

Rm of Whitemouth



Public Water System

Annual Report

2020

Name of the Public Water System: **Whitemouth Rural Pipeline**

Name of the Legal Owner: **RM of Whitemouth**

Contact Person: **Colleen Johnson (COA)**

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Website: **www.rmwhitemouth.com**

Name of Operators: **Glen Campbell, Sr. Utility Operator – Water Treatment 2**

Water Distribution 1

Waste Water Small System

Sean Fawley, Operator

- Water Treatment 1

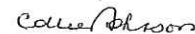
Water Distribution 1

Waste Water Small System

Phone during business hours: **(204) 348-2574 or (204) 348-2221**

Date prepared: **March 10, 2021**

Prepared By: **Glen Campbell**



Colleen Johnson CAO

Rm of Whitemouth

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Introduction:

The 2020 Public Water System Annual Report summarizes the ability of the RM of Whitemouth to produce and provide safe potable water to our constituents which meets provincial regulations.

1. Description of the Water System:

The RM of Whitemouth Public Water System provides potable drinking water to a population of approximately 1100 residents. Treated water from the water treatment plant meets all health as stated in the *Guidelines for Canadian Drinking Water Quality* as well as provincial regulations. Aesthetic objectives in the *Guidelines for Canadian Drinking Water Quality* met all.

1.1 Water Supply Source

The RM of Whitemouth Water Treatment Plant draws its supply water from Natalie Lake of the Winnipeg River. The Winnipeg River has an abundant supply of high-quality water which is easily treated to meet all standards.

The Water Treatment Plant intake is approximately 12 feet below the surface of the river. The water is then pumped into the Water Treatment Plant situated in Seven Sisters Falls, Mb on Waterline Road.

1.2 Water Treatment Processes

The high quality of water which comes out of the Winnipeg River requires a minimal amount of treatment to meet all provincial requirements. Upon entering the water treatment plant and entering our Actiflo treatment system the raw water is injected with a product called Hydrex 3613 Polymere, which is a flocculating agent, and Aluminum Sulphate Solution, which is a further flocculating agent, and Actisand, which is fine silica sand. These processes are geared mainly towards treating the turbidity and colour of the raw water. The raw water comes out of the Winnipeg River with an average turbidity between 3-10 nephelometric turbidity units (NTU). The Actiflo processes drop this figure to on average between 0.5 -0.7 NTU. The water which has been treated through the Actiflo. After going through the filter, the treated water is at approximately 0.030-0.050 NTU. This number is approximately 11% of our regulated limit. The legal requirement for our treated water is 0.3 NTU after these filters. The water is then stored in a 873,000 litre reservoir.

A result of the Actiflo/ Chemical processes is that the water pH drops to approximately 6.3-6.5. This water is then treated with Sodium Hydroxide 25% solution to raise the pH from 6.3-6.5 to a level of 7.6-7.8. This means that the treated water is very close to neutral which aids in controlling corrosion and deposits. The reservoir water is further treated with Sodium Hypochlorite 12% as a disinfecting agent. Our distribution water must leave the water treatment plant with a minimum of 0.5mg per litre of free chlorine residual and have a minimum of 0.1 mg per litre in all areas of the distribution.

1.3 Water Treatment and Distribution Capacities

The RM of Whitemouth Water Treatment Plant operates at an incoming rate of 15 litres per second and runs for approximately 8 - 12 hours per day using two 20hp distribution duty pumps. We treat approximately 450000 litres daily on average. Distribution system pressure is maintained at between 50-57psi using frequency drive pumps and a pressure relief system.

1.4 Distribution System

RM of Whitemouth's water distribution system is approximately 80 kilometres long and is comprised of approximately 50% PVC and 50% HDPE. Distribution piping varies in size from 8" to 2".

1.5 Number of Connections, and water user types

RM of Whitemouth has approximately 500 connections with a large different type of users from residential, commercial, and farms. From small users to large users. From year round to seasonal connections. In 2019 the RM of Whitemouth started selling water to the RM of Lac Du Bonnet which added another 100 connections

1.6 System Classification and Certification under the Water and Wastewater Facility Operators Regulation under the Environment Act.

A Class 2 Water Treatment Facility

A Class 1 Water Distribution System

2. Disinfection System in Use.

The RM of Whitemouth uses Sodium Hypochlorite 12% as our disinfection method. Disinfection is the selective destruction or inactivation of potential disease-causing organisms in water. As per the *Drinking Water Safety Act* the RM of Whitemouth Public Water System must ensure that we maintain a free disinfectant residual of at least:

- 0.5 mg of free chlorine per litre of water is detectable at the point where water enters the distribution system, after a minimum contact time of 20 minutes
- 0.1 mg of free chlorine per litre of water is detectable at all times at any point in the distribution network.

2.1 Type of Disinfection System Used

The RM of Whitemouth Water Treatment Plant disinfects using Sodium Hypochlorite 12% concentration. Chlorine is added to the system using 2 peristaltic pumps, one as primary one as backup should one fail or fault the other will automatically switch.

2.2 Need for Redundancy and Monitoring

The "Drinking Water and Safety Act" requires that disinfection is continuously maintained. To ensure this we use two separate chlorine pumps allowing for redundancy in the system itself where one side can be turned off and the disinfecting needs will be met by the remaining side and some spare parts which are more prone to fail or need replacing.

Disinfectant total and free residuals are checked and recorded daily at the water treatment plant and bi-weekly at points throughout the distribution system. Results are recorded on the appropriate monitoring forms and are sent to the regional Drinking Water Officer at the end of each month. SCADA system that records free chlorine levels on a continuous basis.

2.3 Disinfectant Residual Overall Performance and Results

For the year 2020 the RM of Whitemouth Public Water System has met 100% of the regulatory requirements for treated water and 100% for distributed water.

3. List of Water Quality Standards

The Province of Manitoba has adopted a number of water quality standards from the *Guidelines for Canadian Drinking Water Quality*, developed by Health Canada. The parameters are health-based and they express the maximum acceptable concentrations for drinking water. Concentration values in excess of the standards constitute a possible health related issue and require corrective actions. The 2020 results for the RM of Whitemouth Public Water System are summarized in the following tables:

3.1 Disinfection Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Free Chlorine Residual entering the Distribution System	≥ 0.5 mg/L	Meets requirements
Frequency of Testing	Daily	Meets requirements
Free Chlorine Residual in the Distribution System	≥ 0.1 mg/L	Meets requirements
Frequency of Testing	Bi-Weekly	Meets requirements
Report Submissions	Monthly	Meets requirements

3.2 Bacteriological Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Number of Raw/Incoming Water Samples	Bi-weekly	Meets requirements
Number of Treated Water Samples	Bi-weekly	Meets requirements
Number of Distribution Water Samples	52	Meets requirements
Frequency of Testing	Bi-weekly	Meets requirements
Total Coliform (TC) Present in Water Samples	0 TC per 100mL	Meets requirements
E. Coli (EC) Present in Water Samples	0 EC per 100mL	Meets requirements

3.3 Turbidity Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Chemically assisted, rapid gravity filtration process	≤ 0.3 NTU in at Least 95% Of samples	Meets requirements
Standard	Never to exceed 1.0 NTU	Meets requirements
Frequency of Testing	Continuous	Meets requirements
Report Submissions	Monthly	Few adjustments needed to reporting software

3.4 Disinfection By-products Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Trihalomethane sampling requirements	Quarterly	Testing required every 2 nd year completed 2019 currently doing 2021
Total Trihalomethane Standard	0.1mg/L	Passed 0.0811 2019 results
Haloacetic Acid sampling requirements	Quarterly	Testing required every 2 nd year completed 2019 currently doing 2021
Haloacetic Acid Standard	0.08mg/L	Passed 0.0626 2019 results

4. Water System Alterations, Incidents and Corrective Actions

4.1 Water Breaks

All waterline repairs were done while the waterline was still under minimal positive pressure to ensure no in line contamination. After repairs were completed waterlines were flushed and checked to make sure that a satisfactory disinfectant residual was maintained prior to being put back into service. All repairs were done in such a way as to minimize down time for users and as much advance notice given as possible. The RM of Whitemouth had 10 repairs in 2020.

4.2 Water Hook-Ups

During 2020 the RM had 6 new water hookups. A water hookup is when the infrastructure is in the ground and curb stop turned on and left on. We had 2 others that infrastructure is in ground but curb stop is not turned on.

4.3 Other Incidents or Corrective Actions

Microbial requirements are not met due to our recording software for 3-log barrier needing a little bit of programming changes. We got this recording software in March 2018 and were only now notified that it needs these small changes. Update: ODW inspected software and one other small change required. To be done shortly.

5. Drinking Water Safety Orders on Water System and Corrective Actions Taken

During 2020, there were no Drinking Water Safety Orders issued for the RM of Whitemouth Public Water System.

6. Boil Water Advisories Issued on Water System and Corrective Actions Taken

During 2020 the RM of Whitemouth Public Water System did not have any boil water advisories issued.

7. Warnings Issued or Charges Laid on Water System in Accordance with The Drinking Water Safety Act

During 2020 the RM of Whitemouth Public Water System did not have any warnings or charges.

8. Major Expenses Incurred in 2020

In 2020 the RM of Whitemouth added one new fire hydrant at the corner of Hwy 44 and Brookfield Rd. New software and equipment for meter reading system and billing

9. Anticipated Future Major Cost Items, System Expansion and/or Increased Production

Whitemouth Reservoir expansion to storage capacity and adding a new waterline to the PCH/Hospital for a fire suppression system. Cost to be covered by the Province and IERHA. No cost to our rate payers.

January 26, 2021

2020 Annual Compliance Audit

Water System: WHITE-MOUTH - PWS	Code: 249.25
Water System Owner: Rural Municipality of Whitemouth	Address: Box 248, 49 Railway Avenue, Whitemouth, MB ROE2G0
Operating Licence: PWS-08-127-02	Expiry Date: November 30, 2022
Water System Assessment Due Date: March 1, 2025	
Public Water System Annual Report Due Date: March 31, 2021	Advisory Notification Plan Due Date: May 1, 2021

- 1) This report documents compliance of the Whitemouth Public Water System for the period from January 1 to December 31, 2020.
- 2) This report provides specific information on the non-compliance incidents identified in the summary below.
- 3) Other than the information provided in this report, 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.
- 5) 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.

Non-compliance with Treatment Standards:

Standard	Location of Standard Noncompliance	Non-compliance Type
Protozoa 3 Log Removal	Treated	Effective Treatment Barrier, but lack of monitoring and reporting

Non-compliance Incidents:

Water system was compliant in the audited time period.

If you have any questions, please do not hesitate to contact me at (204) 371-3885.

Sincerely,



Shannon Ganter
Regional Drinking Water Officer



RM of Whitemouth Rural Pipeline
ATTN: GLEN CAMPBELL
Whitemouth Rural Pipeline Box 248
Whitemouth MB R0E 2G0

Date Received: 21- OCT- 20
Report Date: 30- OCT- 20 08:48 (MT)
Version: FINAL

Client Phone: 204- 348- 2574

Certificate of Analysis

Lab Work Order #: L2519519

Project P.O. #: NOT SUBMITTED
Job Reference: WHITEMOUTH - PWS 249.25
C of C Numbers:
Legal Site Desc: 7238

Hua Wo
Chemistry Laboratory Manager

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Environmental

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Physical Tests (WATER)

		ALS ID		L2519519-1	L2519519-2
		Sampled Date		20-OCT-20	20-OCT-20
		Sampled Time		10:45	11:15
		Sample ID		RM OF WHITEMOUTH 1 - RAW	RM OF WHITEMOUTH 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Colour, True	CU 15 umhos/cm - mg/L - -			24.0	<5.0
Conductivity	No Unit	-	-	97.0	163
Hardness (as CaCO3)	No Unit	-	pH	44.5 ^{HTC}	44.6 ^{HTC}
Langelier Index (4 C)	units	7.00-10.5	mg/L	-1.2	-1.3
Langelier Index (60 C)		500	%T/cm	-0.42	-0.52
pH		-	-	7.68	7.67
Total Dissolved Solids	NTU	-	-	66	88
Transmittance, UV (254 nm)				52.6	87.5
Turbidity				5.90	0.58

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)

#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Anions and Nutrients (WATER)

		ALS ID		L2519519-1	L2519519-2
		Sampled Date		20-OCT-20	20-OCT-20
		Sampled Time		10:45	11:15
		Sample ID		RM OF WHITEMOUTH 1 - RAW	RM OF WHITEMOUTH 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Alkalinity, Total (as CaCO3)	mg/L	-	-	41.3	35.3
Ammonia, Total (as N)	mg/L	-	-	0.042	<0.010
Bicarbonate (HCO3)	mg/L	-	-	50.4	43.1
Bromide (Br)	mg/L	-	-	<0.010	<0.010
Carbonate (CO3)	mg/L	-	-	<0.60	<0.60
Chloride (Cl)	mg/L	250	-	2.18	5.22
Fluoride (F)	mg/L	1.5	-	0.046	<0.020
Hydroxide (OH)	mg/L	-	-	<0.34	<0.34
Nitrate (as N)		-	10	0.0102	0.0130
Nitrite (as N)		-	1	<0.0010	<0.0010
Sulfate (SO4)		500	-	2.97	32.9

Federal Guidelines for Canadian Drinking Water Quality

#1: GCDWQ -

Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Organic / Inorganic Carbon (WATER)

		ALS ID		L2519519-1	L2519519-2
		Sampled Date		20-OCT-20	20-OCT-20
		Sampled Time		10:45	11:15
		Sample ID		RM OF WHITEMOUTH 1 - RAW	RM OF WHITEMOUTH 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Dissolved Organic Carbon	mg/L	-	-	11.5	4.41
Total Organic Carbon	mg/L	-	-	10.5	4.49

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020) #1: GCDWQ -

Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Total Metals (WATER)

Analyte	Unit	ALS ID		L2519519-1	L2519519-2	L2519519-3
		Sampled Date	Sampled Time	20-OCT-20	20-OCT-20	20-OCT-20
		Sample ID		10:45	11:15	11:45
		RM OF		WHITEMOUTH 1	WHITEMOUTH 2	WHITEMOUTH 3
		Guide Limit #1	Guide Limit #2	- RAW	- TREATED	- DSITRIBUTION
Aluminum (Al)-Total	mg/L	0.1	-	0.236	0.0989	0.107
Antimony (Sb)-Total	mg/L	-	0.006	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	-	0.01	0.00090	0.00030	0.00029
Barium (Ba)-Total	mg/L	-	2	0.0101	0.00869	0.00869
Beryllium (Be)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	-	5	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	-	0.005	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Total	mg/L	-	-	11.7	11.8	11.6
Cesium (Cs)-Total	mg/L	-	-	0.000027	<0.000010	<0.000010
Chromium (Cr)-Total	mg/L	-	0.05	0.00059	0.00011	0.00016
Cobalt (Co)-Total	mg/L	-	-	0.00012	<0.00010	<0.00010
Copper (Cu)-Total	mg/L	1	2	0.00133	0.00074	<0.00050
Iron (Fe)-Total	mg/L	0.3	-	0.264	<0.010	<0.010
Lead (Pb)-Total	mg/L	-	0.005	0.000172	<0.000050	<0.000050
Lithium (Li)-Total	mg/L	-	-	0.0016	0.0014	0.0013
Magnesium (Mg)-Total	mg/L	-	-	3.70	3.65	3.64
Manganese (Mn)-Total	mg/L	0.02	0.12	0.0107	0.00038	0.00035
Molybdenum (Mo)-Total	mg/L	-	-	0.000175	0.000141	0.000135
Nickel (Ni)-Total	mg/L	-	-	0.00090	0.00082	0.00078
Phosphorus (P)-Total	mg/L	-	-	<0.050	<0.050	<0.030
Potassium (K)-Total	-	-	-	0.855	0.793	0.784
Rubidium (Rb)-Total	-	-	-	0.00160	0.00123	0.00120
Selenium (Se)-Total	-	0.05	-	0.000104	<0.000050	<0.000050
Silicon (Si)-Total	-	-	-	1.65	1.02	0.92
Silver (Ag)-Total	-	-	-	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	-	200	-	2.58	14.4	14.2
Strontium (Sr)-Total	-	-	7	0.0244	0.0243	0.0235
Sulfur (S)-Total	-	-	-	-	-	11.1
Tellurium (Te)-Total	-	-	-	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	-	-	-	<0.000010	<0.000010	<0.000010
Thorium (Th)-Total	-	-	-	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	-	-	-	<0.00010	<0.00010	<0.00010

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)
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Total Metals (WATER)

		ALS ID		L2519519-1	L2519519-2	L2519519-3
		Sampled Date		20-OCT-20	20-OCT-20	20-OCT-20
		Sampled Time		10:45	11:15	11:45
		Sample ID		RM OF WHITEMOUTH 1 - RAW	RM OF WHITEMOUTH 2 - TREATED	RM OF WHITEMOUTH 3 - DSITRIBUTION
Analyte	Unit	Guide Limit #1	Guide Limit #2			
Titanium (Ti)-Total	mg/L	-	-	0.00668	<0.00030	<0.00030
Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	-	0.02	0.000106	<0.000010	<0.000010
Vanadium (V)-Total	mg/L	-	-	0.00099	<0.00050	<0.00050
Zinc (Zn)-Total		5	-	<0.0030	<0.0030	<0.0030
Zirconium (Zr)-Total		-	-	<0.00020	<0.00020	<0.00020

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