



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Englehart Drinking Water System

2019 ANNUAL/SUMMARY REPORT



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

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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 regulatory requirement 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 2019 Annual/Summary Report.



Englehart Drinking Water System

Section 11

2019 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, 2019 to December 31, 2019

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 | DWS #: 260069927 |
| 2. First St North | DWS #: 260078871 |
| 3. Kap-kig-iwan Road | DWS #: 260078650 |
| 4. Bryans' Road | DWS #: 260080574 |
| 5. Brown's Road | 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 2019 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 the accredited operating authority and 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 equipped with variable frequency drives (VFDs) direct water into the distribution system, each at a maximum rate of 37.8 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 watermains 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:

- Replaced highlift motor after it failed
- Replaced air compressor
- Replaced air valve bank/Moisture separator/oil lubricator



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, five (5) adverse water quality incidents were reported to the Ministry's Spills Action Centre in 2019.

- 1. AWQI 144568** - January 19: the system loss pressure due to a power failure. The power outage caused a fuse to blow resulting in the shutdown of the PLC unit. As a result the high lift pumps did not turn back on as required by the programmable logic controller (PLC) unit. Operator arrived at the plant and the high lift pump system was placed in manual operation. This allowed immediate return of pressure to the system. The issue was investigated and fuses were replaced. The plant restarted and returned to normal operations under control of the PLC. The Ministry's Spills Action center (SAC) and the local Health Unit were notified on January 19th. The local Health Unit issued a system-wide precautionary Boil Water Advisory (BWA). Two sets of 4 bacteriological samples were collected 24 hours apart (one at the plant and three in the distribution system). Sample results indicated no total coliforms or *E.coli*. BWA was lifted on January 21, 2019 @ approx. 1330 hrs.
- 2. AWQI 145285** - April 27: A loss of pressure occurred due to a watermain break/repair on April 27th at 0800 hours. A category 2 watermain break at 63 First Street resulted in the isolation of approximately 30 homes. Pedersen Construction was called to perform the repair and OCWA oversaw the work. The Ministry's SAC and local Health Unit were notified and a precautionary Boil Water Advisory (BWA) was issued for the affected area. The repair was completed and the pressure was restored on April 27th at 1030 hours. Flushing and sampling was performed. Two sets of 3 bacteriological samples were collected (upstream, downstream and at break site). Sample results indicated no total coliforms, *E.coli* or general HPC bacteria. The BWA was lifted on April 29th at 1115 hours.
- 3. AWQI 146500** - July 15: Two (2) total coliforms were detected in a drinking water sample collected BNS Corner Gas Station in Englehart (334405 - Hwy 11). The sample was collected on July 15th at 0933 hours. The combined chlorine residual was 1.57 mg/L.

Notification: Immediate verbal notification was made to SAC, the local Health Unit and the Owner and on July 17th after results were verbally provided by the laboratory. Section 2A of the Notification Report was completed and submitted on July 17th.

Corrective Actions: Flushing was done at the site. Resamples were collected upstream, downstream and at the site of the adverse result on July 17th. Re-sample results indicated no total coliforms, *E.coli* and less than detectable HPC. Issue resolved on July 23rd.

- 4. AWQI 149166** – December 2: Two (2) total coliforms were detected in a drinking water sample collected Peter's Garage on Hwy 11 in the Bradley Subdivision. The sample was collected on December 2nd at 1058 hours. The subdivision is supplied by the Englehart drinking water system.



Notification: Immediate verbal notification was made to SAC, the local Health Unit and the Owner and on December 3rd after results were verbally provided by the laboratory. Section 2A of the Notification Report was completed and submitted on December 4th.

Corrective Action: Re-samples were collected as required under O. Regulation 170/03 (at the site of the adverse result, upstream of the site, downstream of the site) on December 4th. All re-sample results were acceptable having zero total coliforms and *E. coli*. Issue resolved on December 6th.

- 5. AWQI 146361** – December 30: A drinking water sample collected at Peter's Garage (Hwy 11) in the Bradley Subdivision distribution system was overgrown with target organism; (NDOGT). The sample was collected on December 30th at 0911 hours (CCR = 1.95 mg/L). The subdivision is supplied by the Englehart drinking water system.

Notification: Immediate verbal notification was made to SAC, the local Health Unit and the Owner and on December 31st after results were verbally provided by the laboratory. No Boil Water Advisory was issued by the local Health Unit. Section 2A of the Notification Report was completed and submitted on January 1st.

Corrective Action: The affected area was flushed and the combined chlorine residual was maintained above 1.0 mg/L. Two sets of 3 samples (upstream, downstream and at the site of the adverse result) were collected 24 hours apart. All re-sample results were acceptable having zero total coliforms and *E. coli*. Issue resolved January 3rd.

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)	53	0 to 0	0 to 0	0	N/A
Raw (Well No. 3)	53	0 to 0	0 to 0	0	N/A
Treated	53	0 to 0	0 to 0	53	< 10 to 150
Distribution	159	0 to 0	0 to 2/NDOGT*	55	< 10 to 120

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 are tested for HPC bacteria
- *One (1) adverse bacteriological result was detected in the Englehart distribution system and two (2) adverse bacteriological results were detected in the Bradley Subdivision distribution system which is fed by the Englehart drinking water system.



1. July 15 - Two (2) total coliforms were detected in a drinking water sample collected BNS Corner Gas Station in Englehart - 334405 - Hwy 11 (AWQI 146500)
2. December 2 - Two (2) total coliforms were detected in a drinking water sample collected Peter's Garage on Hwy 11 in the Bradley Subdivision. Resamples collected and results acceptable (AWQI 149166).
3. December 30 - NDOGT (no data, overgrown with target) was the result of a drinking water sample collected Peter's Garage on Hwy 11 in the Bradley Subdivision. Resamples collected and results acceptable (AWQI 149361).

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)	25	0.27 to 2.41	NTU
Turbidity (Well No. 3)	25	0.27 to 1.75	NTU

Note: Samples are 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	0.81 to 5.00	mg/L	CT**

Notes:

1. For continuous monitors 8760 is used as the number of samples.
2. * 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. A CT calculation was performed on September 6th (FCR = 0.81 mg/L) and passed, meaning the system was providing proper disinfection.

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	368	0.31 to 2.11	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 plant’s point of entry into the distribution every quarter)

Date of Sample	Nitrate Result Value	Nitrite Result Value	Unit of Measure	Exceedance
January 8	0.03	< 0.008	mg/L	No
April 3	< 0.05	< 0.05	mg/L	No
July 10	< 0.05	< 0.05	mg/L	No
October 9	< 0.05	< 0.05	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 8	38.8	ug/L	36.9	No
April 3	31.4	ug/L		
July 10	47.5	ug/L		
October 9	29.9	ug/L		

Maximum Allowable Concentration (MAC) for Total Trihalomethanes = 100 ug/L (Running Annual 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 sample must be 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. Over the past three years, samples were collected near the plant, in the middle of the distribution system and at the end of the distribution system as per guidance provided in a Ministry’s letter “HAA Concerns” dated May 9, 2018. The sample location with the highest concentrations of HAAs is the Public Works Department (9 Sixth Ave.) near the plant.

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 2019 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 8	51	ug/L	27.3	N/A
April 3	12	ug/L		
July 10	30	ug/L		
October 9	16	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.

Two rounds of alkalinity and pH testing were carried out on March 29th and September 23rd of 2019. Results are summarized in the table below.

Summary of Lead Data (sampled in the Englehart 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)
March 29	2	7.89 to 7.94	6.0 to 8.1	245 to 246	N/A
September 23	2	7.63 to 7.85	9.3 to 10.5	246 to 249	N/A

Note: Next lead sampling scheduled for 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 2019 completed its two rounds of alkalinity and pH testing on March 29th and September 23rd. One distribution sample was required to be tested per period. Results are summarized in the table below.

Summary of Lead Data (sampled in the Bradley Subdivision distribution system)

Date of Sample	# of Samples	Field pH	Field Temperature (°C)	Alkalinity (mg/L)	Lead (ug/L)
March 29	1	7.95	5.7	245	N/A
September 23	1	7.68	13	248	N/A

Note: Next lead sampling scheduled for 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	10	No	No
Barium	401	ug/L	1000	No	No
Boron	246	ug/L	5000	No	No
Cadmium	< 1.0	ug/L	5	No	No



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

Parameter	Result Value	Unit of Measure	MAC	MAC Exceedance	½ MAC Exceedance
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
Malathion	< 0.2	ug/L	190	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



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

Parameter	Result Value	Unit of Measure	MAC	MAC Exceedance	½ MAC Exceedance
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 an Approval, Order or Legal Instrument

No additional sampling and testing was required for the Englehart Drinking Water System during the 2019 reporting period.



Englehart Drinking Water System

Schedule 22

2019 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, 2019 to December 31, 2019

2.0 REQUIREMENTS THE SYSTEM FAILED TO MEET

According to information kept on record by OCWA, the Englehart Drinking Water System has complied with all the requirements set out in the system’s MDWL, its DWWP, the Act and its Regulations.

It should be mentioned that, five (5) adverse water quality incidents were reported to the Ministry’s Spills Action Center during the reporting period. Refer to Section 5.0 – *Details on Notices of Adverse Test Results and Other Problems Reported to & Submitted to the Spills Actions Center* on page 6 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 2019 reporting period, including total monthly volumes, average monthly volumes, maximum monthly volumes, and maximum flow rates.



Water Usage

Raw Water

Well No. 2

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m ³)	7351	5140	6104	5798	5173	6098	7392	7534	5932	6950	5554	6166	75192
Average Volume (m ³ /d)	237	184	197	193	167	203	238	243	198	224	185	199	206
Maximum Volume (m ³ /d)	650	241	262	360	232	308	357	323	280	411	256	261	650
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)	900	900	900	744	900	592	566	517	526	900	900	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)	21660	16361	19447	18562	16489	19269	23238	23489	18338	21337	17056	19078	234324
Average Volume (m ³ /d)	699	584	627	619	532	642	750	758	611	688	569	615	641
Maximum Volume (m ³ /d)	1405	748	830	1141	738	973	1133	1005	868	1264	797	808	1405
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)	1499	1432	1264	1266	1371	1320	1176	1169	1190	1345	1500	1209	1500
PTTW - Maximum Allowable Flow Rate (L/min)	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727

Raw Water Total - 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)	29011	21501	25551	24360	21662	25367	30630	31023	24187	28220	22610	25244	309366
Average Volume (m ³ /d)	936	768	824	812	699	846	988	1001	806	910	754	814	846
Maximum Volume (m ³ /d)	1851	989	1092	1501	970	1281	1490	1328	1148	1675	1053	1069	1851
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 m³/day 909 L/minute

Well No. 3 1591.10 m³/day 1727 L/minute

Total Combined Daily Volume: 2795.79 m³/day



A review of the raw water flow data indicates that the system did not exceed the maximum allowable volumes or maximum flow rates during the reporting period.

Treated Water

2019 - 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

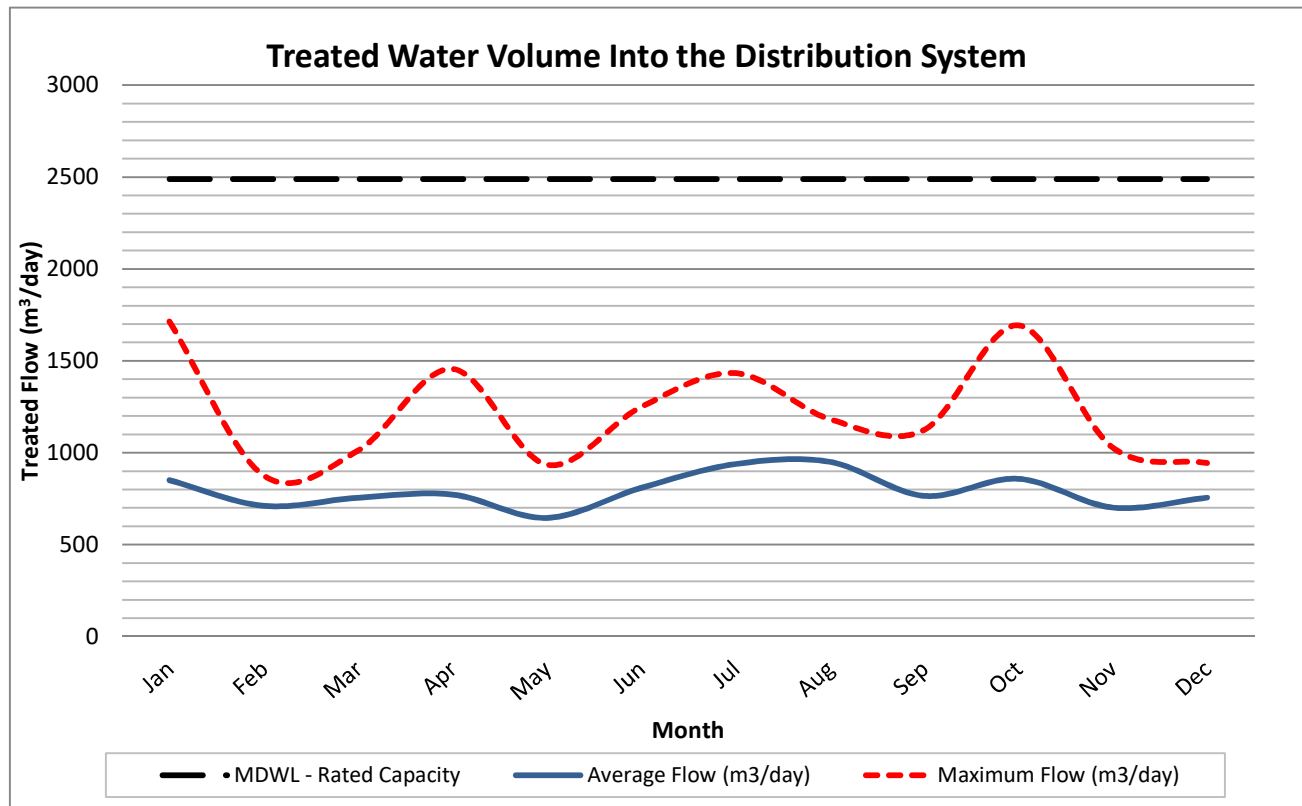
	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Year to Date</i>
<i>Total Volume (m³)</i>	26369	19916	23409	23179	20016	24264	29092	29466	22964	26605	21048	23423	289751
<i>Average Volume (m³/d)</i>	851	711	755	773	646	809	938	951	765	858	702	756	793
<i>Maximum Volume (m³/d)</i>	1714	876	1012	1456	935	1249	1433	1183	1124	1693	1028	944	1714
<i>MDWL/C of A - Rated Capacity (m³/day)</i>	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 1714 m³/day in January, which represents 68.9% 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: 2019 - Monthly 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)	851	711	755	773	646	809	938	951	765	858	702	756
Maximum Flow (m ³ /day)	1714	876	1012	1456	935	1249	1433	1183	1124	1693	1028	944
MDWL - Rated Capacity	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488
% Rated Capacity	69	35	41	59	38	50	58	48	45	68	41	38





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 2019	793 m ³ /day	31.8 % of the rated capacity
Maximum Daily Flow for 2019	1714 m ³ /day	68.9 % of the rated capacity
Total Treated Water Produced in 2019	289,751 m ³	

CONCLUSION

The Englehart Drinking Water System operated well in 2019 complying with the regulatory requirements of the Safe Drinking Water Act and its Regulations and meeting the terms and conditions outlined in its site specific drinking water works permit and municipal drinking water licence having no incidents of non-compliance during the reporting period.

The 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.

Five (5) adverse water quality incidents occurred during the reporting period. Two loss of pressure incidents and three distribution samples with adverse bacteriological results were reported to the Ministry’s Spills Action Center and the Timiskaming Health Unit as required under Schedule 16 of O. Reg. 170/03.



APPENDIX A

Monthly Summary of Microbiological Test
Results

**ENGLEHART DRINKING WATER SYSTEM
2019 SUMMARY OF MICROBIOLOGICAL TEST RESULTS**

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

RAW WATER	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Well 2 / Total Coliform: TC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Well 2 / E. Coli: EC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Well 3 / Total Coliform: TC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Well 3 / E. Coli: EC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0

TREATED WATER	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Treated Water (POE) / Total Coliform: TC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Treated Water (POE) / E. Coli: EC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Treated Water (POE) / HPC - cfu/mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	150	< 20	< 10	< 10			150	
Mean Lab	< 10	< 10	< 10	< 10	< 12.5	< 10	< 10	< 10	< 42	< 15	< 10	< 10		13.585		
Min Lab	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10

DISTRIBUTION WATER	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
E-3 (Bacti) / Total Coliform: TC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
E-3 (Bacti) / E. Coli - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
E-3 (Bacti) / HPC - cfu/mL																
Count Lab	3	1	1	2	1	1	2	1	2	2	1	2	19			
Max Lab	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 30	< 10	70	< 10			70	
Mean Lab	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 20	< 10	70	< 10		14.211		
Min Lab	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	70	< 10				< 10
E-4 (Bacti) / Total Coliform: TC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	2*	0	0	0	0	0			2	
Mean Lab	0	0	0	0	0	0	0.4	0	0	0	0	0		0.038		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
E-4 (Bacti) / E. Coli - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	5	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
E-4 (Bacti) / HPC - cfu/mL																
Count Lab	2	2	1	3	2	2	2	1	2	1	1	2	21			
Max Lab	< 10	< 10	< 10	110	20	< 30	< 120	< 10	50	10	10	20			120	
Mean Lab	< 10	< 10	< 10	63.333	15	< 20	< 65	< 10	45	10	10	< 15		28.095		
Min Lab	< 10	< 10	< 10	20	10	< 10	< 10	< 10	40	10	10	< 10				< 10
E-5 (Bacti) / Total Coliform: TC - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	4	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	2/NDOGT*			2/NDOGT	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0.5		0.038		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
E-5 (Bacti) / E. Coli - cfu/100mL																
Count Lab	5	4	4	5	4	4	5	4	5	4	4	4	53			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
E-5 (Bacti) / HPC - cfu/mL																
Count Lab	0	1	2	1	2	1	1	2	1	1	2	1	15			
Max Lab		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	30	< 10			30	
Mean Lab		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 20	< 10		11.333		
Min Lab		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10

NOTES:
 * One (1) adverse bacteriological result was detected in the Englehart distribution system and two (2) adverse bacteriological results were detected in the Bradley Subdivision distribution system which is fed by the Englehart drinking water system.
 1. July 15 - Two (2) total coliforms were detected in a drinking water sample collected BNS Corner Gas Station in Englehart - 334405 - Hwy 11 (AWQI 146500)
 2. December 2 - Two (2) total coliforms were detected in a drinking water sample collected Peter's Garage on Hwy 11 in the Bradley Subdivision. Resamples collected and results acceptable (AWQI 149166).
 3. December 30 - NDOGT (no data, overgrown with target) was the result of a drinking water sample collected Peter's Garage on Hwy 11 in the Bradley Subdivision. Resamples collected and results acceptable (AWQI 149361).



APPENDIX B

Monthly Summary of Operational Data

**ENGLEHART DRINKING WATER SYSTEM
2019 SUMMARY OF OPERATIONAL TEST RESULTS**

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

RAW WATER	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Well 2 / Turbidity - NTU																
Count IH	2	2	2	2	2	3	2	2	2	2	2	2	25			
Total IH	0.81	2.76	1.04	1.12	1.47	5.14	1.08	1.31	1.9	0.94	1.19	1.31	20.07			
Max IH	0.42	2.41	0.72	0.6	0.74	2.15	0.68	0.75	1.63	0.6	0.6	0.68			2.41	
Mean IH	0.405	1.38	0.52	0.56	0.735	1.713	0.54	0.655	0.95	0.47	0.595	0.655		0.803		
Min IH	0.39	0.35	0.32	0.52	0.73	1.24	0.4	0.56	0.27	0.34	0.59	0.63				0.27
Well 3 / Turbidity - NTU																
Count IH	2	2	2	2	2	3	2	2	2	2	2	2	25			
Total IH	1.01	2.06	1.5	2.55	2.32	4.37	1.18	1.75	1.66	0.93	0.62	2.54	22.49			
Max IH	0.58	1.68	0.78	1.75	1.3	1.59	0.65	1.1	1.01	0.56	0.35	1.3			1.75	
Mean IH	0.505	1.03	0.75	1.275	1.16	1.457	0.59	0.875	0.83	0.465	0.31	1.27		0.9		
Min IH	0.43	0.38	0.72	0.8	1.02	1.3	0.53	0.65	0.65	0.37	0.27	1.24				0.27

TREATED WATER	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Pressure Filter / Cl Residual: Free-CT (0.85 mg/L) - mg/L																
Max OL	4.999	4.999	4.999	4.999	5.00	4.967	4.966	4.999	5.00	4.999	4.999	4.999			5.00	
Mean OL	2.164	1.995	1.72	1.766	1.966	2.22	2.102	1.896	2.001	1.775	1.911	2.034		1.962		
Min OL	1.00	0.89	1.00	1.25	1.01	0.88	1.18	0.83	0.81*	0.9	1.14	1.45				0.81

DISTRIBUTION WATER	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Residual No. 1 / Cl Residual: Combined - mg/L																
Count IH	10	8	8	9	9	8	10	8	9	9	8	9	105			
Total IH	14.59	12.31	12.49	15.01	14.25	12.49	15.42	14.11	12.96	14.76	12.96	12.91	164.26			
Max IH	1.83	1.99	1.83	1.83	1.85	1.84	1.99	1.88	1.82	1.93	1.94	1.95			1.99	
Mean IH	1.459	1.539	1.561	1.668	1.583	1.561	1.542	1.764	1.44	1.64	1.62	1.434		1.564		
Min IH	1.04	1.12	1.3	1.22	0.97	1.39	1.08	1.61	0.31	1.38	1.25	0.96				0.31
Residual No. 2 / Cl Residual: Combined - mg/L																
Count IH	10	8	8	9	9	8	10	8	9	9	8	9	105			
Total IH	16.33	10.82	13.15	13.75	14.6	12.87	16.63	13.99	16.88	15.01	14.43	13.64	172.1			
Max IH	1.92	1.81	1.8	1.8	1.95	1.93	2.11	1.86	2.1	2.08	2.03	2.03			2.11	
Mean IH	1.633	1.353	1.644	1.528	1.622	1.609	1.663	1.749	1.876	1.668	1.804	1.516		1.639		
Min IH	0.88	0.82	1.49	1.32	0.87	1.36	1	1.65	1.74	0.49	1.52	0.99				0.49
Residual No. 3 / Cl Residual: Combined - mg/L																
Count IH	10	8	8	9	9	8	10	8	9	9	8	9	105			
Total IH	15.12	12.38	12.94	13.87	12.44	10.67	16.1	12.43	14.54	12.69	13.34	12.49	159.01			
Max IH	1.72	1.85	1.75	1.72	1.89	1.55	1.91	1.77	1.81	1.95	1.84	1.97			1.97	
Mean IH	1.512	1.547	1.618	1.541	1.382	1.334	1.61	1.554	1.616	1.41	1.668	1.388		1.514		
Min IH	0.96	1.23	1.34	1.14	0.43	1.02	0.88	1.3	1.38	0.67	1.34	1.01				0.43
Residual No. 4 / Cl Residual: Combined - mg/L																
Count IH	5	4	4	5	4	4	5	4	5	4	4	5	53			
Total IH	8.11	6.48	6.29	7.06	5.88	5.36	7.62	5.88	8.3	6.35	6.34	7.23	80.9			
Max IH	1.71	1.8	1.7	1.56	1.63	1.56	1.99	1.63	2.09	1.69	1.73	1.73			2.09	
Mean IH	1.622	1.62	1.573	1.412	1.47	1.34	1.524	1.47	1.66	1.588	1.585	1.446		1.526		
Min IH	1.4	1.43	1.24	1.21	1.14	1.01	0.92	1.31	1.45	1.52	1.48	1.19				0.92

NOTES:
 * 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. A CT calculation was performed on September 6th (FCR = 0.81 mg/L) and passed.