

Rm of Whitemouth



Public Water System

Annual Report

2024

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

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

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

Phone: **(204) 348-2221**

Fax: **(204) 348-2576**

Email: **cao@rmwhitemouth.com**

Website: **www.rmwhitemouth.com**

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

Water Distribution 1, Waste Water Small System

Matthew Pommer, Operator in Training

- Water Treatment OIT, Water Distribution OIT

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

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Prepared By: **Glen Campbell**

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available at the RM Office or on website

Introduction:

The 2024 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 1500 residents. Treated water from the water treatment plant met 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 2-10 nephelometric turbidity units (NTU). The Actiflo processes drop this figure to on average between 0.4 -0.8 NTU. The water which has been treated through the Actiflo. After going through the filter, the treated water is at approximately 0.030-0.070 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 6.2-6.5. This water is then treated with Sodium Hydroxide 25% solution to raise the pH from 6.2-6.5 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 525,000 litres daily on average. Distribution system pressure is maintained at between 55-60psi using frequency drive pumps and a pressure relief system.

1.4 Distribution System

RM of Whitemouth's water distribution system is approximately 125 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 Brookfield Utility / Awanipark in the LGD of Pinawa which added another 150 connections. For a total of 650 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 2024 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 2024 results for the RM of Whitemouth Public Water System are summarized in the following tables:

Parameter	Quality Standard
Total Coliform	Less than one total coliform bacteria detectable per 100 mL in all treated and distributed water
<i>E. coli</i>	Less than one <i>E. coli</i> bacteria detectable per 100 mL in all treated and distributed water
Chlorine Residual	A free chlorine residual of at least 0.5 mg/L in water entering the distribution system following a minimum contact time of 20 minutes A free chlorine residual of at least 0.1 mg/L at all times at any point in the water distribution system
Turbidity	Less than or equal to 0.3 NTU in 95% of the measurements in a month of the effluent from each operating filter Not exceed 0.3 NTU for more than 12 consecutive hours of filter operation Not exceed 1.0 NTU for any measurement
Total Trihalomethanes (THMs)	Less than or equal to 0.10 mg/L as locational running annual average of quarterly samples
Total Haloacetic Acids (HAAs)	Less than or equal to 0.08 mg/L as locational running annual average of quarterly samples
Lead	Less than or equal to 0.005 mg/L based on a sample(s) collected at a cold water tap or other appropriate location where water may be used for drinking or food preparation
Manganese	Less than or equal to 0.12 mg/L
Total Microcystins	Less than or equal to 0.0015 mg/L

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

Month	Free Average mg/L	Total Average mg/L
January	1.256	1.49
February	1.248	1.47
March	1.218	1.45
April	1.247	1.47
May	1.210	1.44
June	1.168	1.40
July	1.231	1.48
August	1.207	1.50
September	1.248	1.52
October	1.282	1.55
November	1.277	1.53
December	1.244	1.47

3.2 Lead Testing Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Number of Completed tests 20 per year	20	Meets Requirements
Number of samples Pass Below 0.005mg/l	19 of 20	Residents house plumbing the cause of failure

Lead testing Results

	RDT	30MS - 1 of 2	30MS - 2 of 2
Location Number	Result (mg/L)	Result (mg/L)	Result (mg/L)
1	0.000895		
2	0.00357		
3	0.000815		
4	0.00005		
5	0.00197		
6	0.000824		
7	0.000253		
8	0.000737		
9	0.000938		
10	0.00153		
11	0.000133		
12	0.000107		
13	0.00291		
13	0.00174		
14	0.00137		
15	0.000046		
16	0.000965		
17	0.000285		
18	0.0276	0.000988	0.000876
19	0.00296		
20	0.000301		

3.3 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	78	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

3.4 Turbidity Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Chemically assisted, rapid gravity filtration process	≤0.3NTU 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 (An effective treatment barrier through monitoring / reporting)	Meets requirements

Month	Raw Average NTU	Treated Average NTU
January	1.89	0.043
February	2.00	0.040
March	1.97	0.038
April	2.24	0.038
May	2.84	0.044
June	4.57	0.045
July	6.07	0.039
August	6.12	0.046
September	5.62	0.046
October	4.46	0.047
November	3.65	0.043
December	2.77	0.045

3.5 Disinfection By-products Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Trihalomethane sampling requirements	Quarterly	Testing required every 2 nd year To be completed 2025
Total Trihalomethane Standard	<0.1mg/L	Passed 0.0860 mg/l 2023 results
Haoacetic Acid sampling requirements	Quarterly	Testing required every 2 nd year To be completed in 2025
Haloacetic Acid Standard	<0.08mg/L	Passed 0.0528 mg/l 2023 results

3.6 Manganese Monitoring and Reporting

	Regulatory Requirement	Water System Performance
Manganese Sample Requirements	Yearly	Testing done Yearly During General Chemistry
Manganese Standards	<0.12 mg/L	Meets Requirements 0.00078mg/l results

3.7 Total Microcystins Monitoring and Reporting

	Regulatory Requirements	Water System Performance
Microcystins Sample Requirements	Yearly	Testing done Yearly in August
Microcystins Standards	<0.0015 mg/l	Meets Requirements <0.0002 mg/l Results

4. Water System Alterations, Incidents and Corrective Actions

4.1 Water Breaks

Most 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. Most 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 13 repairs in 2024.

4.2 Water Hook-Ups

During 2024 the RM had 7 new water hookups.

4.3 Other Incidents or Corrective Actions

During 2024 the RM of Whitemouth Public Water System had no incidents or corrective actions required

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

During 2024, 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 2024 the RM of Whitemouth Public Water System did have 1 Boil Water Advisories. Due to depressurization of distribution water line on Whitemouth St in the Town of Whitemouth, 4 Residents went under a Boil Water Advisory (issued June 24/24, rescinded June 28/24).

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

During 2024 the RM of Whitemouth Public Water System did not have any warnings or charges

8. Major Expenses Incurred in 2024

In 2024 The RM of Whitemouth continued installing curb stops to residents that did not have. 11 new curb stops were installed. Built a new pole shed at the Water Treatment Plant to store parts and equipment in. This was done so all utility parts and equipment will be kept at the plant rather than at 3 different location. The second raw water pump was replaced and the wet well was cleaned out. First one was done in 2023

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

We will continue to budget for adding so many new curb stops for those that do not have. Replacing 2 caustic soda chemical feed pumps as the old ones are 15 years old and have exceeded their life expectancy. As per our licence we have to get an Engineered Assessment done of our utility.