Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Englehart Drinking Water System

2023 Annual/Summary Report

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

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2023 Annual Report

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 2023 Annual/Summary 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 to December 31, 2023

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.englehart.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 P0J 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 2023 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:

- Notice on the Town's Facebook page
- Notice on the Town's website
- Notice in the Municipal Office

2.0 DESCRIPTION OF THE DRINKING WATER SYSYTEM (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 Evanturel 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 was constructed on July 27, 1948 is drilled to a depth of 89.3 meters. It 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 installed on the 100 mm diameter discharge line that directs water into the water treatment plant and has 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 was constructed on July 27, 1976 and is drilled to a depth of 90.5 meters. It 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 installed on the 100 mm diameter discharge line that directs water into the water treatment plant and has 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 (m^3/d).

The process consists of a Filtronics Electromedia iron and manganese removal/pressure filtration system rated at 2998 m^3/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 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) 1100 L 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 m^3. 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 150 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. Newly installed

sections of watermain consist of 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:

- assist with main break
- assist with tower project

- chemical transfer pump for hypo
- chlorine analyzer – trouble shoot
- compressor
- fall flushing
- lifting device inspections
- membranes and electrolytes
- PLC UPS replacement
- spare parts kits for chemical pumps
- well #3 water loss event
- well #3 pump replacement

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, Three (3) adverse water quality incidents were reported to the Ministry's Spills Action Centre in 2023.

Date	AWQI No.	Details
April 24	161815	**High Distribution Combined Chlorine Residual** Combined chlorine residual result of 3.22 mg/L was tested at Englehart Motel Kitchen Sink (334416 Hwy 11) on April 24th at 09:08 AM. Local PHI requested the building be flushed for 20 minutes; re-sampled at the same location immediately and the result provided as soon as available. The re-sample result was 2.04 mg/L at 18:14.
June 24	162302	**Loss of Pressure for 10 Minutes** After a scheduled power interruption when power was restored to the water plant, the Allen Bradley control panel did not re-energize. The high lift pumps were off for 10 minutes before they were manually started. The Timiskaming Health Unit issued a Boil Water Advisory, requiring two sets of clear samples 24-48 hours apart to lift it. The BWA was lifted on June 26
Sept 17	163492	**Alarms Unable to Call Out Due to Northern Telephone Issues** Northern Telephone is having issues with their equipment - landlines are down. This means that an alarm condition would not result in a call an operator. Northern Telephone was contacted and said that they are aware of the issue but did not have an estimated resolution time. Plants could still be monitored remotely via SCADA/Wonderware and were monitored periodically until the landline issue was resolved. Northern Telephone had restored service to landlines by approximately 23:30 thus resolving the incident

6.0 MICROBIOLOGICAL TESTING PERFORMED DURING THE REPORTING PERIOD

Summary of Microbiological Data

Sample Type	# of Samples	Range of *E. coli* 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 3	N/A	N/A
Raw (Well No. 3)	52	0 to 0	0 to 1	N/A	N/A
Treated	52	0 to 0	0 to 0	52	< 10 to 40
Distribution	156	0 to 0	0 to 0	52	< 10 to > 2000

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
">" denotes greater than the laboratory's method detection limit

Notes:

1. 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.

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)	26	0.25 to 2.37	NTU
Turbidity (Well No. 3)	26	0.23 to 5.95	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	1.50 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 0.90 mg/L to ensure primary disinfection is achieved.

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	361	0.77 to 3.22	mg/L	$\geq$ 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.

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 9	0.1	< 0.01	mg/L	No
April 11	0.1	< 0.01	mg/L	No
July 10	< 0.1	< 0.01	mg/L	No
October 10	0.2	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 9	32.8	ug/L	37.4	No
April 11	33.5	ug/L		
July 10	37.0	ug/L		
October 10	46.2	ug/L		

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

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

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 9	22	ug/L	24	No
April 11	19	ug/L		
July 10	26	ug/L		
October 10	29	ug/L		

Maximum Allowable Concentration (MAC) for Total Haloacetic Acids = 80 ug/L (Four Quarter Running Average)

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 13th and October 4th of 2023. 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 13	2	7.39 to 7.51	6.3 to 6.8	214 to 217	<0.1 to 0.1
October 4	2	7.12 to 7.18	9.6 to 10.1	221 to 227	<0.1 to 0.4

Note: Next lead sampling scheduled for 2026

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.

Lead samples were last collected in 2023 and results were well below the MAC. Two rounds of alkalinity and pH testing were performed on one distribution sample collected on March 13th and October 4th of 2023. 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 13	1	7.48	5.2	107	0.2
October 4	1	7.28	13.5	234	0.2

Note: Next lead sampling scheduled for 2026

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	< 1.0	ug/L	10	No	No
Barium	412.0	ug/L	1000	No	No
Boron	261.0	ug/L	5000	No	No
Cadmium	0.9	ug/L	5	No	No
Chromium	2.0	ug/L	50	No	No
Mercury	< 0.1	ug/L	1	No	No
Selenium	1.0	ug/L	50	No	No
Uranium	< 1.0	ug/L	20	No	No

Note: Sample required every 36 months (sample date = *October 10, 2023).* Next sampling scheduled for October 2026

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

Parameter	Result Value (ug/L)	MAC	MAC Exceedance	½ MAC Exceedance
Alachlor	< 0.305	5	No	No
Atrazine + N-dealkylated metobolites	< 0.5	5	No	No
Azinphos-methyl	< 0.229	20	No	No
Benzene	< 0.1	1	No	No
Benzo(a)pyrene	< 0.01	0.01	No	No
Bromoxynil	< 0.098	5	No	No
Carbaryl	< 3.0	90	No	No
Carbofuran	< 5.0	90	No	No
Carbon Tetrachloride	< 0.2	2	No	No
Chlorpyrifos	< 0.229	90	No	No
Diazinon	< 0.229	20	No	No
Dicamba	< 0.086	120	No	No
1,2-Dichlorobenzene	< 0.2	200	No	No
1,4-Dichlorobenzene	< 0.3	5	No	No
1,2-Dichloroethane	< 0.2	5	No	No
1,1-Dichloroethylene (vinylidene chloride)	< 0.3	14	No	No
Dichloromethane	< 1.0	50	No	No
2-4 Dichlorophenol	< 0.2	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	< 0.366	100	No	No
Diclofop-methyl	< 0.122	9	No	No
Dimethoate	< 0.229	20	No	No
Diquat	< 0.2	70	No	No
Diuron	< 20.0	150	No	No
Glyphosate	< 20.0	280	No	No
Malathion	< 0.229	100	No	No
Metolachlor	< 0.153	190	No	No
Metribuzin	< 0.153	50	No	No
Monochlorobenzene	< 0.5	80	No	No
Paraquat	< 0.2	80	No	No
Polychlorinated Biphenyls (PCBs)	< 0.06	10	No	No
Pentachlorophenol	< 0.3	60	No	No
Phorate	< 0.153	2	No	No
Picloram	< 0.086	190	No	No
Prometryne	< 0.076	3	No	No
Simazine	< 0.229	1	No	No
Terbufos	< 0.153	10	No	No
Tetrachloroethylene	< 0.3	1	No	No
2,3,4,6-Tetrachlorophenol	< 0.2	30	No	No
Triallate	< 0.153	100	No	No
Trichloroethylene	< 0.2	230	No	No
2,4,6-Trichlorophenol	< 0.2	10	No	No

Parameter	Result Value (ug/L)	MAC	MAC Exceedance	½ MAC Exceedance
2-methyl-4-chlorophenoxyacetic acid (MCPA)	< 6.11	5	No	No
Trifluralin	< 0.153	45	No	No
Vinyl Chloride	< 0.1	1	No	No

Note: Sample required every 36 months (sample date = *October 10, 2023).* Next sampling scheduled for October 2026

***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 5, 2020	1	44.4	mg/L	20	Yes
October 9, 2020 (resample)	1	46.7	mg/L	20	Yes

Note: Sample required every 60 months. Next sampling scheduled for October 2025

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 9, 2020 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 152519).

Most Recent Fluoride Data Sampled at the Water Treatment Plant

Date of Sample	# of Samples	Result Value	Unit of Measure	Standard	Exceedance
October 5, 2020	1	0.42	mg/L	1.5	No

Note: Sample required every 60 months. Next sampling scheduled for October 2025

Additional Testing Performed in Accordance with an Approval, Order or Legal Instrument

Condition 5 (5.1) of Schedule C to Municipal Drinking Water Licence (MDWL) #209-101 issued on November 23, 2021 requires sampling, testing and monitoring of Nitrosodimethylamine (NDMA). The sample is to be collected each quarter from the farthest point in the distribution system and not exceed the maximum allowable concentration (MAC) of 0.009 ug/L.

Summary of NDMA Data *(sampled in the distribution system every quarter)*

Date of Sample	NDMA Result	Unit of Measure	Exceedance
January 9	< 0.0009	ug/L	No
April 11	< 0.0009	ug/L	No
July 10	0.0014	ug/L	No
October 10	0.0010	ug/L	No

Maximum Allowable Concentration (MAC) for NDMA = 0.009 ug/L

Englehart Drinking Water System

Schedule 22

2023 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.:	209-101-5 (issued November 23, 2021)
Drinking Water Work Permit (DWWP) No.:	209-201-3 (issued November 23, 2021)
Permit to Take Water (PTTW) No.:	P-300-5072679672 (issued June 3, 2020)
Period being reported:	January 1 to December 31, 2023

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 2023 reporting period:

Drinking Water Legislation	Requirement(s) the System Failed to Meet	Corrective Action(s)
O. Reg. 170/03, 6-5, (1)1-4; (1)5-10; (1.1);	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 did not respond in a timely manner and/or did not take appropriate actions	On September 17, 2023, the landlines were discovered to be down at 12:30pm, which prevented the alarms to call-out. The operators remotely monitored the system until the lines were restored on September 17, 2023 at 11:30pm. Reported as AWQI 163486

However, it should be mentioned that, three (3) 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.

Water Usage

The following water usage tables summarize the quantities and flow rates of water taken and produced during the 2023 reporting period, including total monthly volumes, average monthly volumes, maximum monthly volumes, and maximum flow rates.

Raw Water

Table A: Monthly Summary of Water Takings from Well No. 2
Regulated by Permit to Take Water (PTTW) #P-300-5072679672 effective June 3, 2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	6,699	6,891	7,146	8,887	7,896	9,100	5,962	5,351	4,950	5,208	3,411	3,622	75,123
Average Volume (m^3/d)	216	246	231	296	255	303	192	173	165	168	114	117	206
Maximum Volume (m^3/d)	286	422	295	403	318	469	281	207	210	212	143	161	469
PTTW - Maximum Allowable Volume (m^3/day)	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205
Maximum Flow Rate (L/min)	900	900	900	900	900	900	900	899	683	466	523	563	900
PTTW - Maximum Allowable Flow Rate (L/min)	909	909	909	909	909	909	909	909	909	909	909	909	909

Table B: Monthly Summary of Water Takings from Well No. 3
Regulated by Permit to Take Water (PTTW) #P-300-5072679672 effective June 3, 2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	18,402	18,883	19,575	24,298	21,297	21,040	25,249	25,670	23,350	23,007	23,237	23,848	267,856
Average Volume (m^3/d)	594	674	631	810	687	701	814	828	778	742	775	769	734
Maximum Volume (m^3/d)	784	1,146	802	1,093	841	930	1,023	1,007	982	1,000	993	1,069	1,146
PTTW - Maximum Allowable Volume (m^3/day)	1,591	1,591	1,591	1,591	1,591	1,591	1,591	1,591	1,591	1,591	1,591	1,591	1,591
Maximum Flow Rate (L/min)	1,422	1,499	1,490	1,351	1,443	1,405	1,421	1,472	1,423	1,428	1,445	1,443	1,499
PTTW - Maximum Allowable Flow Rate (L/min)	1,727	1,727	1,727	1,727	1,727	1,727	1,727	1,727	1,727	1,727	1,727	1,727	1,727

Table C: Raw Water Total - Combined Water Taking (Well No. 2 and Well No. 3)
Regulated by Permit to Take Water (PTTW) #P-300-5072679672 effective June 3, 2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	25,101	25,774	26,721	33,185	29,193	30,140	31,211	31,021	28,300	28,215	26,648	27,470	342,979
Average Volume (m^3/d)	810	921	862	1,106	942	1,005	1,007	1,001	943	910	888	886	940
Maximum Volume (m^3/d)	1,070	1,568	1,097	1,496	1,159	1,283	1,304	1,214	1,187	1,212	1,120	1,230	1,568
PTTW - Maximum Allowable Volume (m^3/day)	2,796	2,796	2,796	2,796	2,796	2,796	2,796	2,796	2,796	2,796	2,796	2,796	2,796

The system's Permit to Take Water #P-300-5072679672 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
Total Combined Daily Volume:	2795.79 m^3/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

Table D - Treated Water Usage

2023 - Monthly Summary of Treated Water Supplied to the Distribution System

Regulated by Municipal Drinking Water Licence (MDWL) #209-101 (issue 5), issued November 23, 2021

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	22,979	23,768	24,322	31,398	26,987	28,901	28,486	28,140	25,593	25,210	23,076	24,132	312,992
Average Volume (m^3/d)	741	849	785	1,047	871	963	919	908	853	813	769	778	858
Maximum Volume (m^3/d)	966	1,700	1,026	1,461	1,041	1,216	1,180	1,094	1,100	1,090	917	1,007	1,700
MDWL/C of A - Rated Capacity (m^3/day)	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488

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 m^3/day. The Englehart DWS complied with this limit having a recorded maximum volume of 1,700 m^3/day, which represents 68.3% of the rated capacity.

Table E and Figure 1 compares the average and maximum flow rates into the distribution system to the rated capacity of the system identified in the MDWL.

Table E: 2023 - Comparison of Treated Water Flows to the Rated Capacity

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Flow (m^3/day)	741	849	785	1,047	871	963	919	908	853	813	769	778
Maximum Flow (m^3/day)	966	1,700	1,026	1,461	1,041	1,216	1,180	1,094	1,100	1,090	917	1,007
MDWL - Rated Capacity	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488
% Rated Capacity	39	68	41	59	42	49	47	44	44	44	37	40

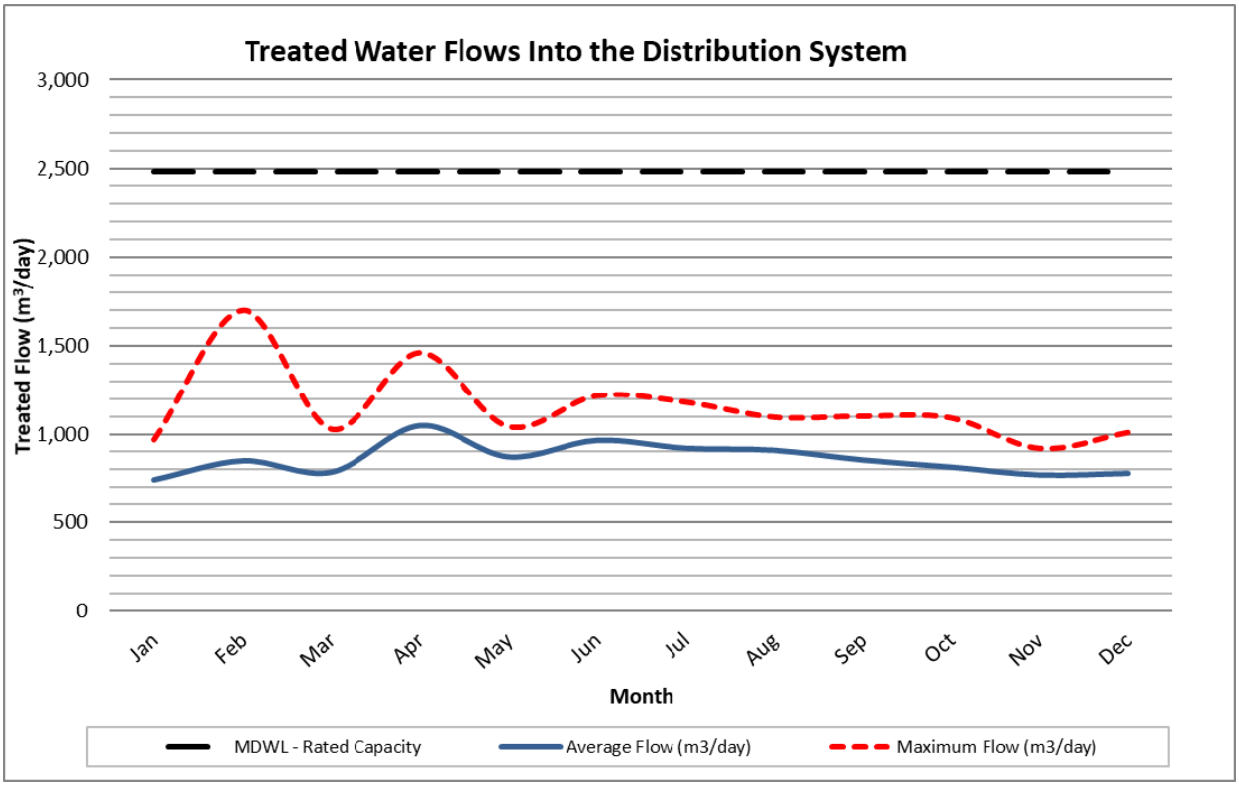


Figure 1: 2023 - Comparison of Treated Water Flows to the Rated Capacity

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 2023	858 m^3/day	34.5 % of the rated capacity
Maximum Daily Flow for 2023	1,700 m^3/day	68.3 % of the rated capacity
Total Treated Water Produced in 2023	312,992 m^3	

Historical Flows

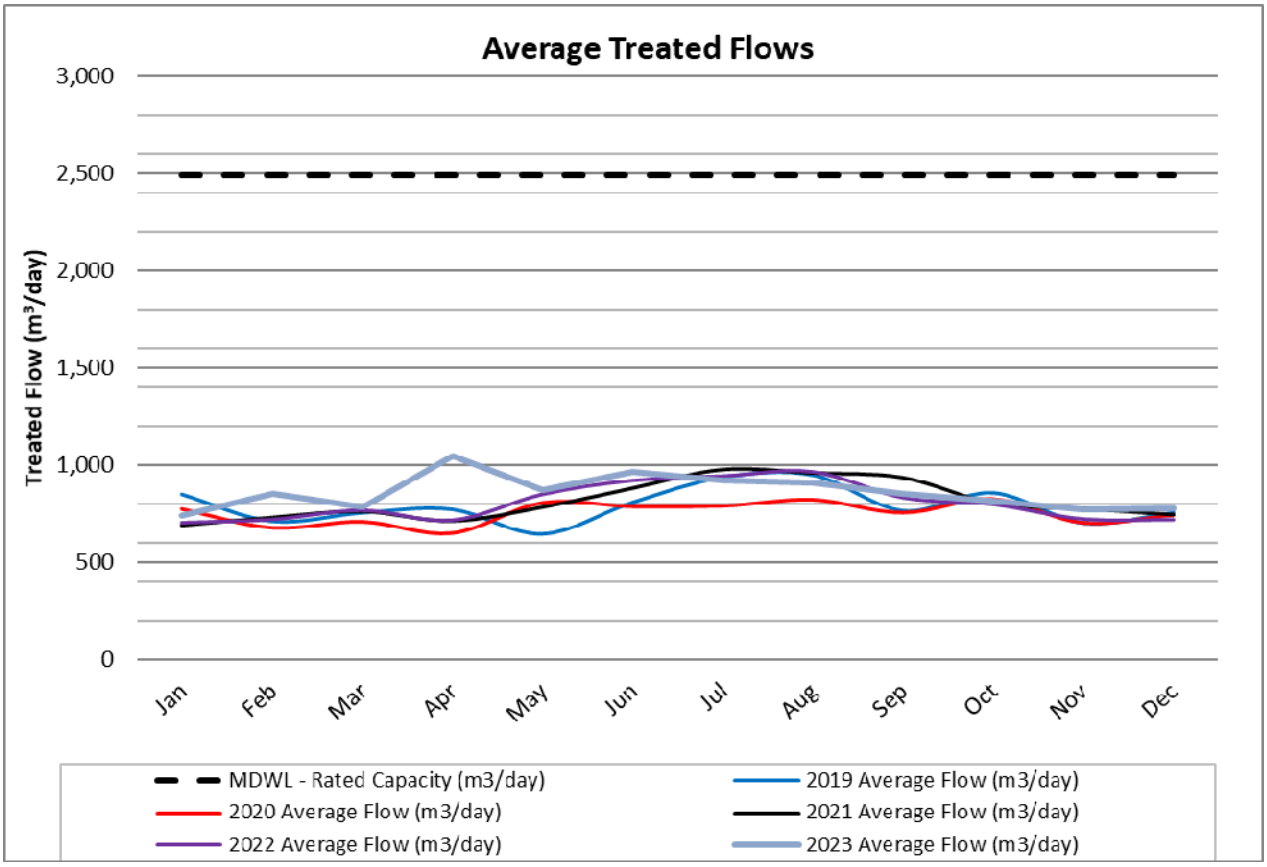
Englehart Water Treatment Plant – Historical Flow Comparison

Year	Maximum Treated Flow (m^3/d)	Average Daily Treated Flow (m^3/d)	Average Day % of Rated Capacity (2488 m^3/d)
2023	**1,700**	**858**	**34.5%**
2022	1,715	806	32.4%
2021	1,931	811	32.5%
2020	1,684	753	30.3%
2019	1,714	793	31.8%

Table F and Figure 2 compare the average treated water flows from 2019 to 2023.

Table F: Englehart Water Treatment System - Average Treated Water Flows from 2019 to 2023

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019 Average Flow (m^3/day)	851	711	755	773	646	809	938	951	765	858	702	756
2020 Average Flow (m^3/day)	774	677	708	649	806	787	790	822	755	825	702	743
2021 Average Flow (m^3/day)	686	727	759	709	781	880	977	959	935	801	773	742
2022 Average Flow (m^3/day)	703	720	767	716	850	921	944	966	833	798	722	719
2023 Average Flow (m^3/day)	741	849	785	1,047	871	963	919	908	853	813	769	778
MDWL - Rated Capacity (m^3/day)	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488	2,488



CONCLUSION

The water quality data collected in 2023 demonstrates that the Englehart drinking water system provided high quality drinking water to its users.

The system was able to operate in accordance with the terms and conditions of the Permit to Take Water and in accordance with the rated capacity of the licence while meeting the community's demand for water use.

All Adverse Water Quality Incidents were reported to the Ministry's Spills Action Center and the corrective actions were completed as required and any non-compliances that were identified were resolved as soon as possible.