



Englehart Drinking Water System

2014 ANNUAL/SUMMARY REPORT



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



TABLE OF CONTENTS

EXECUTIVE SUMMARY2
REVIEW AND HIGHLIGHTS OF 2014.....3

Section 11 - Annual Report

1.0 Introduction6
2.0 Description of the Drinking Water System7
3.0 List of Water Treatment Chemicals used over the Reporting Period.....9
4.0 Significant Expenses Incurred in the Drinking Water System.....9
5.0 Details on Notices of Adverse Test Results and Other Problems Reported to
Submitted to the Spills Action Center9
6.0 Microbiological Testing Performed during the Reporting Period11
7.0 Operational Testing Performed during the Reporting Period.....11

Schedule 22 - Summary Report for Municipalities

1.0 Introduction16
2.0 Requirements the System Failed to Meet.....16
3.0 Summary of Quantities & Flow Rates.....16
4.0 Conclusion20

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.

Section 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 report also includes a review of inspection and audit findings, operational highlights and recommendations for 2015.

The reports have been prepared by the Ontario Clean Water Agency (OCWA) on behalf of the Owner and presented to council as the 2014 Annual/Summary Report.

REVIEW AND HIGHLIGHTS OF 2014

The Englehart drinking water system (DWS) provided a safe and reliable drinking water to the community of Englehart and six neighbouring distribution systems while meeting, exceeding, and continually improving on legal, operational, and quality management system requirements.

The Ontario Clean Water Agency is the accredited operating authority for the Englehart DWS having met the quality management system requirements of the SDWA. OCWA operators, certified by the Province of Ontario through the Ministry of the Environment (MOE) operated and maintained the system to ensure compliance with regulatory requirements and to ensure the production and delivery of high quality drinking water to consumers.

Inspections and Audits

The MOE performed a detailed inspection on April 30, 2014. The inspection included a physical assessment of the water treatment plant, well houses and a document review for the period of April 22, 2013 to April 29, 2014. The system scored an inspection rating of 100 per cent having no non-compliance items or best practice recommendations identified in the report.

A Quality and Environmental Management System (QEMS) has been implemented for the Englehart Drinking Water System. The provincially mandated Drinking Water Quality Management Standard (DWQMS) requires municipalities to develop and maintain a quality management system to ensure consistent water quality now and into the future. SAI Global conducted a surveillance (desk-top) audit of the system and processes associated with the QEMS to ensure implementation of the Operational Plan and procedures and conformance to the standard. The Audit Report dated June 6, 2014. Identified one (1) opportunity for improvement (OFI):

1. *Communications* - Consider describing the locations in which the Operational Plan is available to the public within the communications procedure. Will be addressed during the next revision of the Plan.

Water Usage

The Englehart water treatment plant is rated to produce 2488 cubic meters of water per day as specified in the system's Municipal Drinking Water Licence 209-101. The following information is presented to quickly assess the capability of the system to meet existing and future water usage needs:

Rated Capacity of the Plant	2488 m³/day	
Average Daily Flow for 2014	923 m³/day	37.1 % of the rated capacity
Maximum Daily Flow for 2014	1616 m³/day	64.9 % of the rated capacity
Total Treated Water Produced in 2014	336,847 m³	

More detailed information on water usage is available on pages 16 to 19 of this report.

Operational Highlights

The Town of Englehart approved the following items listed in the 2014 capital letter.

CAPITAL ITEM	STATUS
Process changes to reduce Total Trihalomethane (TTHM) levels in the distribution system.	Approved and in progress*
Spare sodium hypochlorite flow monitor	Complete
Spare sodium hypochlorite injector	Complete
Two spare parts kits for sodium hypochlorite pumps	Complete
Spare chlorine analyzer membranes and electrolyte	Complete

* OCWA conducted chloramination bench testing which indicated that ammonia addition stops the formation of TTHMs.

In September, OCWA submitted a Chloramination proposal to MOECC's Director of Approvals. The objective of this chloramination pilot is to reduce trihalomethanes and to determine the effectiveness of using chloramination as secondary disinfection. The proposal was approved on December 2, 2014 and implementation is planned by March 2015.

Other highlights include:

January Calibration points were installed on pressure transmitters at the water plant to allow for annual checks which ensures the devices are working correctly and measuring accurately.

March The on-line free chlorine analyzer that measures at the point of entry into the distribution system failed calibration several times in March, OCWA temporarily replaced the analyzer with a spare until the failed unit could be repaired. Once repaired the analyzer was re-installed with a new probe and monitored to ensure proper operation.

May Portable standby generator was brought on-site and connected to the Englehart water treatment plant after the back-up generator failed. The standby unit ran for approximately 44 hours before failing. A Boil Water Advisory (BWA) was issued after the distribution system lost pressure. OCWA and town staff worked together to get the system back in operation and water to consumers.

July On July 18th, both sodium hypochlorite pumps failed. Town operator responded to a low chlorine alarm, reset the pumps and restored disinfection. OCWA's Instrumentation Tech. investigated the incident and discovered both pumps failed due to air in the flow monitoring system. Adjustments were made and the issue seems to be resolved, however a plan is in place to install a preassembled chemical feed panel to prevent the buildup of air.



September Town operators performed distribution flushing from September 22nd to 26th to remove deposits, encrustations, sediments and other materials which can cause taste, odour, turbidity and other water quality problems.

October A new 150 KW back-up generator set located was installed outside the water plant. The plant is now fed by 600 volts (V). The 600V power feeds a new step-down transformer within the plant which converts the power from 600V to 230V which is the voltage required for all of the plants 3 phase equipment.



New 150 KW Generator Set

Three (3) water main breaks occurred during the reporting period. A summary of the incidents are provided below.

Summary of Water Main Repairs

Date	Location	Users Affected	Comments
February 18	Two blocks of main by 73-4th Avenue	50	BWA issued /reported to MOE SAC
August 27	one block of residences between 5th & 6th streets and 2nd Avenue and King Street West.	13	No BWA issued
November 13	3rd Street and 6th Avenue (near 55 3rd St.)	1	No BWA issued

Recommended Capital Works for 2015

Capital Item	Comments
Chemical Feed Panel and 2 New Flow Monitors	The current configuration of the chemical feed system results in sodium hypochlorite pump failures.
Installation of a chloramination system	To reduce THMs and to determine the effectiveness of using chloramination as secondary disinfection



Englehart Drinking Water System

Section 11

2014 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, 2014 to December 31, 2014

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 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 provides drinking water to the Town of Englehart and six neighbouring distribution systems:

- | | |
|----------------------------|----------------------|
| 1. Bradley Subdivision | MOE DWS #: 260069927 |
| 2. First St North | MOE DWS #: 260078871 |
| 3. Kap-kig-iwan Road | MOE DWS #: 260078650 |
| 4. Bryans' Road | MOE DWS #: 260080574 |
| 5. Brown's Road | MOE DWS #: 260078663 |
| 6. Clarksville Subdivision | MOE DWS #: 260078741 |

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 2014 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 Clarksville 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

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. Certified municipal operators assist OCWA with operations by performing regular maintenance and checks of the system. The system is a communal ground water well supply that services the Town of Englehart and six 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 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 an 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). Sodium hypochlorite is used as an oxidant for iron and



manganese removal and as a disinfectant. The system is equipped with a backwash flow meter, analyzers to continuously monitor turbidity and chlorine residual 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.

Disinfection of the well water is accomplished by chlorination. 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. The chemical is injected into the low lift piping system, prior the filter system.

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. 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 which pump at the maximum rates of 37.8 L/second and 45.4 L/second direct water into the distribution system. A distribution water flow meter and a continuous free chlorine analyzer are installed on the high lift discharge header.

Emergency Power

A 100 kW diesel generator was replaced with a 150 kW generator set in October 2014. It 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 the 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. 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 six neighbouring regulated drinking water systems (one small municipal residential system and five 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	17
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
Clarksville Subdivision	260078741	Municipality of Charlton & Dack	18

3.0 LIST OF WATER TREATMENT CHEMICALS USED OVER THE REPORTING PERIOD

Sodium Hypochlorite, used as a disinfectant, was the only chemical used at the Englehart Water Treatment Plant.

Sodium bisulphite is available at the plant, but is currently not in use.

4.0 SIGNIFICANT EXPENSES INCURRED IN THE DRINKING WATER SYSTEM

Refer to the section titled “Review and Highlights of 2014 (Operational Highlights)” for details on significant expenses incurred in the drinking water system in 2014.

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). All routine maintenance activities conducted at the water treatment plant were accomplished in 2014.

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 MOE’s Spills Action Centre in 2014.

MOE AWQI #	116071
Incident	Loss of Pressure/Precautionary Boil Water Advisory (BWA)
Date of Incident	February 18, 2014
Result	0 psi
Details	A service connection to 73-4th Avenue was leaking and required repairs. Two blocks of water main were shut down from approximately 1115 hours to 1700 hours affecting about 50 users. The Health Unit issued a precautionary BWA.
Corrective Actions	The service line was repaired and pressure restored. The piping was disinfected and flushed as per AWWA standard C651-05. Two (2) sets of bacteriological samples be collected at 2 locations 24 hours apart. Results indicated no detectable total coliforms or <i>E. coli</i> . The BWA was lifted on February 21 st at 1100 hours.

MOE AWQI #	116753
Parameter	Total Trihalomethanes (TTHMs)
Sample Date/Location	April 7, 2014 at 0900 hours at 135 4 th Avenue (MacEwen)
Result	113 ug/L (single sample result); 103.15 ug/L (running annual average)
Maximum Allowable Limit	100 ug/L (running annual average)
Corrective Actions	The exceedance was reported to the MOE’s Spills Action Centre and the Timiskaming Health Unit on April 9 th .



	A re-sample was collected on April 10 th at 135 4 th Avenue (result = 114 ug/L). The local health unit was notified of the result and no further instructions were provided. The issue was resolved on April 17, 2014.
--	--

MOE AWQI #:	117337
Incident	System-wide Loss of Pressure/ Boil Water Advisory (BWA)
Date of Incident	May 11 to 14, 2014
Result	0 psi
Details	A system-wide loss of pressure was caused by a power failure at the water plant (transformer exploded at 10:00 PM on Friday, May 9 th and the standby generator failed on the Sunday, May 11 th at approximately 6:00 PM). The health unit issued a precautionary boil water advisory (BWA) at 8:20 PM and requested two sets of samples be collected at four (4) different locations 24 hours apart after disinfection was restored and the system was flushed. The power to the plant was restored at approximately 11:00 PM on May 11 th and a back-up generator was brought on-site. Sample were collected on May 11 th and 12 th . Sample results indicated zero total coliforms and <i>E. coli</i> and the BWA was lifted on May 14 th at 11:15 AM.

MOE AWQI #	118609 & 118974
Parameter	Total Trihalomethanes (TTHMs)
Sample Date/Location	July 14, 2014 at 0912 hours at 135 4 th Avenue (MacEwen)
Result	99.5 ug/L (single sample result); 101.78 ug/L (running annual average)
Maximum Allowable Limit	100 ug/L (running annual average)
Corrective Actions	The exceedance was reported to the MOE's Spills Action Centre and the Timiskaming Health Unit on July 14 th . A re-sample was collected on July 18 th at 135 4 th Avenue (result = 115 ug/L). The local health unit was notified of the result and no further instructions were provided. The issue was resolved on July 24, 2014.

MOE AWQI #	121140
Parameter	Total Trihalomethanes (TTHMs)
Sample Date/Location	October 15, 2014 at 1430 hours at 135 4 th Avenue (MacEwen)
Result	84.6 ug/L (single sample result); 101.53 ug/L (running annual average)
Maximum Allowable Limit	100 ug/L (running annual average)
Corrective Actions	The exceedance was reported to the MOE's Spills Action Centre and the Timiskaming Health Unit on October 20 th . A re-sample was collected on October 21 st at MacEwen's (result = 99.9 ug/L). The local health unit was notified of the result and no further instructions were provided.

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	<1 to <1	<1 to <1	0	N/A
Raw (Well No. 3)	52	<1 to <1	<1 to <1	0	N/A
Treated	52	<1 to <1	<1 to <1	52	<10 to 10
Distribution	169	<1 to <1	<1 to <1	64	<10 to >1500

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

MAC for Total Coliforms = 0 Counts/100 mL

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)	46	0.21 to 0.80	NTU
Turbidity (Well No. 3)	46	0.13 to 0.75	

Note: Samples required once every month.

Continuous Monitoring in the Treatment Process

Parameter	# of Samples	Range of Results (min to max)	Unit of Measure
Free Chlorine	8760	0.179 to 1.98	mg/L

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

Summary of Chlorine Residual Data in the Distribution System

Parameter	# of Samples	Range of Results (min to max)	Unit of Measure	Standard
Free Chlorine	371	0.11 to 1.58	mg/L	<0.05

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

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

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

Date of Sample	Nitrate Result Value	Nitrite Result Value	Unit of Measure	Exceedance
January 13	<0.1	<0.05	mg/L	No
April 7	<0.1	<0.05	mg/L	No
July 14	<0.1	<0.05	mg/L	No
October 15	<0.1	<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)

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 13	109	ug/L	101.5	Yes
April 7	113			
April 10 (re-sample)	114			
July 14	99.5			
July 18 (re-sample)	115			
October 15	84.6			
October 21 (re-sample)	99.9			

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

Note: Results from re-samples taken specifically for corrective action purposes are not used to calculate the running annual average and are not used to determine routine compliance to the Ontario Drinking Water Quality Standard

For further details on the adverse TTHM incidents, refer to Section 5.0 of this report.

Summary of Most Recent Lead Data

(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 one 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 2014, 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 10th and September 23rd. Results are summarized in the table below.



Summary of Lead, pH & Alkalinity Data (sampled in the distribution system)

Date of Sample	# of Samples	pH Results (min to max)	Alkalinity Results mg/L (min to max)	Lead Results ug/L (min to max)
April 10	2	6.70 to 7.30	229 to 229	<0.1 to 0.14
September 23	2	7.70 to 7.70	233 to 234	0.33 to 3.36

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

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Antimony	<0.5	ug/L	6	No
Arsenic	<1.0	ug/L	25	No
Barium	416	ug/L	1000	No
Boron	262	ug/L	5000	No
Cadmium	<0.1	ug/L	5	No
Chromium	2.6	ug/L	50	No
Mercury	<0.1	ug/L	1	No
Selenium	<1.0	ug/L	10	No
Uranium	<1.0	ug/L	20	No

Note: Sample required every 36 months (sample date = October 15, 2014). Next sampling scheduled for October 2017

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

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Alachlor	<0.50	ug/L	5	No
Aldicarb	<0.50	ug/L	9	No
Aldrin + Dieldrin	<0.004	ug/L	0.7	No
Atrazine + N-dealkylated metabolites	<0.9	ug/L	5	No
Azinphos-methyl	<0.40	ug/L	20	No
Bendiocarb	<1.0	ug/L	40	No
Benzene	<0.20	ug/L	5	No
Benzo(a)pyrene	<0.005	ug/L	0.01	No
Bromoxynil	<0.60	ug/L	5	No
Carbaryl	<1.0	ug/L	90	No
Carbofuran	<1.0	ug/L	90	No
Carbon Tetrachloride	<0.20	ug/L	5	No
Chlordane (Total)	<0.004	ug/L	7	No
Chlorpyrifos	<0.40	ug/L	90	No
Cyanzine	<0.40	ug/L	10	No
Diazinon	<0.40	ug/L	20	No
Dicamba	<0.20	ug/L	120	No
1,2-Dichlorobenzene	<0.20	ug/L	200	No
1,4-Dichlorobenzene	<0.20	ug/L	5	No
Dichlorodiphenyl trichloroethane (DDT) + metabolites	<0.005	ug/L	30	No



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

Parameter	Result Value	Unit of Measure	Standard	Exceedance
1,2-Dichloroethane	<0.20	ug/L	5	No
1,1-Dichloroethylene (vinylidene chloride)	<0.20	ug/L	14	No
Dichloromethane	<1.0	ug/L	50	No
2-4 Dichlorophenol	<0.60	ug/L	900	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	<0.20	ug/L	100	No
Diclofop-methyl	<0.20	ug/L	9	No
Dimethoate	<0.40	ug/L	20	No
Dinoseb	<0.06	ug/L	10	No
Diquat	<7.0	ug/L	70	No
Diuron	<5.0	ug/L	150	No
Glyphosate	<20	ug/L	280	No
Heptachlor + Heptachlor Epoxide	<0.004	ug/L	3	No
Lindane (Total)	<0.001	ug/L	4	No
Malathion	<0.40	ug/L	190	No
Methoxychlor	<0.001	ug/L	900	No
Metolachlor	<0.20	ug/L	50	No
Metribuzin	<0.20	ug/L	80	No
Monochlorobenzene	<0.20	ug/L	80	No
Paraquat	<1.0	ug/L	10	No
Parathion	<0.20	ug/L	50	No
Pentachlorophenol	<0.06	ug/L	60	No
Phorate	<0.40	ug/L	2	No
Picloram	<0.06	ug/L	190	No
Polychlorinated Biphenyls (PCB)	<0.04	ug/L	3	No
Prometryne	<0.20	ug/L	1	No
Simazine	<0.40	ug/L	10	No
Temephos	<10	ug/L	280	No
Terbufos	<0.20	ug/L	1	No
Tetrachloroethylene	<0.20	ug/L	30	No
2,3,4,6-Tetrachlorophenol	<0.6	ug/L	100	No
Triallate	<0.20	ug/L	230	No
Trichloroethylene	<0.20	ug/L	50	No
2,4,6-Trichlorophenol	<0.6	ug/L	5	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	<0.06	ug/L	280	No
Trifluralin	<0.20	ug/L	45	No
Vinyl Chloride	<0.20	ug/L	2	No

Note: Sample required every 36 months (sample date = *October 15, 2014*). Next sampling scheduled for October 2017

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 18, 2010	1	54.8	mg/L	20	Yes
October 26, 2010 (resample)	1	54.0			

Note: Sample required every 60 months. Next sampling scheduled for October 2015

The adverse sodium result was reported to MOE SAC and the Timiskaming Health Unit on October 25, 2010 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 98814).

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 MOE SAC and the Timiskaming Health Unit on October 25, 2010 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 98814).

Most Recent Fluoride Data Sampled at the Water Treatment Plant

Date of Sample	# of Samples	Result Value	Unit of Measure	Standard	Exceedance
October 18, 2010	1	0.36	mg/L	1.5	No

Note: Sample required every 60 months. Next sampling scheduled for October 2015

Summary of Additional Testing Performed in Accordance with a Legal Instrument.

No additional sampling and testing was required for the Englehart Drinking Water System during the 2014 reporting period.



Englehart Drinking Water System

Schedule 22

2014 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 Issue 2 (dated December 21, 2012)
Drinking Water Work Permit (DWWP) No.:	209-201 (issued June 23, 2011)
Permit to Take Water (PTTW) No.:	4742-854PPE (issued May 21, 2010)
Period being reported:	January 1, 2014 to December 31, 2014

2.0 REQUIREMENTS THE SYSTEM FAILED TO MEET

According to information kept on record in 2014 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.

However, it should be noted that, Five (5) adverse water quality incidents were reported to the MOE’s Spills Action Center. Refer to Section 5.0 - DETAILS ON NOTICES OF ADVERSE TEST RESULTS AND OTHER PROBLEMS REPORTED TO & SUBMITTED TO THE SPILLS ACTION CENTER on page 9 of this report for details.

3.0 SUMMARY OF QUANTITIES & FLOW RATES

The following water usage tables summarize the quantities and flow rates of water taken and produced during the 2014 reporting period, including total monthly volumes, average monthly volumes, maximum monthly volumes, and maximum flow rates.

Raw Water Usage

2014 - Monthly Summary of Water Takings from the Source (Well No. 2 and Well No. 3)

Governed 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)	8566	7452	8325	8200	8796	9126	9036	8478	8590	8286	8328	8675	101858
Average Volume (m ³ /d)	276	266	269	273	284	304	291	273	286	267	278	280	279
Maximum Volume (m ³ /d)	461	330	326	338	412	381	346	346	374	314	340	406	461
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)	758	752	757	763	774	738	730	736	733	754	795	738	795
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)	17859	15440	16970	16296	18481	19588	19474	18204	18449	17571	17329	17908	213569
Average Volume (m ³ /d)	576	551	547	543	596	653	628	587	615	567	578	578	585
Maximum Volume (m ³ /d)	982	673	685	678	895	832	746	751	813	671	720	873	982
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)	1409	1500	1426	1499	1408	1380	1376	1384	1391	1385	1425	1394	1500
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)	26425	22892	25295	24496	27277	28714	28510	26682	27039	25857	25657	26583	315427
Average Volume (m ³ /d)	852	818	816	817	880	957	920	861	901	834	855	858	864
Maximum Volume (m ³ /d)	1443	1001	1011	1016	1307	1213	1092	1097	1187	985	1060	1279	1443
PTTW - Maximum Allowable Volume (m ³ /day)	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796	2796

Treated Water Usage

2014 - Monthly Summary of Treated Water Supplied to the Distribution System

Governed Municipal Drinking Water Licence (MDWL) #209-101 - Issue 2, dated December 21, 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m ³)	27972	24572	26515	25842	29229	30927	30766	28715	29184	27465	27307	28353	336847
Average Volume (m ³ /d)	902	878	855	861	943	1031	992	926	973	886	910	915	923
Maximum Volume (m ³ /d)	1616	931	891	975	1384	1327	992	1158	1191	994	1135	1445	1616
MDWL/C of A - Rated Capacity (m ³ /day)	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488

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 to 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.



Comparison of the Flow Summary to the Rated Capacity & Flow Rates Allowed in the Systems Licence & Permit

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

Well No. 2:	909 L/minute / 1204.69 m ³ /day
Well No. 3	1727 L/minute / 1591.10 m ³ /day
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 combined volume measured was 1443 m³ on January 6, 2014.

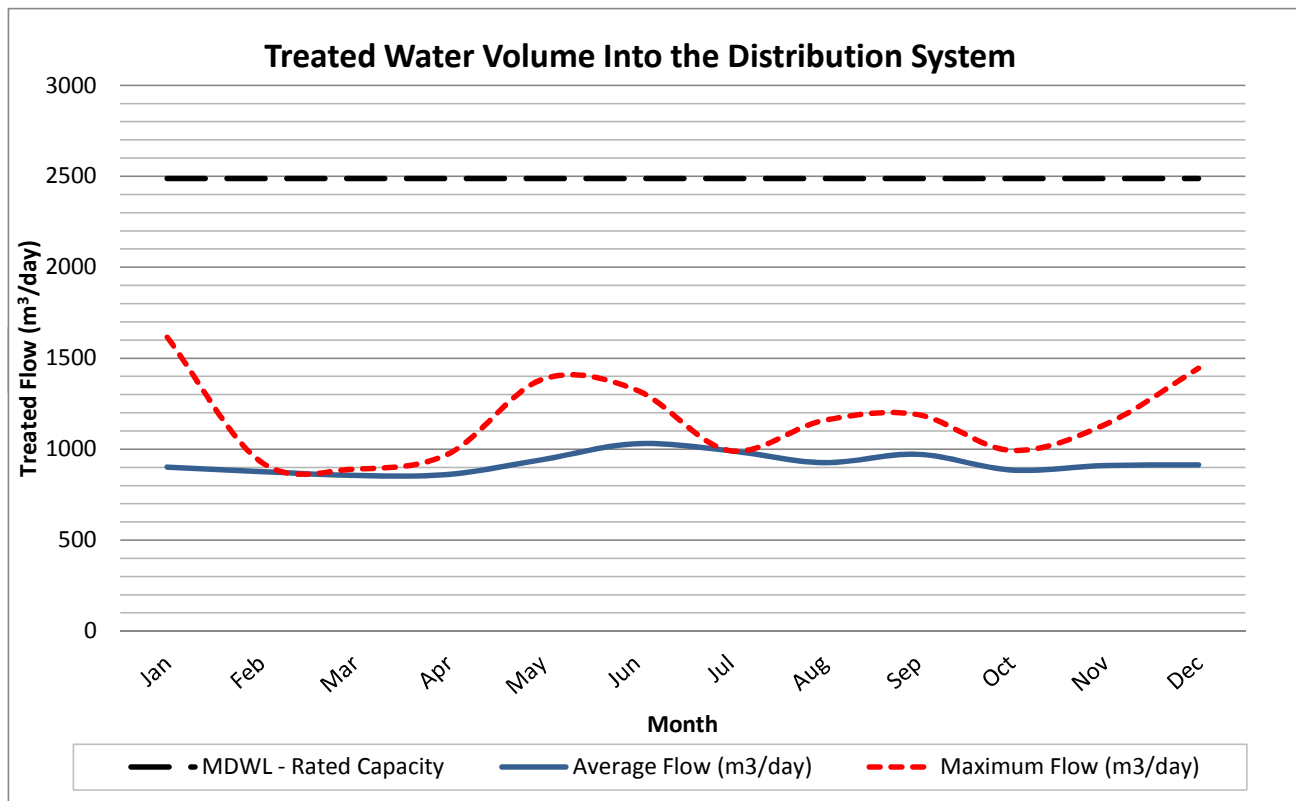
The maximum flow rates for each well were not exceeded during the reporting point. The maximum flow rate for Well No. 2 was 795 L/minute on November 25, 2014. The maximum flow rate measured for Well No. 3 was 1500 L/minute on February 24, 2014.

Schedule C, Section 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 a maximum flow rate of 2488 m³/day. The Englehart DWS complied with this limit having a recorded maximum volume of 1616 m³/day on January 6, 2014.

Figure 1 compares the average and maximum flow rates into the distribution system to the rated capacity of the system identified in the MDWL. This information enables the Owner to assess the system's existing and future planned water usage needs.

Figure 1: 2014 - 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)	902	878	855	861	943	1031	992	926	973	886	910	915
Maximum Flow (m ³ /day)	1616	931	891	975	1384	1327	992	1158	1191	994	1135	1445
MDWL - Rated Capacity	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488
% Rated Capacity	65	37	36	39	56	53	40	47	48	40	46	58





4.0 CONCLUSION

The Englehart Drinking Water System complied with the regulatory requirements of the Safe Drinking Water Act and its Regulations and met 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.



APPENDIX A

Monthly Summary of Microbiological Test Results



Ontario Clean Water Agency Monthly Process Data Report

Municipality: Town of Englehart
 Facility: [6213] - Englehart Ground Water Treatment Plant and Iron Removal Plant
 Works: [220000353] - Englehart Ground Water Treatment Plant and Iron Removal Plant
 Classification: Class 2 Water Treatment
 Water Source: Groundwater

Period: 01/01/2014 to 12/31/2014
 Serviced Population: 1,700
 Total Design Capacity(m³/day): 3,922.0

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Treated Water\Microbiological - Treated water													
HPC (cfu/mL)													
Cnt	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	52.0
Max	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	10.0
Min	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	10.0
Distribution System\Microbiological - Distribution System													
TC Samples (# collected)													
Sum	12.0	13.0	15.0	12.0	20.0	15.0	12.0	14.0	15.0	12.0	14.0	15.0	169.0
TC (cfu/100 mL): Maximum													
Max	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0
TC (cfu/100 mL): Minimum													
Min	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0
E. Coli Samples (# collected)													
Sum	12.0	13.0	15.0	12.0	20.0	15.0	12.0	14.0	15.0	12.0	14.0	15.0	169.0
E. Coli (cfu/100 mL): Maximum													
Max	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0
E. Coli (cfu/100 mL): Minimum													
Min	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0
HPC Samples (# collected)													
Sum	4.0	7.0	5.0	4.0	8.0	5.0	4.0	6.0	5.0	4.0	6.0	6.0	64.0
HPC (cfu/mL): Maximum													
Max	< 10.0	< 10.0	10.0	40.0	< 10.0	30.0	< 10.0	10.0	< 10.0	< 10.0	250.0	? 1,500.0	> 1,500.0
HPC (cfu/mL): Minimum													
Min	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	? 10.0	< 10.0

Note: ? Calculation not verifiable. At least one result reported as < and at least one result reported >.



APPENDIX B

Monthly Summary of Operational Data



Ontario Clean Water Agency Monthly Process Data Report

Municipality: Town of Englehart
 Facility: [6213] - Englehart Ground Water Treatment Plant and Iron Removal Plant
 Works: [220000353] - Englehart Ground Water Treatment Plant and Iron Removal Plant
 Classification: Class 2 Water Treatment
 Water Source: Groundwater

Period: 01/01/2014 to 12/31/2014
 Serviced Population: 1,700
 Total Design Capacity(m³/day): 3,922.0

	Jan/2014	Feb/2014	Mar/2014	Apr/2014	May/2014	Jun/2014	Jul/2014	Aug/2014	Sep/2014	Oct/2014	Nov/2014	Dec/2014	<-- Summary -->
Raw Water\Raw Water - Raw water Well #2													
Turbidity: Mean (NTU)													
Avg	0.32	0.465	0.34	0.435	0.257	0.28	0.277	0.423	0.472	0.493	0.527	0.684	0.421
Cnt	3.0	4.0	5.0	4.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	46.0
Max	0.43	0.55	0.42	0.68	0.32	0.31	0.28	0.48	0.57	0.66	0.57	0.8	0.8
Min	0.21	0.32	0.29	0.28	0.21	0.23	0.27	0.39	0.41	0.4	0.49	0.44	0.21
Raw Water\Raw Water - Raw water Well #3													
Turbidity: Mean (NTU)													
Avg	0.243	0.175	0.14	0.288	0.407	0.218	0.207	0.377	0.39	0.36	0.477	0.442	0.305
Cnt	3.0	4.0	5.0	4.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	46.0
Max	0.45	0.22	0.16	0.43	0.63	0.26	0.22	0.39	0.42	0.37	0.75	0.66	0.75
Min	0.14	0.14	0.13	0.15	0.24	0.18	0.19	0.36	0.37	0.34	0.33	0.35	0.13
Treated Water\Health - Treated water													
Cl Residual: Free Min. (mg/L)													
Max	0.982	0.615	1.061	1.081	1.3	1.25	1.151	1.032	1.379	1.468	1.468	1.24	1.468
Cl Residual: Free Max. (mg/L)													
Min	0.823	0.774	0.873	1.131	1.012	1.418	1.18	1.22	1.19	1.329	1.458	1.23	0.774
Cl Residual: Free Mean (mg/L)													
Avg	0.793	0.711	0.813	1.098	1.226	1.269	1.194	1.114	1.418	1.317	1.396	1.248	1.135
Distribution System\Health - Weekly													
Cl Res. Dist Samples (# collected)													
Sum	31.0	28.0	32.0	28.0	31.0	32.0	31.0	35.0	32.0	31.0	28.0	32.0	371.0
Cl Res. in Dist.: Free Min. (mg/L)													
Min	0.11	0.16	0.18	0.39	0.17	0.42	0.12	0.17	0.24	0.5	0.44	0.64	0.11
Cl Res. in Dist.: Free Max. (mg/L)													
Max	1.0	0.78	0.95	1.04	1.07	1.39	1.19	1.14	1.13	1.07	1.06	1.58	1.58
Cl Residual: Free Mean (mg/L)													
Avg	0.576	0.439	0.533	0.669	0.759	0.901	0.7	0.697	0.76	0.762	0.815	0.958	0.716

Note: ? Calculation not verifiable. At least one result reported as < and at least one result reported >.