

Whitehead Elton Regional Water Co-operative Inc.

2018

ANNUAL REPORT

Board of Directors

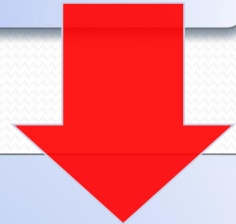
President;
Ross Farley



Vice President;
Allan Sutherland



Secretary Treasurer;
Kathleen Steele



Directors;
Ches Bollman
Cindy Izzard
Darryl Speers

Name of Public Water System:

Whitehead Elton Regional Water Co-operative Inc.

Name of Legal Owner:

Whitehead Elton Regional Water Co-operative Inc.

Contact Person: **Ralph Berg** Manager

Phone: (204) 729 6116 Cell

(204) 571 0910 Forrest Reservoir

(204) 752 2378 Water Treatment Plant

Contact Numbers:

Whitehead Elton Regional Water Co-operative Inc.

(204) 729 6116 Cell

(204) 752 2261 R.M. Of Whitehead

(204) 728 7834 R.M. Of Elton

Emergency Numbers:

Whitehead Elton Regional Water Co-operative Inc.

(204) 729 6116 Cell

(204) 730-2867 24 Hour Emergency Line

(204) 752 2261 R.M. Of Whitehead

(204) 728 7834 R.M. Of Elton

Names of Operators:

Ralph Berg

Bo Yeomans

Darcy Green

- 1) Introduction**
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 - PWS 248.80 R.M. Of Whitehead
 - PWS 63.50 R.M. Of Elton
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APPENDIX A - Bacteria Sample Results

APPENDIX B - Water Use & Monitoring Well Reports

1) Introduction:

The 2018 Whitehead Elton Regional Water Cooperative Inc. Annual Report summarizes the water utility's ability to provide safe economical potable water and comply with provincial standards.

2) Description of the Water System:

The Whitehead Elton Regional Water Cooperative Inc. provides potable water to a population of approximately 2300 residents. Corrective Actions were taken and reported as required for normal minor variations during the course of operations. Full results have been attached in Section 3.

The Whitehead Elton Regional Water Cooperative Inc. water system consists of a network of pressure pipelines, a water treatment plant, a booster station, a pressure reducing station and a water storage reservoir. The Whitehead Elton Regional Water Cooperative Inc. owns the Alexander Water Treatment Plant, Dungannan Pressure Reducing Station, Co-op Booster Station and the Forrest Reservoir.

The R.M. of Elton owns three pressure reducing stations and one booster station located east of #10 Highway and north of #1 Highway.

The R.M. of Whitehead owns the pressure reducing station located south of the #1 Highway down Road 115W.

2.I) Water Supply Source

The Whitehead Elton Regional Water Cooperative Inc. receives its water supply from two wells located in the R.M. Of Whitehead. The wells are situated to draw raw water from a sand and gravel aquifer.

The system provides treated water to the R.M. Of Elton, the villages of Forrest and Douglas, the R.M. Of Whitehead, the villages of Alexander and Kemnay and a few residents of the R.M. Of Riverdale and the R.M. Of Cornwallis.

2.II) Water Treatment Process:

The water treatment process is designed to remove hardness, iron, manganese, total dissolved solids, turbidity and arsenic from the raw water supply to meet the aesthetic objectives outlined in the *Guidelines for Canadian Drinking Water Quality (GCDWQ)*. The plant currently provides virus inactivation through chlorine treated water obtaining adequate contact time within the treated water reservoirs.

Re-Chlorination is available at the Forrest Reservoir but it is not in use. The average daily flow through the Alexander Water Treatment Plant of raw water is 690.74 cubic meters per day, with the plant rated at a maximum daily flow of raw water of 1,814.4 cubic meters per day and a yearly raw water total of 387,000 cubic meters.

Raw water is diverted from a sand and gravel aquifer by two wells located approximately 2.5 km NE of the Alexander Water Treatment Plant. The well pumps deliver water to the WTP through a 150 mm HDPE raw water pipeline. Water passes through the reverse osmosis system to remove hardness, iron, manganese, total dissolved solids and turbidity. Following the membrane unit, permeate water is passed through a membrane contactor to remove carbon dioxide in the permeate water, therefore increasing the pH. By Pass water (raw water) passes through a 1.4 m diameter manganese greensand filter to remove iron and manganese allowing for hardness and pH adjustment in the treated water. A portion of the permeate water is also passed through the greensand filter for arsenic removal. Treated water from the R.O. Unit is pH buffered with Sodium Hydroxide injection and the combined treatment streams are chlorinated prior to entering the 550 cubic meter, six cell reservoir. The distribution pumps send water through a 200 mm pipeline to the distribution system.

Iron and Manganese are metals that cause laundry and plumbing fixture staining problems and can accumulate in the distribution pipes and cause reduced flow. Calcium Carbonate causes hardness in the water which diminishes the ability of the water to react with soap and lather. Hardness also forms scale deposits in kettles, hot water tanks and plumbing fixtures which can reduce their life expectancy.

2.III) Classification and Certification

- The Alexander Water Treatment Plant is a Class 2 water treatment facility.
- The Whitehead Elton Regional Water Co-operative Inc. water distribution system is Class 1.
- The R.M. Of Whitehead's distribution system is Class 1.
- The R.M. Of Elton's distribution system is classed as a Small Distribution System.

The Facility classifications are used to determine certification requirements for the water system operators.

3) List of Water Quality Standards

3.I) Water Quality Standards and Monitoring Requirements

The Province of Manitoba has adopted a number of water quality standards from the Health Canada *Guidelines for Canadian Drinking Water Quality*. The health based parameters express the *maximum acceptable concentrations, or MAC*, for drinking water. Concentration values in excess of the guidelines constitute a health-related issue and require corrective actions. All health-based parameters were within the limits in 2018 for Whitehead Elton Regional Water Co-operative Inc. and both R.M.'s.

All public water systems, PWS, are required to monitor chlorine residual levels daily. Monitoring is done daily at both the Alexander Water Treatment Plant and the Forrest Reservoir. Results are recorded and at the end of each month, results are forwarded to our Provincial Drinking Water Officer. Copies of the originals must be kept on file and on hand for **TWO YEARS** at each facility.

Bacterial Testing for Total Coliforms and E.coli are done every two weeks, with sample sets being separated by at least 12 days. All results are kept in files at the Water Treatment Plant for a **period of 2 years**.

3.II) Drinking Water Officer Annual Reports

PWS 248.70 Whitehead Elton Regional Water Co-operative Inc.

PWS 248.80 R.M. Of Whitehead

PWS 63.50 R.M. Of Elton

Sustainable Development

Office of Drinking Water
1129 Queens Avenue
Brandon Manitoba Canada R7A 1L9
T 204-761-6085 F 204-726-6567
www.manitoba.ca/drinkingwater

March 5, 2019

Kathleen Steele, Secretary-Treasurer
Whitehead Elton Regional Water Cooperative Inc.
General Delivery
Forrest, MB R0K 0W0

Sent via email to: kathy.steele@elton.ca

2018 Annual Compliance Audit

Dear Ms. Steele;

Please find enclosed the 2018 Annual Compliance Audit for the Whitehead Elton Regional public water system (PWS). The report compares water system compliance to *The Drinking Water Safety Act* and its supporting regulations, and the terms and conditions of the water system's current operating licence (PWS-11-487-01 A).

Where non-compliance items are identified, the issues do not necessarily translate into increased public health risk. The Office of Drinking Water uses processes, including boil water advisories, to notify water users of a public health risk.

Please review the following terms and conditions of your operating licence to ensure ongoing compliance:

- Water quality sampling frequencies identified in *Table 2*.
- Water System Re-assessment (due date: March 1, 2026)
- 2018 Public Water System Annual Report (due date: March 31, 2019)
- Advisory Notification Plan (due date: May 1, 2019)

Operational Guidelines

Water suppliers that own and operate a portion of their water supply on a seasonal basis, such as a campground or park, are reminded they are required to follow Seasonal Water System Start-up/Shutdown procedures. Your operating licence may be amended in the future to reflect this requirement; however, in the interim, the protocol must be followed.

Water suppliers are reminded to immediately notify the Office of Drinking Water of any condition(s) that may affect the ability of the water system to produce or deliver safe drinking water. These conditions include:

- treatment upsets, bypass conditions, operation outside of licence conditions
- contamination of source or treated water

- a disinfection, filtration, or distribution system failure

Operational Guidelines to assist operators in meeting regulatory obligations for monitoring and reporting under The Drinking Water Safety Act, including Seasonal System and Emergency Reporting requirements, can be found on our website at: www.gov.mb.ca/drinkingwater.

Additional Information

Beginning in 2019, the requirement to submit a compliance plan will be removed from operating licences as they are renewed or amended. Section 8 of the Drinking Water Quality Standard Regulation states that the director may require water systems to submit a plan if they are not in compliance with a drinking water standard that details when and how the water supply will come into compliance with the standard. Water systems will be notified in writing if a plan is requested.

Health Canada has completed their review on National Guidelines, including algae (total microcystin toxins) manganese and lead. The new guidelines are expected to be finalized and posted with minor changes following the public consultation stage. Owners and operators are encouraged to review Health Canada's guidelines and related chemistry results to determine what impact they may have on your water supply. You will receive notification of any changes to Health Canada's Guidelines for Canadian Drinking Water Quality and Manitoba Standards should they affect your water supply.

Beginning April 1, 2019, the Office of Drinking Water will begin posting PWS Operating Licences and a copy of the most recent chemistry analysis on our public website.

The 2018 Annual Compliance Audit is based on information submitted to this office. If you have questions regarding non-compliance items identified in this audit, please review your records prior to contacting this office. If your records conflict with the audit information, please call me at (204) 761-6085.

Sincerely,



Danica Wotton
Regional Drinking Water Officer

Enclosures
e-copy: Ralph Berg, Operator werwc.inc@gmail.com



2018 Annual Compliance Audit

Water System: WHITEHEAD ELTON REGIONAL - PWS

Code: 248.70

Water System Owner: Whitehead Elton Regional Water Cooperative Inc.

Water System Operating Licence: PWS-11-487-01 A

Expiry Date: November 30, 2021

- 1) This report documents the Whitehead Elton Regional Public Water System compliance for the period from January 1 to December 31, 2018.
- 2) Addendum A to this report provides specific information on the non-compliance incidents identified in the summary below.
- 3) Other than the information provided in attached Addendum A, the water supplier has complied with *The Drinking Water Safety Act*, its supporting regulations, and the terms and conditions of the water system's current operating licence
- 4) This report is based on information submitted by the water supplier, agents of the water supplier, and / or the Province of Manitoba.

Summary of Non-Compliance Incidents:

None reported

Addendum A: Record of Non-Compliance
 Water System: WHITEHEAD ELTON REGIONAL - PWS
 Report period: January 1, 2018 to December 31, 2018.

Enforcement Action Taken

Date	Incident	Outcome
	None reported	

Disinfection Requirements

Date	Incident	Outcome
	None reported	

Bacteriological Requirements

Date	Incident	Outcome
	None reported	

Microbial Requirements

Date	Incident	Outcome
	None reported	

Turbidity Requirements

Date	Incident	Outcome
	None reported	

Chemical Requirements

Date	Incident	Outcome
	None reported	

Operational Requirements

Date	Incident	Outcome
	None reported	

Sustainable Development

Office of Drinking Water
1129 Queens Avenue
Brandon Manitoba Canada R7A 1L9
T 204-761-6085 F 204-726-6567
www.manitoba.ca/drinkingwater

March 6, 2019

Cindy Izzard, CAO
Rural Municipality of Whitehead
Box 107
Alexander, MB R0K 0A0

Sent via email to: rmwhitehead@mymts.net

2018 Annual Compliance Audit

Dear Ms. Izzard:

Please find enclosed the 2018 Annual Compliance Audit for the Whitehead (Whitehead Elton Regional) public water system (PWS). The report compares water system compliance to *The Drinking Water Safety Act* and its supporting regulations, and the terms and conditions of the water system's current operating licence (PWS-12-521-01).

Where non-compliance items are identified, the issues do not necessarily translate into increased public health risk. The Office of Drinking Water uses processes, including boil water advisories, to notify water users of a public health risk.

Please review the following terms and conditions of your operating licence to ensure ongoing compliance:

- Water quality sampling frequencies identified in *Table 2*.
- Water System Assessment (due date: March 1, 2024)

Operational Guidelines

Water suppliers that own and operate a portion of their water supply on a seasonal basis, such as a campground or park, are reminded they are required to follow Seasonal Water System Start-up/Shutdown procedures. Your operating licence may be amended in the future to reflect this requirement; however, in the interim, the protocol must be followed.

Water suppliers are reminded to immediately notify the Office of Drinking Water of any condition(s) that may affect the ability of the water system to produce or deliver safe drinking water. These conditions include:

- treatment upsets, bypass conditions, operation outside of licence conditions
- contamination of source or treated water
- a disinfection, filtration, or distribution system failure

Operational Guidelines to assist operators in meeting regulatory obligations for monitoring and reporting under The Drinking Water Safety Act, including Seasonal System and Emergency Reporting requirements, can be found on our website at: www.gov.mb.ca/drinkingwater.

Additional Information

Beginning in 2019, the requirement to submit a compliance plan will be removed from operating licences as they are renewed or amended. Section 8 of the Drinking Water Quality Standard Regulation states that the director may require water systems to submit a plan if they are not in compliance with a drinking water standard that details when and how the water supply will come into compliance with the standard. Water systems will be notified in writing if a plan is requested.

Health Canada has completed their review on National Guidelines, including algae (total microcystin toxins) manganese and lead. The new guidelines are expected to be finalized and posted with minor changes following the public consultation stage. Owners and operators are encouraged to review Health Canada's guidelines and related chemistry results to determine what impact they may have on your water supply. You will receive notification of any changes to Health Canada's Guidelines for Canadian Drinking Water Quality and Manitoba Standards should they affect your water supply.

Beginning April 1, 2019, the Office of Drinking Water will begin posting PWS Operating Licences and a copy of the most recent chemistry analysis on our public website.

The 2018 Annual Compliance Audit is based on information submitted to this office. If you have questions regarding non-compliance items identified in this audit, please review your records prior to contacting this office. If your records conflict with the audit information, please call me at (204) 761-6085.

Sincerely,



Danica Wotton
Regional Drinking Water Officer

Enclosures

copy: Ralph Berg, Manager WERWC werwc.inc@gmail.com



2018 Annual Compliance Audit

Water System: WHITEHEAD (WHITEHEAD ELTON REGIONAL) - PWS

Code: 248.80

Water System Owner: Rural Municipality of Whitehead

Water System Operating Licence: PWS-12-521-01

Expiry Date: November 30, 2022

- 1) This report documents the Whitehead (Whitehead Elton Regional) Public Water System compliance for the period from January 1 to December 31, 2018.
- 2) Addendum A to this report provides specific information on the non-compliance incidents identified in the summary below.
- 3) Other than the information provided in attached Addendum A, the water supplier has complied with *The Drinking Water Safety Act*, its supporting regulations, and the terms and conditions of the water system's current operating licence
- 4) This report is based on information submitted by the water supplier, agents of the water supplier, and / or the Province of Manitoba.

Summary of Non-Compliance Incidents:

None reported



Addendum A: Record of Non-Compliance

Water System: WHITEHEAD (WHITEHEAD ELTON REGIONAL) - PWS

Report period: January 1, 2018 to December 31, 2018.

Enforcement Action Taken

Date	Incident	Outcome
	None reported	

Disinfection Requirements

Date	Incident	Outcome
	None reported	

Bacteriological Requirements

Date	Incident	Outcome
	None reported	

Microbial Requirements

Date	Incident	Outcome
	None reported	

Turbidity Requirements

Date	Incident	Outcome
	None reported	

Chemical Requirements

Date	Incident	Outcome
	None reported	

Operational Requirements

Date	Incident	Outcome
	None reported	

Sustainable Development

Office of Drinking Water
1129 Queens Avenue
Brandon Manitoba Canada R7A 1L9
T 204-761-6085 F 204-726-6567
www.manitoba.ca/drinkingwater

Sent via electronic mail: no hard copy to follow

March 1, 2019

Kathleen Steele, CAO
Rural Municipality of Elton
General Delivery
Forrest, MB R0K 0W0

Sent via email to: kathy.steele@elton.ca

2018 Annual Compliance Audit

Dear Ms. Steele:

Please find enclosed the 2018 Annual Compliance Audit for the Elton (Whitehead Elton Regional) public water system (PWS). The report compares water system compliance to *The Drinking Water Safety Act* and its supporting regulations, and the terms and conditions of the water system's current operating licence (PWS-11-488-01).

Where non-compliance items are identified, the issues do not necessarily translate into increased public health risk. The Office of Drinking Water uses processes, including boil water advisories, to notify water users of a public health risk.

Please review the following terms and conditions of your operating licence to ensure ongoing compliance:

- Water quality sampling frequencies identified in *Table 2*.
- Water System Assessment (due date: March 1, 2024)
- Advisory Notification Plan (due date: May 1, 2019)

Operational Guidelines

Water suppliers that own and operate a portion of their water supply on a seasonal basis, such as a campground or park, are reminded they are required to follow Seasonal Water System Start-up/Shutdown procedures. Your operating licence may be amended in the future to reflect this requirement; however, in the interim, the protocol must be followed.

Water suppliers are reminded to immediately notify the Office of Drinking Water of any condition(s) that may affect the ability of the water system to produce or deliver safe drinking water. These conditions include:

- treatment upsets, bypass conditions, operation outside of licence conditions
- contamination of source or treated water
- a disinfection, filtration, or distribution system failure

Operational Guidelines to assist operators in meeting regulatory obligations for monitoring and reporting under The Drinking Water Safety Act, including Seasonal System and Emergency Reporting requirements, can be found on our website at: www.gov.mb.ca/drinkingwater.

Additional Information

Beginning in 2019, the requirement to submit a compliance plan will be removed from operating licences as they are renewed or amended. Section 8 of the Drinking Water Quality Standard Regulation states that the director may require water systems to submit a plan if they are not in compliance with a drinking water standard that details when and how the water supply will come into compliance with the standard. Water systems will be notified in writing if a plan is requested.

Health Canada has completed their review on National Guidelines, including algae (total microcystin toxins) manganese and lead. The new guidelines are expected to be finalized and posted with minor changes following the public consultation stage. Owners and operators are encouraged to review Health Canada's guidelines and related chemistry results to determine what impact they may have on your water supply. You will receive notification of any changes to Health Canada's Guidelines for Canadian Drinking Water Quality and Manitoba Standards should they affect your water supply.

Beginning April 1, 2019, the Office of Drinking Water will begin posting PWS Operating Licences and a copy of the most recent chemistry analysis on our public website.

The 2018 Annual Compliance Audit is based on information submitted to this office. If you have questions regarding non-compliance items identified in this audit, please review your records prior to contacting this office. If your records conflict with the audit information, please call me at (204) 761-6085.

Sincerely,



Danica Wotton
Regional Drinking Water Officer

Enclosures

copy: Ralph Berg, Manager WERWC werwc@mynetset.ca

2018 Annual Compliance Audit

Water System: ELTON (WHITEHEAD ELTON REGIONAL) - PWS

Code: 63.50

Water System Owner: Rural Municipality of Elton

Water System Operating Licence: PWS-11-488-01

Expiry Date: November 30, 2021

- 1) This report documents the Elton (Whitehead Elton Regional) Public Water System compliance for the period from January 1 to December 31, 2018.
- 2) Addendum A to this report provides specific information on the non-compliance incidents identified in the summary below.
- 3) Other than the information provided in attached Addendum A, the water supplier has complied with *The Drinking Water Safety Act*, its supporting regulations, and the terms and conditions of the water system's current operating licence
- 4) This report is based on information submitted by the water supplier, agents of the water supplier, and / or the Province of Manitoba.

Summary of Non-Compliance Incidents:

None reported



Addendum A: Record of Non-Compliance

Water System: ELTON (WHITEHEAD ELTON REGIONAL) - PWS

Report period: January 1, 2018 to December 31, 2018.

Enforcement Action Taken

Date	Incident	Outcome
	None reported	

Disinfection Requirements

Date	Incident	Outcome
	None reported	

Bacteriological Requirements

Date	Incident	Outcome
	None reported	

Microbial Requirements

Date	Incident	Outcome
	None reported	

Turbidity Requirements

Date	Incident	Outcome
	None reported	

Chemical Requirements

Date	Incident	Outcome
	None reported	

Operational Requirements

Date	Incident	Outcome
	None reported	

3.III) 2017 General Chemical Analysis

As part of the operating licence for Whitehead Elton Regional Water Co-operative Inc., a general chemical analysis of both the raw water and the treated water in the reservoir has to be done every **Three years**. Water samples were sent to the lab on February 28/17.

In 2020, another General Chemical Analysis will be done at the Water Treatment Plant to satisfy the conditions of our operating license. We will place the results of the 2020 General Chemical Analysis on the web sites of both Municipalities when the tests are completed by ALS Lab.

It is an extensive test including a physical test, Anions and Nutrients, Organic/Inorganic Carbon, Total Metals and Volatile Organic Compounds tests.

The tests are conducted at ALS Labs in Winnipeg. The results are on the following page. The highlighted areas on the results indicate that the raw water exceeds Aesthetic Objectives or Maximum Acceptable Concentrations cited in the *Guidelines for Canadian Drinking Water Standards*. None of the treated water produced exceeds MAC limits or Aesthetic Objectives.

If there are questions that you may have regarding the lab results, please use one of the contact numbers listed and we can assist in any questions or concerns.

3.IV) Arsenic Test

As part of our license with ODW, the Whitehead Elton Regional Water Co-operative Inc. is required to conduct an arsenic test on raw and treated water at the water treatment plant. The results of the Arsenic test are located after the General Chemical Analysis.



Whitehead Elton Regional Water Co-op
ATTN: MARK YEOMANS
Whitehead Elton Regional - PWS
Box 107
Alexander MB ROK OAO

Date Received: 01-MAR-17
Report Date: 08-MAR-17 13:15 (MT)
Version: FINAL

Client Phone: 204-729-6116

Certificate of Analysis

Lab Work Order #: L1895785
Project P.O. #: NOT SUBMITTED
Job Reference: WHITEHEAD ELTON REGIONAL - PWS 248.70
C of C Numbers:
Legal Site Desc: 46658

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Physical Tests (WATER)

Analyte	Unit	ALS ID		L1895785-1	L1895785-2
		Sampled Date	Sampled Time	28-FEB-17	28-FEB-17
		Sample ID		10:00	10:00
		Guide Limit #1	Guide Limit #2	WHITEHEAD ELTON REGIONAL 1 - RAW	WHITEHEAD ELTON REGIONAL 2 - TREATED
Colour, True	CU	15	-	<5.0	<5.0
Conductivity	umhos/cm	-	-	1040	301
Hardness (as CaCO3)	mg/L	-	-	541 ^{HTC}	109 ^{HTC}
Langelier Index (4 C)	No Unit	-	-	0.21	-0.18
Langelier Index (60 C)	No Unit	-	-	0.97	0.59
pH	pH units	6.5-8.5	-	7.33	8.03
Total Dissolved Solids	mg/L	500	-	755	167
Transmittance, UV (254 nm)	%T/cm	-	-	90.4	97.5
Turbidity	NTU	-	-	26.7	<0.10

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Anions and Nutrients (WATER)

Analyte	Unit	ALS ID		L1895785-1	L1895785-2
		Sampled Date	Sampled Time	28-FEB-17	28-FEB-17
		Sample ID		10:00	10:00
		Guide Limit #1	Guide Limit #2	WHITEHEAD ELTON REGIONAL 1 - RAW	WHITEHEAD ELTON REGIONAL 2 - TREATED
Alkalinity, Total (as CaCO3)	mg/L	-	-	326	95.3
Ammonia, Total (as N)	mg/L	-	-	0.242	<0.010
Bicarbonate (HCO3)	mg/L	-	-	398	116
Bromide (Br)	mg/L	-	-	<0.10	<0.10
Carbonate (CO3)	mg/L	-	-	<0.60	<0.60
Chloride (Cl)	mg/L	250	-	11.3	4.75
Fluoride (F)	mg/L	-	1.5	0.183	0.035
Hydroxide (OH)	mg/L	-	-	<0.34	<0.34
Nitrate (as N)	mg/L	-	10	<0.0050	<0.0050
Nitrite (as N)	mg/L	-	1	<0.0010	<0.0010
Sulfate (SO4)	mg/L	500	-	266	52.7

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Organic / Inorganic Carbon (WATER)

Analyte	Unit	ALS ID		L1895785-1	L1895785-2
		Sampled Date	Sampled Time	28-FEB-17	28-FEB-17
		Sample ID		10:00	10:00
		Guide Limit #1	Guide Limit #2	WHITEHEAD ELTON REGIONAL 1 - RAW	WHITEHEAD ELTON REGIONAL 2 - TREATED
Dissolved Organic Carbon	mg/L	-	-	2.55	0.60
Total Organic Carbon	mg/L	-	-	2.55	0.50

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

- Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limit listed on this report.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Total Metals (WATER)

Analyte	Unit	ALS ID		L1895785-1	L1895785-2
		Guide Limit #1	Guide Limit #2	28-FEB-17 10:00 WHITEHEAD ELTON REGIONAL 1 - RAW	28-FEB-17 10:00 WHITEHEAD ELTON REGIONAL 2 - TREATED
Aluminum (Al)-Total	mg/L	0.1	-	<0.0050	<0.0050
Antimony (Sb)-Total	mg/L	-	0.006	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	-	0.01	0.0155	0.00616
Barium (Ba)-Total	mg/L	-	1	0.0171	0.00307
Beryllium (Be)-Total	mg/L	-	-	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L	-	-	<0.00020	<0.00020
Boron (B)-Total	mg/L	-	5	0.078	0.066
Cadmium (Cd)-Total	mg/L	-	0.005	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	-	-	137	27.8
Cesium (Cs)-Total	mg/L	-	-	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L	-	0.05	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	-	-	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	1	-	<0.00020	0.00628
Iron (Fe)-Total	mg/L	0.3	-	2.31	0.024
Lead (Pb)-Total	mg/L	-	0.01	<0.000090	<0.000090
Lithium (Li)-Total	mg/L	-	-	0.0463	0.0144
Magnesium (Mg)-Total	mg/L	-	-	48.5	9.73
Manganese (Mn)-Total	mg/L	0.05	-	0.341	0.00368
Molybdenum (Mo)-Total	mg/L	-	-	0.00455	0.00079
Nickel (Ni)-Total	mg/L	-	-	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L	-	-	0.21	<0.10
Potassium (K)-Total	mg/L	-	-	4.66	1.33
Rubidium (Rb)-Total	mg/L	-	-	0.00175	0.00050
Selenium (Se)-Total	mg/L	-	0.05	<0.0010	<0.0010
Silicon (Si)-Total	mg/L	-	-	13.2	2.98
Silver (Ag)-Total	mg/L	-	-	<0.00010	<0.00010
Sodium (Na)-Total	mg/L	200	-	11.2	15.7
Strontium (Sr)-Total	mg/L	-	-	0.439	0.0886
Tellurium (Te)-Total	mg/L	-	-	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	-	-	<0.00010	<0.00010
Thorium (Th)-Total	mg/L	-	-	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	-	-	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L	-	-	<0.00050	<0.00050

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.

Analytical result for this parameter exceeds Guide Limit listed on this report.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Total Metals (WATER)

		ALS ID		L1895785-1	L1895785-2
		Sampled Date		28-FEB-17	28-FEB-17
		Sampled Time		10:00	10:00
		Sample ID		WHITEHEAD ELTON REGIONAL 1 - RAW	WHITEHEAD ELTON REGIONAL 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010
Uranium (U)-Total	mg/L	-	0.02	0.00557	0.00105
Vanadium (V)-Total	mg/L	-	-	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	5	-	<0.0020	0.0020
Zirconium (Zr)-Total	mg/L	-	-	<0.00040	<0.00040

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Volatile Organic Compounds (WATER)

		ALS ID		L1895785-1
		Sampled Date		28-FEB-17
		Sampled Time		10:00
		Sample ID		WHITEHEAD ELTON REGIONAL 1 - RAW
Analyte	Unit	Guide Limit #1	Guide Limit #2	
Benzene	mg/L	-	0.005	<0.00050
1,1-dichloroethene	mg/L	-	0.014	<0.00050
Dichloromethane	mg/L	-	0.05	<0.00050
Ethylbenzene	mg/L	0.0016	0.14	<0.00050
MTBE	mg/L	0.015	-	<0.00050
Tetrachloroethene	mg/L	-	0.01	<0.00050
Toluene	mg/L	0.024	0.06	<0.00050
Trichloroethene	mg/L	-	0.005	<0.00050
o-Xylene	mg/L	-	-	<0.00050
m+p-Xylenes	mg/L	-	-	<0.00050
Xylenes (Total)	mg/L	0.02	0.09	<0.00071
Surrogate: 4-Bromofluorobenzene (SS)	%	-	-	86.7
Surrogate: 1,4-Difluorobenzene (SS) %		-	-	96.9

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.

Analytical result for this parameter exceeds Guide Limit listed on this report.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



Whitehead Elton Regional Water Co-op
ATTN: RALPH BERG
Whitehead Elton Regional - PWS
Box 107
Alexander MB R0K 0A0

Date Received: 17-AUG-18
Report Date: 27-AUG-18 08:11 (MT)
Version: FINAL

Client Phone: 204-729-6116

Certificate of Analysis

Lab Work Order #: L2148627

Project P.O. #: NOT SUBMITTED

Job Reference: WHITEHEAD ELTON REGIONAL WATER CO-OP

C of C Numbers:

Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2148627-1 #1 RAW Sampled By: CLIENT on 15-AUG-18 Matrix: RAW WATER Single Metal in Water by ICPMS (Tot.) Total Metals in Water by CRC ICPMS Arsenic (As)-Total	0.0134		0.00010	mg/L	24-AUG-18	24-AUG-18	R4183499
L2148627-2 #2 TREATED Sampled By: CLIENT on 15-AUG-18 Matrix: TREATED WATER Single Metal in Water by ICPMS (Tot.) Total Metals in Water by CRC ICPMS Arsenic (As)-Total	0.00236		0.00010	mg/L	24-AUG-18	24-AUG-18	R4183499

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

4) Water System Incidents and Corrective Actions

There were no corrective actions reported to the Drinking Water Officer in 2018.

5) Drinking Water Safety Orders, Warnings and Charges

There were no drinking water safety orders, warnings or charges issued to the Whitehead Elton Regional Water Co-operative Inc.

6) Major Expenses Incurred

The reject pump, responsible for pumping out all reject water produced by the Alexander Water Treatment Plant, needed to be replaced in 2018. It was also discussed and decided that it was necessary to keep a backup pump on hand for future use so two pumps were ordered with one being put in immediately.

The reject line from the Alexander Water Treatment Plant was jetted in 2018. While jetting, it was discovered it had a kink in the reject line pipe. The section of pipe was dug up and replaced. There was also a cleanout installed into the reject line for ease of cleaning.

The raw water wells were cleaned by M&M drilling. While trying to clean the south well it was found that the pipe above the pitless adapter had shifted over slightly, making it unable to be cleaned without being fixed. The south well was dug down to the pitless adapter, fixed, and then cleaned.

A new chlorine analyzer was bought for the Forrest Reservoir due to the previous chlorine analyzers age, reliability, and availability of replacement parts

There was a minor upgrade to the Forrest Reservoir in 2018. The Forrest Reservoir was retrofitted so as to make the truck fill pump capable of being a secondary pump for our rural distribution system to help meet peak demands.

New membranes were purchased and installed into the first stage of both Reverse Osmosis membrane trains.

7) Future System Expansion

At this time, there are no upcoming projects. Further projects may develop as increasing Rural Development projects are brought forward, which may involve further expansion of the water treatment plant and remote reservoirs in the system.

Appendix A

Appendix A contains all the bacterial test results for all 3 Public Water Systems.

Appendix B

Appendix B contains the 2017 Water Use Report that has to be sent to the Provincial Government and the Monitoring Well Graph Reports . The Monitoring Wells are checked twice a year. One well is located at the raw water supply wells and the second is located a quarter of a mile away. These Monitoring Wells are a daily snapshot on the health of the aquifer we draw our water from.

APPENDIX A

2018

BACTERIAL SAMPLE RESULTS

2018 Bacteriological Test Results

Community Code	Collection Date	System	Location	Total Coliforms	E.Coli	Free Chlorine	Total Chlorine
248.70	03/01/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	03/01/2018	Whitehead/Elton	Treated	0	0	0.86	0.91
248.70	03/01/2018	Whitehead/Elton	Incoming	0	0	1.11	1.18
248.70	03/01/2018	Whitehead/Elton	Outgoing	0	0	0.66	0.67
248.80	03/01/2018	Whitehead Dist.	Firehall	0	0	0.61	0.65
248.80	03/01/2018	Whitehead Dist.	Dungannon	0	0	0.88	0.91
63.50	03/01/2018	Elton Dist.	PR #2	0	0	0.37	0.46
63.50	03/01/2018	Elton Dist.	Elton Office	0	0	0.63	0.66
248.70	17/01/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	17/01/2018	Whitehead/Elton	Treated	0	0	0.70	0.79
248.70	17/01/2018	Whitehead/Elton	Incoming	0	0	0.98	1.07
248.70	17/01/2018	Whitehead/Elton	Outgoing	0	0	0.90	1.02
248.80	17/01/2018	Whitehead Dist.	Firehall	0	0	0.85	0.95
248.80	17/01/2018	Whitehead Dist.	Dungannon	0	0	0.95	1.09
63.50	17/01/2018	Elton Dist.	PR #2	0	0	0.88	0.97
63.50	17/01/2018	Elton Dist.	Elton Office	0	0	0.83	0.91
248.70	31/01/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	31/01/2018	Whitehead/Elton	Treated	0	0	0.95	1.02
248.70	31/01/2018	Whitehead/Elton	Incoming	0	0	0.77	0.83
248.70	31/01/2018	Whitehead/Elton	Outgoing	0	0	0.63	0.71
248.80	31/01/2018	Whitehead Dist.	Firehall	0	0	0.74	0.84
248.80	31/01/2018	Whitehead Dist.	Dungannon	0	0	0.84	0.89
63.50	31/01/2018	Elton Dist.	PR #2	0	0	0.62	0.64
63.50	31/01/2018	Elton Dist.	Elton Office	0	0	0.57	0.66
248.70	14/02/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	14/02/2018	Whitehead/Elton	Treated	0	0	1.04	1.15
248.70	14/02/2018	Whitehead/Elton	Incoming	0	0	0.80	0.83
248.70	14/02/2018	Whitehead/Elton	Outgoing	0	0	0.82	0.85
248.80	14/02/2018	Whitehead Dist.	Firehall	0	0	0.93	1.02
248.80	14/02/2018	Whitehead Dist.	Dungannon	0	0	1.01	1.04
63.50	14/02/2018	Elton Dist.	PR #2	0	0	0.83	0.88
63.50	14/02/2018	Elton Dist.	Elton Office	0	0	0.84	0.86
248.70	01/03/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	01/03/2018	Whitehead/Elton	Treated	0	0	0.62	0.75
248.70	01/03/2018	Whitehead/Elton	Incoming	0	0	0.84	0.89
248.70	01/03/2018	Whitehead/Elton	Outgoing	0	0	0.77	0.84
248.80	01/03/2018	Whitehead Dist.	Firehall	0	0	0.71	1.13
248.80	01/03/2018	Whitehead Dist.	Dungannon	0	0	0.88	0.93
63.50	01/03/2018	Elton Dist.	PR #2	0	0	0.74	0.81
63.50	01/03/2018	Elton Dist.	Elton Office	0	0	0.64	0.77
248.70	14/03/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	14/03/2018	Whitehead/Elton	Treated	0	0	0.71	0.76
248.70	14/03/2018	Whitehead/Elton	Incoming	0	0	0.93	1.03
248.70	14/03/2018	Whitehead/Elton	Outgoing	0	0	0.88	1.01
248.80	14/03/2018	Whitehead Dist.	Firehall	0	0	0.87	0.97
248.80	14/03/2018	Whitehead Dist.	Dungannon	0	0	0.97	1.15

2018 Bacteriological Test Results

Community Code	Collection Date	System	Location	Total Coliforms	E.Coli	Free Chlorine	Total Chlorine
63.50	14/03/2018	Elton Dist.	PR #2	0	0	0.92	1.02
63.50	14/03/2018	Elton Dist.	Elton Office	0	0	0.80	0.96
248.70	28/03/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	28/03/2018	Whitehead/Elton	Treated	0	0	0.73	0.96
248.70	28/03/2018	Whitehead/Elton	Incoming	0	0	0.74	0.83
248.70	28/03/2018	Whitehead/Elton	Outgoing	0	0	0.71	0.84
248.80	28/03/2018	Whitehead Dist.	Firehall	0	0	0.87	0.95
248.80	28/03/2018	Whitehead Dist.	Dungannon	0	0	0.79	0.83
63.50	28/03/2018	Elton Dist.	PR #2	0	0	0.78	0.82
63.50	28/03/2018	Elton Dist.	Elton Office	0	0	0.76	0.81
248.70	11/04/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	11/04/2018	Whitehead/Elton	Treated	0	0	0.98	1.08
248.70	11/04/2018	Whitehead/Elton	Incoming	0	0	0.88	0.95
248.70	11/04/2018	Whitehead/Elton	Outgoing	0	0	0.82	0.90
248.80	11/04/2018	Whitehead Dist.	Firehall	0	0	0.91	1.04
248.80	11/04/2018	Whitehead Dist.	Dungannon	0	0	0.92	0.99
63.50	11/04/2018	Elton Dist.	PR #2	0	0	0.76	0.82
63.50	11/04/2018	Elton Dist.	Elton Office	0	0	0.80	0.91
248.70	25/04/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	25/04/2018	Whitehead/Elton	Treated	0	0	0.72	0.74
248.70	25/04/2018	Whitehead/Elton	Incoming	0	0	0.92	1.05
248.70	25/04/2018	Whitehead/Elton	Outgoing	0	0	0.92	1.02
248.80	25/04/2018	Whitehead Dist.	Firehall	0	0	0.72	0.87
248.80	25/04/2018	Whitehead Dist.	Dungannon	0	0	0.80	0.92
63.50	25/04/2018	Elton Dist.	PR #2	0	0	0.96	1.04
63.50	25/04/2018	Elton Dist.	Elton Office	0	0	1.04	1.15
248.70	09/05/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	09/05/2018	Whitehead/Elton	Treated	0	0	0.87	0.90
248.70	09/05/2018	Whitehead/Elton	Incoming	0	0	0.95	1.11
248.70	09/05/2018	Whitehead/Elton	Outgoing	0	0	1.10	1.21
248.80	09/05/2018	Whitehead Dist.	Firehall	0	0	0.89	1.07
248.80	09/05/2018	Whitehead Dist.	Dungannon	0	0	1.04	1.10
248.80	09/05/2018	Whitehead Dist.	84 Dungannon	0	0	1.09	1.17
63.50	09/05/2018	Elton Dist.	PR #2	0	0	1.16	1.27
63.50	09/05/2018	Elton Dist.	Elton Office	0	0	1.06	1.19
248.70	23/05/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	23/05/2018	Whitehead/Elton	Treated	0	0	0.88	1.03
248.70	23/05/2018	Whitehead/Elton	Incoming	0	0	0.60	0.64
248.70	23/05/2018	Whitehead/Elton	Outgoing	0	0	0.77	0.85
248.80	23/05/2018	Whitehead Dist.	Firehall	0	0	0.84	0.85
248.80	23/05/2018	Whitehead Dist.	Dungannon	0	0	0.75	0.84
63.50	23/05/2018	Elton Dist.	PR #2	0	0	0.97	1.05
63.50	23/05/2018	Elton Dist.	Elton Office	0	0	0.96	0.99
248.70	06/06/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	06/06/2018	Whitehead/Elton	Treated	0	0	0.79	1.03
248.70	06/06/2018	Whitehead/Elton	Incoming	0	0	0.94	1.01

2018 Bacteriological Test Results

Community Code	Collection Date	System	Location	Total Coliforms	E.Coli	Free Chlorine	Total Chlorine
248.70	06/06/2018	Whitehead/Elton	Outgoing	0	0	0.68	0.79
248.80	06/06/2018	Whitehead Dist.	Firehall	0	0	0.87	0.96
248.80	06/06/2018	Whitehead Dist.	Dungannon	0	0	0.98	1.06
63.50	06/06/2018	Elton Dist.	PR #2	0	0	0.73	0.79
63.50	06/06/2018	Elton Dist.	Elton Office	0	0	0.73	0.93
248.70	20/06/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	20/06/2018	Whitehead/Elton	Treated	0	0	1.04	1.19
248.70	20/06/2018	Whitehead/Elton	Incoming	0	0	0.99	1.12
248.70	20/06/2018	Whitehead/Elton	Outgoing	0	0	0.93	1.05
248.80	20/06/2018	Whitehead Dist.	Firehall	0	0	0.98	1.12
248.80	20/06/2018	Whitehead Dist.	Dungannon	0	0	1.05	1.15
63.50	20/06/2018	Elton Dist.	PR #2	0	0	0.91	1.04
63.50	20/06/2018	Elton Dist.	Elton Office	0	0	0.92	1.05
248.70	04/07/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	04/07/2018	Whitehead/Elton	Treated	0	0	0.95	1.05
248.70	04/07/2018	Whitehead/Elton	Incoming	0	0	0.86	0.91
248.70	04/07/2018	Whitehead/Elton	Outgoing	0	0	0.82	0.90
248.80	04/07/2018	Whitehead Dist.	Firehall	0	0	1.05	1.20
248.80	04/07/2018	Whitehead Dist.	Dungannon	0	0	0.92	1.01
63.50	04/07/2018	Elton Dist.	PR #2	0	0	0.71	0.83
63.50	04/07/2018	Elton Dist.	Elton Office	0	0	0.71	0.85
248.70	18/07/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	18/07/2018	Whitehead/Elton	Treated	0	0	1.05	1.18
248.70	18/07/2018	Whitehead/Elton	Incoming	0	0	0.88	0.94
248.70	18/07/2018	Whitehead/Elton	Outgoing	0	0	0.86	0.97
248.80	18/07/2018	Whitehead Dist.	Firehall	0	0	0.99	1.14
248.80	18/07/2018	Whitehead Dist.	Dungannon	0	0	1.04	1.11
63.50	18/07/2018	Elton Dist.	PR #2	0	0	0.88	0.97
63.50	18/07/2018	Elton Dist.	Elton Office	0	0	0.89	0.93
248.70	01/08/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	01/08/2018	Whitehead/Elton	Treated	0	0	1.11	1.24
248.70	01/08/2018	Whitehead/Elton	Incoming	0	0	0.96	1.08
248.70	01/08/2018	Whitehead/Elton	Outgoing	0	0	0.83	0.91
248.80	01/08/2018	Whitehead Dist.	Firehall	0	0	1.11	1.28
248.80	01/08/2018	Whitehead Dist.	Dungannon	0	0	1.20	1.25
63.50	01/08/2018	Elton Dist.	PR #2	0	0	0.83	0.88
63.50	01/08/2018	Elton Dist.	Elton Office	0	0	0.85	0.92
248.70	16/08/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	16/08/2018	Whitehead/Elton	Treated	0	0	0.86	1.05
248.70	16/08/2018	Whitehead/Elton	Incoming	0	0	1.16	1.23
248.70	16/08/2018	Whitehead/Elton	Outgoing	0	0	1.22	1.28
248.80	16/08/2018	Whitehead Dist.	Firehall	0	0	0.86	1.04
248.80	16/08/2018	Whitehead Dist.	Dungannon	0	0	1.05	1.18
63.50	16/08/2018	Elton Dist.	PR #2	0	0	1.12	1.30
63.50	16/08/2018	Elton Dist.	Elton Office	0	0	1.16	1.36
248.70	28/08/2018	Whitehead/Elton	Raw	0	0	0.00	0.00

2018 Bacteriological Test Results

Community Code	Collection Date	System	Location	Total Coliforms	E.Coli	Free Chlorine	Total Chlorine
248.70	28/08/2018	Whitehead/Elton	Treated	0	0	0.99	1.12
248.70	28/08/2018	Whitehead/Elton	Incoming	0	0	0.76	0.85
248.70	28/08/2018	Whitehead/Elton	Outgoing	0	0	0.87	0.96
248.80	28/08/2018	Whitehead Dist.	Firehall	0	0	0.72	0.79
248.80	28/08/2018	Whitehead Dist.	Dungannon	0	0	0.79	0.82
63.50	28/08/2018	Elton Dist.	PR #2	0	0	0.96	1.03
63.50	28/08/2018	Elton Dist.	Elton Office	0	0	0.93	0.98
248.70	12/09/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	12/09/2018	Whitehead/Elton	Treated	0	0	0.95	1.03
248.70	12/09/2018	Whitehead/Elton	Incoming	0	0	0.90	0.94
248.70	12/09/2018	Whitehead/Elton	Outgoing	0	0	0.84	0.90
248.80	12/09/2018	Whitehead Dist.	Firehall	0	0	1.01	1.09
248.80	12/09/2018	Whitehead Dist.	Dungannon	0	0	1.07	1.18
63.50	12/09/2018	Elton Dist.	PR #2	0	0	0.80	0.84
63.50	12/09/2018	Elton Dist.	Elton Office	0	0	0.76	0.80
248.70	26/09/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	26/09/2018	Whitehead/Elton	Treated	0	0	0.81	0.88
248.70	26/09/2018	Whitehead/Elton	Incoming	0	0	0.77	0.86
248.70	26/09/2018	Whitehead/Elton	Outgoing	0	0	0.78	0.96
248.80	26/09/2018	Whitehead Dist.	Firehall	0	0	0.77	0.88
248.80	26/09/2018	Whitehead Dist.	Dungannon	0	0	0.64	0.83
63.50	26/09/2018	Elton Dist.	PR #2	0	0	0.72	0.80
63.50	26/09/2018	Elton Dist.	Elton Office	0	0	0.63	0.76
248.70	10/10/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	10/10/2018	Whitehead/Elton	Treated	0	0	0.78	0.94
248.70	10/10/2018	Whitehead/Elton	Incoming	0	0	0.53	0.57
248.70	10/10/2018	Whitehead/Elton	Outgoing	0	0	0.64	0.71
248.80	10/10/2018	Whitehead Dist.	Firehall	0	0	0.58	0.63
248.80	10/10/2018	Whitehead Dist.	Dungannon	0	0	0.55	0.68
63.50	10/10/2018	Elton Dist.	PR #2	0	0	0.70	0.77
63.50	10/10/2018	Elton Dist.	Elton Office	0	0	0.54	0.63
248.70	24/10/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	24/10/2018	Whitehead/Elton	Treated	0	0	1.30	1.45
248.70	24/10/2018	Whitehead/Elton	Incoming	0	0	1.23	1.33
248.70	24/10/2018	Whitehead/Elton	Outgoing	0	0	1.00	1.05
248.80	24/10/2018	Whitehead Dist.	Firehall	0	0	1.23	1.43
248.80	24/10/2018	Whitehead Dist.	Dungannon	0	0	1.29	1.44
63.50	24/10/2018	Elton Dist.	PR #2	0	0	1.15	1.25
63.50	24/10/2018	Elton Dist.	Elton Office	0	0	0.87	0.98
248.70	08/11/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	08/11/2018	Whitehead/Elton	Treated	0	0	1.10	1.36
248.70	08/11/2018	Whitehead/Elton	Incoming	0	0	0.70	0.75
248.70	08/11/2018	Whitehead/Elton	Outgoing	0	0	0.68	0.73
248.80	08/11/2018	Whitehead Dist.	Firehall	0	0	0.90	1.01
248.80	08/11/2018	Whitehead Dist.	Dungannon	0	0	0.77	0.91
63.50	08/11/2018	Elton Dist.	PR #2	0	0	0.65	0.72

2018 Bacteriological Test Results

Community Code	Collection Date	System	Location	Total Coliforms	E.Coli	Free Chlorine	Total Chlorine
63.50	08/11/2018	Elton Dist.	Elton Office	0	0	0.62	0.66
248.70	21/11/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	21/11/2018	Whitehead/Elton	Treated	0	0	0.94	1.07
248.70	21/11/2018	Whitehead/Elton	Incoming	0	0	0.57	0.62
248.70	21/11/2018	Whitehead/Elton	Outgoing	0	0	0.93	1.00
248.80	21/11/2018	Whitehead Dist.	Firehall	0	0	0.78	0.84
248.80	21/11/2018	Whitehead Dist.	Dungannon	0	0	0.86	0.94
63.50	21/11/2018	Elton Dist.	PR #2	0	0	0.84	0.93
63.50	21/11/2018	Elton Dist.	Elton Office	0	0	1.13	1.16
248.70	05/12/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	05/12/2018	Whitehead/Elton	Treated	0	0	1.15	1.28
248.70	05/12/2018	Whitehead/Elton	Incoming	0	0	1.15	1.21
248.70	05/12/2018	Whitehead/Elton	Outgoing	0	0	0.87	0.96
248.80	05/12/2018	Whitehead Dist.	Firehall	0	0	1.06	1.15
248.80	05/12/2018	Whitehead Dist.	Dungannon	0	0	1.11	1.22
63.50	05/12/2018	Elton Dist.	PR #2	0	0	0.74	0.77
63.50	05/12/2018	Elton Dist.	Elton Office	0	0	0.88	0.91
248.70	19/12/2018	Whitehead/Elton	Raw	0	0	0.00	0.00
248.70	19/12/2018	Whitehead/Elton	Treated	0	0	1.10	1.26
248.70	19/12/2018	Whitehead/Elton	Incoming	0	0	1.28	1.40
248.70	19/12/2018	Whitehead/Elton	Outgoing	0	0	1.05	1.10
248.80	19/12/2018	Whitehead Dist.	Firehall	0	0	1.12	1.25
248.80	19/12/2018	Whitehead Dist.	Dungannon	0	0	1.17	1.29
63.50	19/12/2018	Elton Dist.	PR #2	0	0	0.89	1.02
63.50	19/12/2018	Elton Dist.	Elton Office	0	0	0.97	1.10

Appendix B

2018 Water Use Report

Monitoring Well Graph Report

Annual Water Use Report for 2018

Pursuant to *The Water Rights Act*

LICENSÉE'S NAME: Whitehead Elton Regional Water Co-operative Inc.		LICENCE NO. PWS-11-487		
POST OFFICE ADDRESS General Delivery, Forrest Mb. R0K 0W0		PHONE NO. 204 728 7834		
SOURCE OF WATER SUPPLY (CHECK ONE/)				
<input checked="" type="checkbox"/> WELL				
<input type="checkbox"/> SURFACE WATER _____		(Name of River, Creek, etc.)		
LOCATION OF PUMP (OR WELL):				
QUARTER	SECTION	TOWNSHIP	RANGE	OR OTHER (SPECIFY)
SE	21	10	21	W1
DESIGN PUMPING RATE: LITRES PER SECOND <u>22.7</u> OR OTHER (SPECIFY) _____				
NOTE 1: QUANTITIES OF WATER IN TABLE BELOW EXPRESSED IN (CHECK ONE)				
<input type="checkbox"/> LITRES <input type="checkbox"/> DECAMETRES				
<input checked="" type="checkbox"/> OTHER (SPECIFY): <u>Cubic Meters</u>				

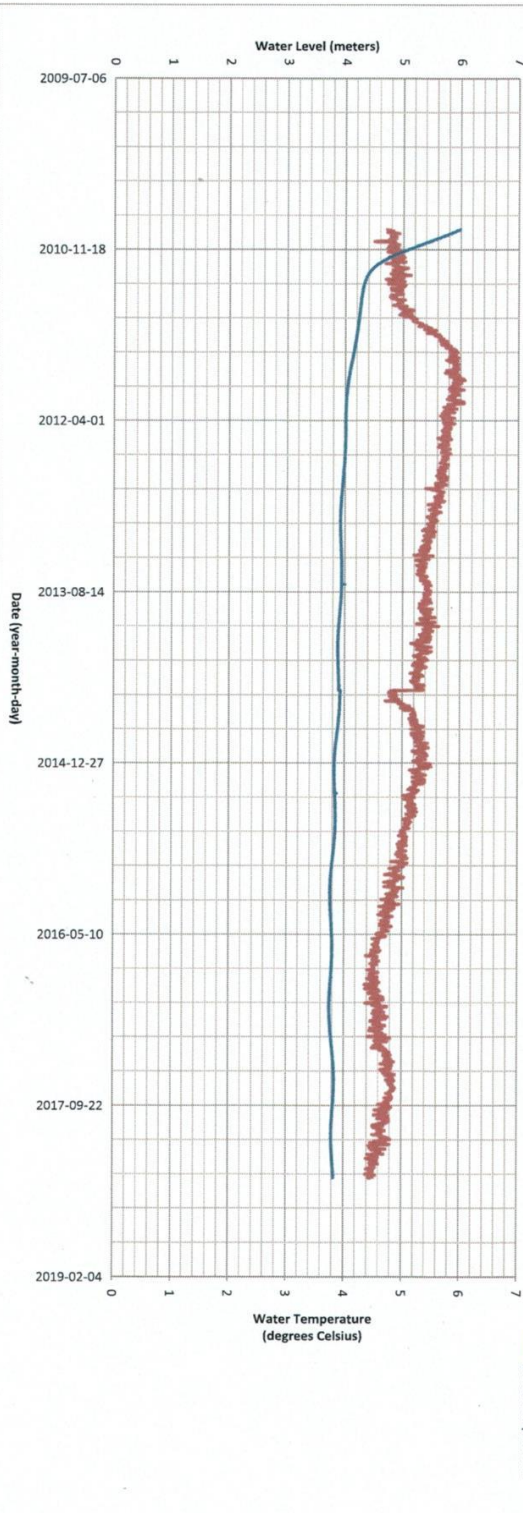
METER READING DECEMBER 31/20 17 321592

DAY OF MONTH	JANUARY		FEBRUARY		MARCH		APRIL	
	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION
1	322096	504	339882	525	356038	570	374517	596
2	322615	519	340462	580	356598	560	375121	604
3	323244	629	341096	634	357240	642	375703	582
4	323818	574	341674	578	357830	590	376303	600
5	324389	571	342170	496	358547	717	376846	543
6	324979	590	342770	600	359095	548	377455	609
7	325525	546	343317	547	359698	603	378134	679
8	326111	586	343881	564	360259	561	378696	562
9	326659	548	344435	554	360861	602	379247	551
10	327031	372	345071	636	361454	593	379931	684
11	327791	760	345691	620	362034	580	380513	582
12	328359	568	346168	477	362645	611	381094	581
13	328956	597	346751	583	363286	641	381738	644
14	329515	559	347306	555	363878	592	382283	545
15	330043	528	347882	576	364423	545	382935	652
16	330673	630	348413	531	365066	643	383513	578
17	331123	450	348953	540	365667	601	384129	616
18	331749	626	349582	629	366239	572	384688	559
19	332371	622	350147	565	366758	519	385221	533
20	333154	783	350768	621	367366	608	385952	731
21	333637	483	351328	560	367986	620	386593	641
22	334213	576	351896	568	368613	627	387150	557
23	334798	585	352506	610	369218	605	387860	710
24	335342	544	353168	662	369801	583	388442	582
25	336015	673	353760	592	370437	636	389082	640
26	336515	500	354283	523	370981	544	389724	642
27	337094	579	354859	576	371576	595	390352	628
28	337627	533	355468	609	372223	647	390987	635
29	338219	592	-	-	372739	516	391529	542
30	338769	550	-	-	373316	577	392188	659
31	339357	588	-	-	373921	605	-	-
TOTAL	17756	17765	16111	16111	18453	18453	18267	18267

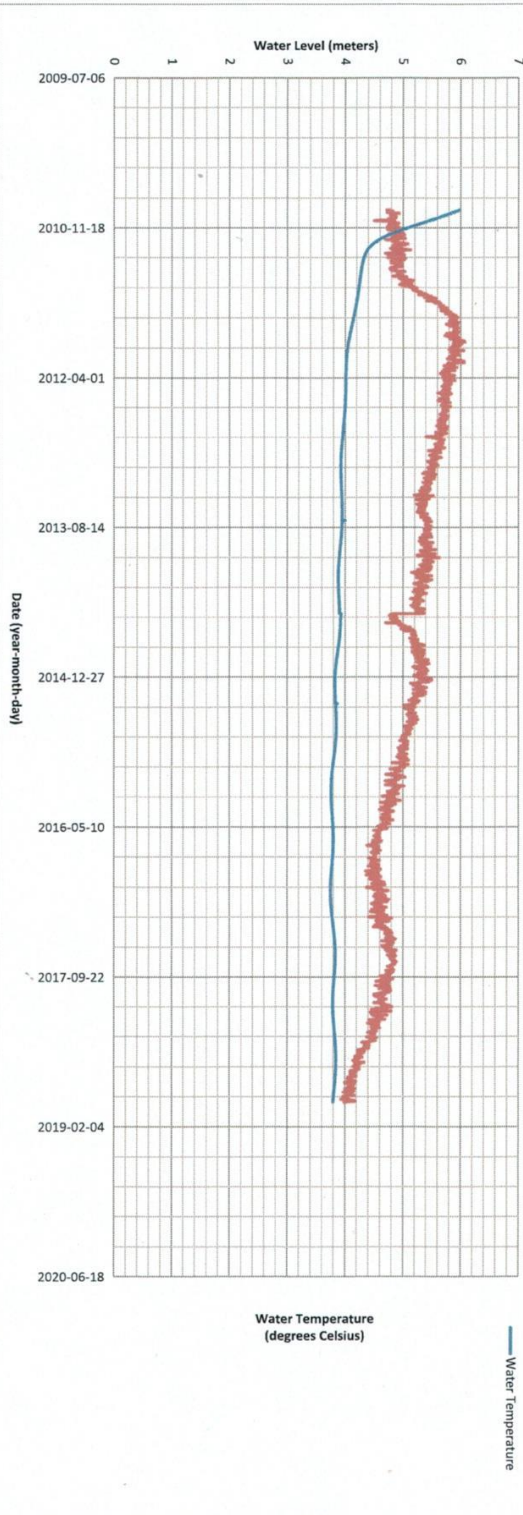
NOTE2/
 LICENSÉE MUST COMPLETE "ANNUAL WATER USE REPORT" FOR EACH CALENDAR YEAR AND FORWARD THE REPORT TO THE WATER LICENSING SECTION AT THE ABOVE ADDRESS NOT LATER THAN FEB. 1 OF THE FOLLOWING YEAR.

DAY OF MONTH	MAY		JUNE		JULY		AUGUST	
	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION
1	392803	615	417,545	777	445275	717	471121	797
2	393395	592	418,200	655	446096	821	471961	840
3	394008	613	418,744	544	446847	751	472788	827
4	394655	647	419,449	705	447808	961	473732	944
5	395427	772	420,304	855	448543	735	474442	710
6	396106	679	421,094	790	449541	998	475121	679
7	396767	661	421,997	903	450499	958	475928	807
8	397545	778	423,043	1,046	451290	791	476814	886
9	398284	739	424,097	1,054	452044	754	477778	964
10	398998	714	424,948	851	453013	969	478838	1060
11	399778	780	425,614	666	453945	932	479865	1027
12	400546	768	426,553	939	454731	786	480719	854
13	401374	828	427,448	895	455771	1040	481651	932
14	402280	906	428,451	1,003	456735	964	482609	958
15	403216	936	429,316	865	457436	701	483542	933
16	404093	877	430,422	1,106	458210	774	484454	912
17	404892	799	431,255	833	459065	855	485337	883
18	405578	686	432,278	1,023	460043	978	486275	938
19	406407	829	433,376	1,098	460990	947	487049	774
20	407217	810	434,596	1,220	461857	867	487804	755
21	408272	1055	435,848	1,252	462926	1069	488697	893
22	409254	982	436,918	1,070	463705	779	489574	877
23	410329	1075	437,939	1,021	464282	577	490539	965
24	411248	919	438,890	951	464964	682	491395	856
25	411942	694	439,800	910	465636	672	492550	1155
26	412686	744	440,811	1,011	466384	748	493071	521
27	413618	932	441,754	943	467152	768	493599	528
28	414447	829	442,841	1,087	468138	986	494457	858
29	415210	763	443,701	860	468732	594	494918	461
30	416014	804	444,558	857	469362	630	495581	663
31	416768	754	-	-	470324	962	496363	782
TOTAL	24580	24580	27790	27790	25766	25766	26039	26039
DAY OF MONTH	SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION	METER READING	DAILY CONSUMPTION
1	497,157	794	517373	621	536,083	530	555131	784
2	497,688	531	518004	631	536,706	623	555608	477
3	498,389	701	518581	577	537,295	589	556128	520
4	499,013	624	519148	567	537,936	641	556745	617
5	499,549	536	519777	629	538,416	480	557383	638
6	500,277	728	520411	634	538,991	575	558016	633
7	501,081	804	520949	538	539,527	536	558674	658
8	501,766	685	521564	615	540,179	652	559322	648
9	502,371	605	522220	656	540,851	672	559956	634
10	503,101	730	522910	690	541,505	654	560597	641
11	503,838	737	523551	641	542,059	554	561304	707
12	504,646	808	524190	639	542,606	547	561880	576
13	505,415	769	525020	830	543,248	642	562528	648
14	506,102	687	525511	491	543,852	604	563169	641
15	507,079	977	526101	590	544,527	675	563864	695
16	507,762	683	526682	581	545,183	656	564628	764
17	508,394	632	527299	617	545,919	736	565140	512
18	509,093	699	527935	636	546,479	560	565795	655
19	509,747	654	528529	594	547,112	633	566432	637
20	510,442	695	529129	600	547,734	622	567073	641
21	510,914	472	529628	499	548,392	658	567689	616
22	511,754	840	530299	671	549,096	704	568486	797
23	512,377	623	530903	604	549,785	689	569084	598
24	512,919	542	531521	618	550,547	762	569603	519
25	513,510	591	532110	589	551,184	637	570146	543
26	514,140	630	532714	604	551,777	593	570781	635
27	514,805	665	533315	601	552,503	726	571333	552
28	515,464	659	533819	504	553,084	581	571972	639
29	516,155	691	534429	610	553,747	663	572608	636
30	516,752	597	535011	582	554,347	600	573220	612
31	-	-	535553	542	-	-	573713	493
TOTAL	20389	20389	18801	18801	18794	18794	19366	19366

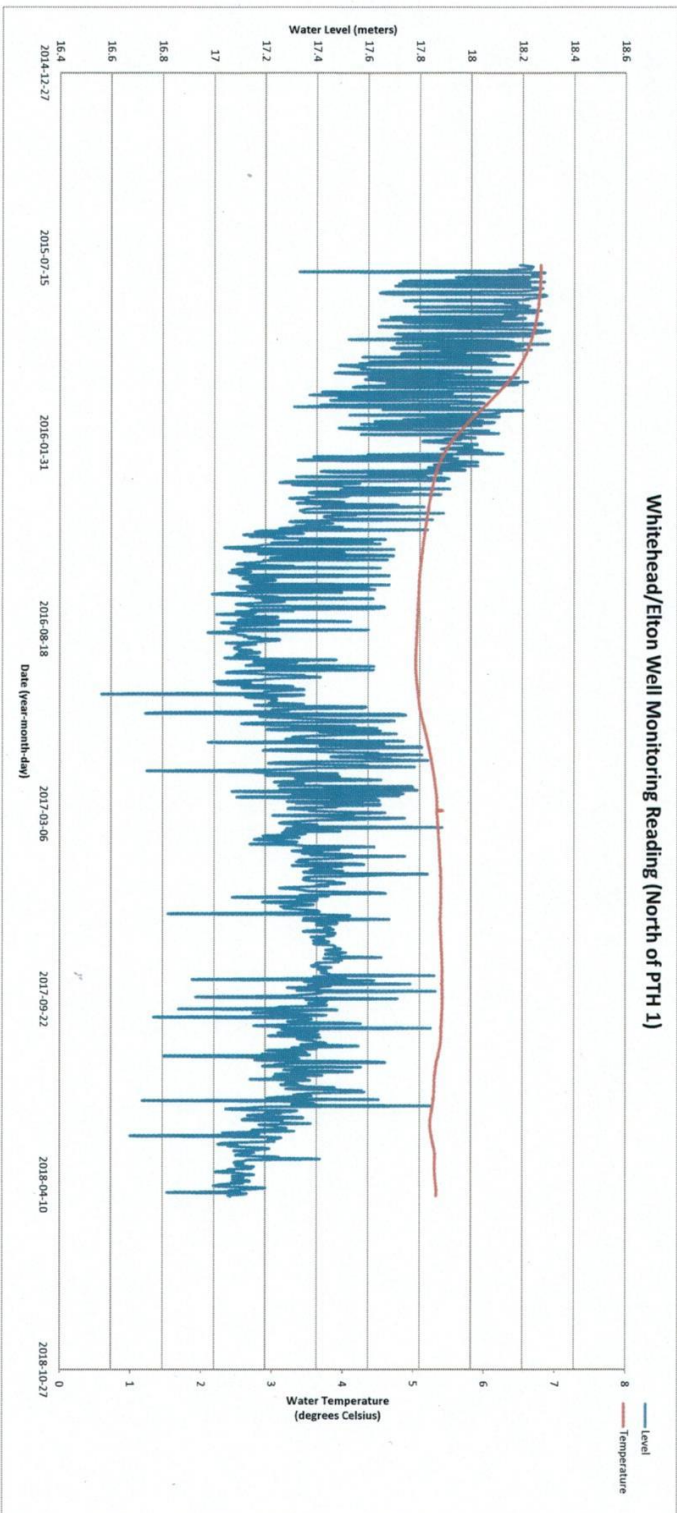
Alexander Levellogger Well Reading (South of PTH 1 April 24th, 2018)



Alexander Levellogger Well Reading (South of PTH 1 November 15th, 2018)



Whitehead/Eton Well Monitoring Reading (North of PTH 1)



Whitehead/Elton Well Monitoring Reading (North of PTH 1)

