	20	Yes
October 16, 2015 (resample)	1	52.8	mg/L	20	Yes

Note: Sample required every 60 months. Next sampling scheduled for October 2020

The aesthetic objective for sodium in drinking water is 200 mg/L at which it can be detected by a salty taste. It is required that the local Medical Officer of Health be notified when the



concentration exceeds 20 mg/L so that persons on sodium restricted diets can be notified by their physicians. The adverse sodium result was reported to Ministry’s SAC and the Timiskaming Health Unit on October 15, 2015 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 126909).

Most Recent Fluoride Data Sampled at the Water Treatment Plant

Date of Sample	# of Samples	Result Value	Unit of Measure	Standard	Exceedance
October 7, 2015	1	0.44	mg/L	1.5	No

Note: Sample required every 60 months. Next sampling scheduled for October 2020

Additional Testing Performed in Accordance with a Legal Instrument.

No additional sampling and testing was required for the Englehart Drinking Water System during the 2017 reporting period.



Englehart Drinking Water System

Schedule 22

2017 SUMMARY REPORT

FOR MUNICIPALITIES



Schedule 22 - SUMMARY REPORTS FOR MUNICIPALITIES

1.0 INTRODUCTION

Drinking-Water System Name:	Englehart Drinking Water System
Municipal Drinking Water Licence (MDWL) No.:	209-101-3 (issued May 19, 2016)
Drinking Water Work Permit (DWWP) No.:	209-201-2 (issued May 19, 2016)
Permit to Take Water (PTTW) No.:	4742-854PPE (issued May 21, 2010)
Period being reported:	January 1, 2017 to December 31, 2017

2.0 REQUIREMENTS THE SYSTEM FAILED TO MEET

According to information kept on record by OCWA, the Englehart Drinking Water System failed to meet the following requirements during the 2017 reporting period:

Drinking Water Legislation	Requirement(s) the System Failed to Meet	Duration	Corrective Action(s)	Status
Schedule B to DWWP 209-201	The Owner failed to prepare a ministry’s Form 1 for watermain alterations prior to a watermain replacement project in 2017	August to November 2017	The Owner completed the Form 1 and submitted to MOECC in January 2018, after the distribution work was completed.	Complete

It should also be mentioned that, nine (9) adverse water quality incidents were reported to the Ministry’s Spills Action Center. Refer to Section 6.0 – *Details on Notices of Adverse Test Results and Other Problems Reported to & Submitted to the Spills Actions Center* on page 7 of this report for details.

3.0 SUMMARY OF FLOWS AND COMPARISON TO REGULATORY LIMITS

Flow Monitoring

MDWL No. 209-101 requires the owner to install a sufficient number of flow measuring devices to permit the continuous measurement and recording of:

- the flow rate and daily volume of treated water that flows from the treatment subsystem the distribution system, and
- the flow rate and daily volume of water that flows into the treatment subsystem.

The flow monitoring equipment identified in the MDWL is present and operating as required. These flow meters are calibrated on an annual basis as specified in the manufacturers’ instructions.



The following water usage tables summarize the quantities and flow rates of water taken and produced during the 2017 reporting period, including total monthly volumes, average monthly volumes, maximum monthly volumes, and maximum flow rates.

Water Usage

Raw Water

2017 - Monthly Summary of Water Takings from the Source (Well No. 2 and Well No. 3)

Regulated by Permit to Take Water (PTTW) #4742-854PPE issued May 21, 2010

Well No. 2

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m ³)	7398	6507	6767	6378	6499	6599	7280	8007	7564	7088	6905	6182	83174
Average Volume (m ³ /d)	239	232	218	213	210	220	235	258	252	229	230	199	228
Maximum Volume (m ³ /d)	361	304	308	256	335	283	318	361	315	291	317	253	361
PTTW - Maximum Allowable Volume (m ³ /day)	1205	1205	1205	1205	1205	1205	1205	1205	1205	1205	1205	1205	1205
Maximum Flow Rate (L/min)	590	900	900	649	881	900	780	835	438	575	858	900	900
PTTW - Maximum Allowable Flow Rate (L/min)	909	909	909	909	909	909	909	909	909	909	909	909	909

Well No. 3

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m ³)	20310	18257	19385	18447	19434	20525	21273	22595	21100	19705	19254	17388	237673
Average Volume (m ³ /d)	655	652	625	615	627	684	686	729	703	636	642	561	651
Maximum Volume (m ³ /d)	997	864	878	748	1004	875	923	1024	882	808	885	711	1024
PTTW - Maximum Allowable Volume (m ³ /day)	1591	1591	1591	1591	1591	1591	1591	1591	1591	1591	1591	1591	1591
Maximum Flow Rate (L/min)	1317	1189	1211	1397	1206	1383	1183	1324	1207	1180	1183	1188	1397
PTTW - Maximum Allowable Flow Rate (L/min)	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727

Combined Water Taking (Well No. 2 and Well No. 3)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m ³)	27708	24764	26152	24825	25933	27124	28553	30602	28664	26784	26159	23570	320838
Average Volume (m ³ /d)	894	884	844	828	837	904	921	987	955	864	872	760	879
Maximum Volume (m ³ /d)	1358	1168	1186	1004	1339	1158	1241	1385	1197	1099	1202	964	1385
PTTW - Maximum Allowable Volume (m ³ /day)	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796

The system’s Permit to Take Water #4742-854PPE allows the Town to withdraw water at the following rates:



Well No. 2:	1204.69 m ³ /day / 909 L/minute
Well No. 3	1591.10 m ³ /day / 1727 L/minute
<hr/>	
Total Combined Daily Volume:	2795.79 m ³ /day

A review of the raw water flow data indicates that the total daily volume of water taken from each well never exceeded the allowable limits. The maximum water taking from Well No. 2 was 361 m³ and Well No. 3 was 1024 m³ on August 6th. The maximum combined volume measured was 1385 m³ also on August 6th.

Well No. 2 and Well No. 3 operated within their allowable flow rates having a maximum flow rate of 900 and 1394 L/minute respectively.

Treated Water

2017 - Monthly Summary of Treated Water Supplied to the Distribution System

Regulated by Municipal Drinking Water Licence (MDWL) #209-101 - Issue 3, dated May 19, 2016

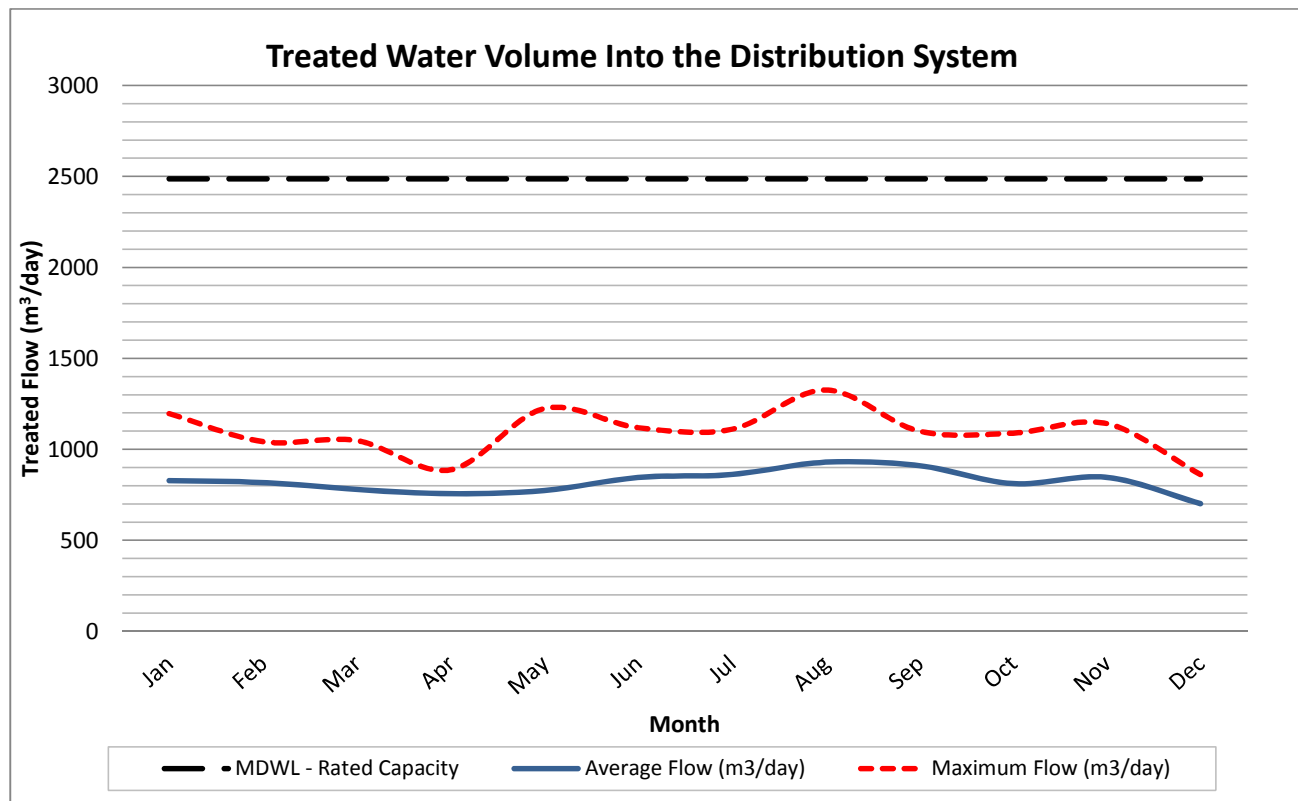
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m ³)	25687	22914	24218	22714	24011	25384	26735	28832	27332	25189	25411	21772	300199
Average Volume (m ³ /d)	829	818	781	757	775	846	862	930	911	813	847	702	823
Maximum Volume (m ³ /d)	1197	1043	1049	888	1225	1120	1111	1327	1101	1090	1142	862	1327
MDWL/C of A - Rated Capacity (m ³ /day)	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488

Schedule C, Section 1.0 (1.1) of MDWL No. 209-101 states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed 2488 m³/day. The Englehart DWS complied with this limit having a recorded maximum volume of 1327 m³/day on August 13th, which represents 53.3% of the rated capacity.

The following table and graph (Figure 1) compares the average and maximum flow rates into the distribution system to the rated capacity of the system identified in the MDWL

Figure 1: 2017 - Daily Volume of Treated Water into the Distribution System

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Flow (m ³ /day)	829	818	781	757	775	846	862	930	911	813	847	702
Maximum Flow (m ³ /day)	1197	1043	1049	888	1225	1120	1111	1327	1101	1090	1142	862
MDWL - Rated Capacity	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488
% Rated Capacity	48	42	42	36	49	45	45	53	44	44	46	35





The following information is provided to enable the Owner to assess the capability of the system to meet existing and future water usage needs.

Summary of System Performance

Rated Capacity of the Plant (MDWL)	2,488 m ³ /day	
Average Daily Flow for 2017	823 m ³ /day	33.1 % of the rated capacity
Maximum Daily Flow for 2017	1,327 m ³ /day	53.35 % of the rated capacity
Total Treated Water Produced in 2017	300,199 m ³	

CONCLUSION

In 2017, the Englehart Drinking Water System was able to operate within the water taking limits of the permit and in accordance with the rated capacity of the licence while meeting the community’s demand for water use.

The system failed to comply with the regulatory requirements of the Safe Drinking Water Act and the terms and conditions outlined in its municipal license and drinking water works permit which requires that additions, modifications, replacements or extensions of watermains are verified in writing in advance of the undertaking. A Form 1 “Record of Watermain Authorized as a Future Alteration” for a watermain replacement project which occurred from August to November 2017 was not provided the Ministry of the Environment until January 2018.



APPENDIX A

Monthly Summary of Microbiological Test
Results



APPENDIX B

Monthly Summary of Operational Data

**ENGLEHART DRINKING WATER SYSTEM
SUMMARY OF OPERATIONAL TEST RESULTS**

Facility Works Number: 220000353
 Facility Owner: Municipality: Town of Englehart
 Facility Classification: Class 1 Water Treatment

RAW WATER	01/2017	02/2017	03/2017	04/2017	05/2017	06/2017	07/2017	08/2017	09/2017	10/2017	11/2017	12/2017	Total	Avg	Max	Min
Well 2 / Turbidity - NTU																
Count IH	5	1	1	1	1	1	1	1	1	1	1	1	16			
Total IH	2.79	0.63	2	0.4	0.96	0.34	1.81	1.32	2.64	0.45	2.37	2.86	18.57			
Max IH	1.05	0.63	2	0.4	0.96	0.34	1.81	1.32	2.64	0.45	2.37	2.86			2.86	
Mean IH	0.558	0.63	2	0.4	0.96	0.34	1.81	1.32	2.64	0.45	2.37	2.86		1.161		
Min IH	0.32	0.63	2	0.4	0.96	0.34	1.81	1.32	2.64	0.45	2.37	2.86				0.32
Well 3 / Turbidity - NTU																
Count IH	5	1	1	1	1	1	1	1	1	1	1	1	16			
Total IH	2.12	0.51	1.72	1.75	1.27	0.38	0.33	0.89	1.99	0.41	1.98	1.34	14.69			
Max IH	0.97	0.51	1.72	1.75	1.27	0.38	0.33	0.89	1.99	0.41	1.98	1.34			1.99	
Mean IH	0.424	0.51	1.72	1.75	1.27	0.38	0.33	0.89	1.99	0.41	1.98	1.34		0.918		
Min IH	0.27	0.51	1.72	1.75	1.27	0.38	0.33	0.89	1.99	0.41	1.98	1.34				0.27
TREATED WATER	01/2017	02/2017	03/2017	04/2017	05/2017	06/2017	07/2017	08/2017	09/2017	10/2017	11/2017	12/2017	Total	Avg	Max	Min
Pressure Filter / Cl Residual: Free-CT (0.85 mg/L) - mg/L																
Max OL	4.975	4.975	4.975	4.974	4.974	4.972	4.971	4.97	4.97	4.97	4.97	4.971			4.975	
Mean OL	2.121	1.978	1.773	1.755	1.971	1.905	1.946	1.892	1.984	2.19	2.083	2.106		1.975		
Min OL	0.27*	0.97	0.85	0.96	0.98	0.85	0.87	0.85	0.94	1.02	1.068	1.20				0.27
DISTRIBUTION WATER	01/2017	02/2017	03/2017	04/2017	05/2017	06/2017	07/2017	08/2017	09/2017	10/2017	11/2017	12/2017	Total	Avg	Max	Min
Residual No. 1 / Cl Residual: Combined - mg/L																
Count IH	9	8	9	8	10	8	9	9	8	9	9	8	104			
Total IH	14.23	14	16.63	13.69	16.94	13.46	13.27	13.12	12.29	16.59	11.72	11.2	167.14			
Max IH	1.95	2.04	1.93	2.03	2.06	1.89	1.84	1.67	1.8	2.07	1.64	1.7			2.07	
Mean IH	1.581	1.75	1.848	1.711	1.694	1.682	1.474	1.458	1.536	1.843	1.302	1.4		1.607		
Min IH	1.11	1.52	1.73	1.53	1.28	1.32	0.75	1.23	0.94	1.5	0.59	1.16				0.59
Residual No. 2 / Cl Residual: Combined - mg/L																
Count IH	9	8	9	8	10	8	9	9	8	9	9	8	104			
Total IH	14.3	14.13	15.37	14.48	16.39	13.66	14.27	12.54	12.9	16.85	13.79	11.53	170.21			
Max IH	1.96	1.9	1.87	1.88	1.96	1.87	1.69	1.61	1.99	2.06	1.94	1.65			2.06	
Mean IH	1.589	1.766	1.708	1.81	1.639	1.708	1.586	1.393	1.613	1.872	1.532	1.441		1.637		
Min IH	1.07	1.61	1.34	1.7	1.1	1.47	1.3	1.02	1.15	1.42	1.16	1.18				1.02
Residual No. 3 / Cl Residual: Combined - mg/L																
Count IH	9	8	9	8	10	8	9	9	8	9	9	8	104			
Total IH	14.48	14.31	16.28	13.96	15.83	13.58	13.29	13.42	12.85	16.51	14.39	11.67	170.57			
Max IH	1.9	1.94	1.93	1.87	1.97	1.97	1.84	1.76	1.84	2.02	1.94	1.9			2.02	
Mean IH	1.609	1.789	1.809	1.745	1.583	1.698	1.477	1.491	1.606	1.834	1.599	1.459		1.64		
Min IH	1.34	1.63	1.62	1.65	0.84	1.45	1.08	1.3	1.38	1.68	1.26	1.14				0.84
Residual No. 4 / Cl Residual: Combined - mg/L																
Count IH	5	4	4	4	5	4	5	5	4	5	4	4	53			
Total IH	8.17	7.04	7.5	6.97	8.54	6.41	6.91	6.54	5.65	8.8	5.36	5.58	83.47			
Max IH	1.88	2	1.93	1.81	1.81	1.9	1.58	1.43	1.78	2.08	1.97	1.5			2.08	
Mean IH	1.634	1.76	1.875	1.743	1.708	1.603	1.382	1.308	1.413	1.76	1.34	1.395		1.575		
Min IH	1.21	1.63	1.78	1.66	1.54	1.22	0.79	1.15	1.07	1.3	0.87	1.31				0.79

Note: January 12th – System failed to meet primary disinfection. Free chlorine residual fell to 0.27 mg/L and CT failed (AWQI No. 132206)