

PUBLIC WATER SYSTEM ANNUAL REPORT

2025

Name of the Public Water System: Swan River Public Water System

Name of the Legal Owner: Town of Swan River

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Water System's Emergency Number: (204) 734-8963 (Town Foreman)
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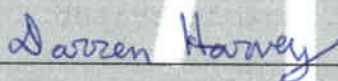
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Jordan Rooks

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Date Prepared: Mar.16/2026

Darren Harvey



Director of Works
Town of Swan River

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Introduction:

The 2025 Annual Report for the Town of Swan River summarizes the Water Utility's ability to produce safe potable water and meet provincial regulations.

1. Description of the Water System:

The Town of Swan River Public Water System provides potable drinking water to a population of 4049 residents (2021 Census). Treated water produced from the water treatment plant meets all health and aesthetic objectives as stated in the Guidelines for Canadian Drinking Water Quality.

1.1 Water Supply Source:

The Town of Swan River Water Treatment Plant (WTP) receives groundwater from three wells located in the northeast corner of Swan River, 40 meters south of the Swan River. The three wells draw groundwater from an underground aquifer. Well #1 was drilled in 1974, Well #2 was sealed in 2018, Well #3 was drilled in 2001, and Well #4 was drilled in 2018, with a new pitless and pump installed at that time. Also in 2018, Wells 1&3 were recased, and new pitless' and new pumps were installed. All three wells were drilled to a depth of approximately 95 feet. Raw water is pumped 800 m from the wells to the WTP in a 250 mm HDPE pipeline.

As water flows through the ground it dissolves metals and minerals. In the case of the aquifer, the water has come into contact with iron, manganese, and calcium carbonate (hardness causing mineral). While iron and calcium carbonate do not pose health concerns and only affect aesthetic water quality parameters, manganese does have a health based standard associated with it. (see Water Quality Standards Table on page 5)

1.2 Water Treatment Process:

Iron and manganese are metals that cause laundry and plumbing fixture staining problems. In addition, these materials can build up in the distribution pipes and cause reduced flow. Calcium carbonate causes hardness in water which diminishes the ability of the water to react with soap and form lather. Hardness also forms scale deposits in kettles and hot water tanks which can reduce the life expectancy of these appliances.

The current water treatment process is designed to remove iron and manganese down to acceptable levels. With regards to hardness, people have individual preferences about the amount of hardness they desire in their water. Individual homeowners who desire softer water may install softeners to achieve this.

The Swan River water treatment process starts with the addition of potassium permanganate to incoming raw water influent, before entering a detention chamber and flowing through 6 manganese greensand filters. After greensand filtration, the water flows through an ultraviolet light unit as a preliminary disinfectant treatment of bacterial contaminants. Following this, water is injected with chlorine, fluoride and a liquid inhibitor to reduce corrosion and scale buildup in the distribution system. Treated water then flows through and is stored in 3 underground reservoirs, starting in one north of the plant, then to one west of the plant, and finally into a clearwell within the plant, prior to entering the distribution system.

1.3 Distribution System:

Treated water from the 2 reservoirs and clearwell is pumped throughout the Swan River distribution system, via three electric pumps, and 1 natural gas combustion motor standby pump. Pump #1 is a 7 stage vertical turbine pump, with 20hp 3 phase electric Variable Frequency Drive (VFD), Pump #2 is a 7 stage vertical turbine pump, with 20hp 3 phase electric VFD drive, Pump #3 is a 7 stage vertical turbine pump, with 20hp 3 phase electric VFD drive. All 3 pumps and motors are identical, to allow interchangeability of parts. Pumps switch Lead Position every 24 hours, to increase longevity of pumps. When the lead pump can not meet the demand, the second and third pump(s) will turn on to assist as needed. The standby pump, is manually operated, and is run when required to meet extreme flow rates and high fire suppression flow demands. The WTP is equipped with a backup generator to provide power in the event of a power outage. There are 40 km of water main pipe, ranging in size from 4"-10".

1.4 Storage Reservoirs

Name: Reservoir #1	Capacity: 220,000 gal 1000 m ³
Name: Reservoir #2	Capacity: 415,000 gal 1886 m ³
Name: Clear well	Capacity: 70,000 gal 318 m ³
	Total Capacity of 705,000 gal 3200 m ³

1.5 Number of Connections:

The Swan River distribution system is comprised of 1657 residential and commercial service connections as well as 216 hydrants. All service connections are metered.

1.6 Classification and Certification:

As per the Manitoba Environment's Water and Wastewater Facility Operator's Regulation, under the Environment Act, the Town of Swan River's water treatment and distribution system is a;

- Class 2 Water Treatment Facility
- Class 2 Water Distribution System
- Certification level of operators:
 - Paul Klein, Class 2 – Operator in Charge
 - Jordan Rooks, Class 2 – Relief Operator
 - Tyler Van Kleek, - Operator in Training
 - Tyler Fletcher, - Operator in Training

2. Disinfection of Water:

The final step in the treatment of safe water is disinfection, which is the selective destruction or inactivation of potential disease causing organisms in water. As per the Drinking Water Safety Act the Swan River PWS must ensure that a 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 Systems Used:

The Swan River WTP disinfects using ultraviolet light (>95% of monthly water produced, dosed at >40mJ/cm²) and the addition of gaseous chlorine to water via a chlorinator injection system.

2.2 Equipment Redundancy and Monitoring Requirements:

As required by the Drinking Water Safety Act the Swan River PWS ensures continuous disinfection is maintained at the plant by keeping in stock all spare parts required for the chlorinator as well as bulbs and ballasts for the ultraviolet (UV) light disinfection system. Disinfection residuals are monitored daily at the water treatment plant and periodically in the distribution system and recorded on the appropriate monitoring forms. Monthly chlorination and UV report forms are sent to the regional Drinking Water Officer at the end of each month.

2.3 Disinfectant Residual Overall Performance/Results:

For 2025, the Swan River Public Water System has met all regulatory requirements in regard to monitoring and reporting disinfection residuals leaving the water treatment plant and in the distribution system.

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 concentration for a groundwater supply source. Concentration values in excess constitute a health-related issue and require corrective actions. The 2025 results for the Swan River Public Water System are summarized in the following table:

3.1 Water Quality Standards Table:

Source	Parameter	Standard	Frequency	Test	Results
Groundwater	TC & EC*	No TC or EC	Bi-weekly	Raw Water 100% passed	Treated Water 100% passed
	Disinfectant Chlorine	WTP (>0.5 mg/L)	Daily	NA	100% compliance
		Distribution (>0.1 mg/L)	Periodically	NA	100% compliance
	Ultraviolet	95% of water treated >40mJ/cm ²	Daily	NA	100% compliance
		Manganese	0.12 mg/L	Annually Every 3 years	0.256 mg/L
	Lead	0.005 mg/L	<0.000050 mg/L		<0.050 mg/L
	Arsenic	0.01 mg/L	0.00073 mg/L		0.00022 mg/L
	Benzene	0.005 mg/L	<0.00050 mg/L		<0.00050 mg/L
	Ethylbenzene	0.14 mg/L	<0.00050 mg/L		<0.00050 mg/L
	Fluoride	1.5 mg/L	0.190 mg/L		0.484 mg/L
	Trichloro-ethylene	0.005 mg/L	<0.00050 mg/L		<0.00050 mg/L
	Tetrachloro-ethylene	0.01 mg/L	<0.00050 mg/L		<0.00050 mg/L
	Toluene	0.06 mg/L	<0.00050 mg/L		<0.00050 mg/L
	Total Xylenes	0.09 mg/L	<0.00064 mg/L		<0.00064 mg/L
	Uranium	0.02 mg/L	0.00427 mg/L		0.00417 mg/L
	Nitrate	as nitrate: 45 mg/l	<0.0050 mg/L		0.0565 mg/L
Nitrite	as nitrite: 3 mg/L	<0.0010 mg/L	<0.0010 mg/L		

3.2 Bacterial Testing:

The Town of Swan River is required by Manitoba Environment, to provide water samples every two weeks. The annual minimum total of samples required is 78. For the year 2025 the Town of Swan River submitted 108 bi-weekly samples and 36 boil water advisory related samples.

Summary of Bacterial Testing for 2025:

Total number of submitted samples for 2025	144
Total negative tests	144
Percentage of negative tests	100%
Total positive test results on initial samples	0
Percentage of positive test results in initial samples	0%
Percentage of positive test on repeat samples	0% (Not Required)

4. Water System Failures and Corrective Actions:

In 2025, 4 water breaks occurred and were immediately repaired.

5. Additional Records Required:

As part of Manitoba Health's fluoridation program, water samples are collected on a daily basis from the clear well and tested on site. Daily fluoride results are recorded and a 14 day composite sample is submitted bi-weekly for analysis. The Swan River PWS strives to maintain a .60 mg/L to .70 mg/L fluoride level. The operating range for fluoride, as identified by Manitoba Health, is 0.50 – .90 mg/L.

6. Drinking Water Safety Orders on Your System and Actions Taken in Response:

In 2025, Drinking Water Safety Orders were issued for the Swan River Public Water System in association and accordance with the accompanying Boil Water Advisories as mentioned below. Orders were given to all residential and/or commercial facilities in the affected areas.

7. Boil Water Advisories Issued and Actions Taken in Response:

In 2025, there were 7 localized Boil Water Advisories issued for the Swan River Public Water System. These were issued due to intentional depressurization of a specific section of water main (via valve isolation), to repair either individual water service line breaks, breaks occurring on a water main line itself, or to perform one or more service connection(s). Following completion of repairs, the directed number of bacteriological samples were taken from the affected areas, submitted for testing and all results met regulatory standards prior to rescinding of advisories.

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

In 2025, no warnings were issued or charges laid on the Swan River Public Water System, in accordance with The Drinking Water Safety Act.

9. Major Expenses Incurred: 4 water breaks = \$26,550.00

10. Residential Lead Monitoring Program:

In 2025 the Town of Swan River Waterworks Department participated in a residential lead monitoring program mandated by the Province of Manitoba and the Office of Drinking Water. Following the establishment of new drinking water quality guidelines for lead in 2019 by Health Canada, the maximum acceptable concentration (MAC) for total lead in drinking water is 0.005 mg/L. And under legislation, Section 3 of the Drinking Water Safety Act, every public and semi-public water supplier must comply with drinking water quality standards specified in the regulations. In addition water quality monitoring under Section 5.1 Table 2 of our Public Water System Operating Licence sets out the requirements for monitoring of lead as per instructions of the drinking water officer. Therefore, through the lead monitoring program 20 residences in Swan River were randomly selected to have water samples taken from and submitted for testing to an accredited laboratory for lead analysis. All initial samples were collected using the Random Daytime (RDT) sampling method, whereby one 1 litre water sample was drawn from a tap as soon as the tap was opened without prior flushing and without removal of aerator or screen. If the initial sample test analysis showed elevated levels of lead, resampling was done utilizing the 30-Minute Stagnation (30MS) method, whereby the tap is flushed for 5 minutes then allowed to stand for 30 minutes during which time no water should be drawn in the home. After 30 minutes two 1 litre samples are taken one right after the other. Following receipt of each analysis, those residents selected were notified of their test results. Of the 20 samples taken and sent for analysis, only one exceeded the MAC for lead. However, upon follow up sampling and testing, the two subsequent samples tested well below the MAC for lead. See the attached test samples results sheet. As mandated by the aforementioned provincial governing bodies, the Town of Swan River will once again be participating in the Residential Lead Monitoring Program for 2026, where 20 different residences will be randomly selected for water sample analysis.

Results of the Residential Lead Monitoring Program 2025

Sample #	Date Tested	Test Results	Residents Notified (Yes/ No)	Value below MAC	Retest	Retest
	Swan River - WP 225.00					
1	March 27th	0.0011	Yes	0.0039		
2	April 16th	0.0004	Yes	0.0046		
3	June 5th	0.000701	Yes	0.004299		
4	June 10th	0.000406	Yes	0.004594		
5	June 19th	0.000245	Yes	0.004755		
6	June 24th	0.00055	Yes	0.00445		
7	June 24th	0.000916	Yes	0.004084		
8	July 28th	0.000935	Yes	0.004065		
9	July 29th	0.00231	Yes	0.00269		
10	July 29th	0.000217	Yes	0.004783		
11	August 5th	0.00061	Yes	0.00439		
12	August 5th	0.000914	Yes	0.004086		
13	August 12th	0.000211	Yes	0.004789		
14	August 12th	0.000403	Yes	0.004597		
15	September 18th	0.000808	Yes	0.004192		
16	September 18th	0.00119	Yes	0.00381		
17	September 25th	0.000553	Yes	0.004447		
18	October 7th	0.00652	Yes	-0.00152	0.000121	0.000183
19	October 7th	0.000896	Yes	0.004104		
20	November 18th	0.000102	Yes	0.004898		