Municipality of Russell Binscarth

Public Water System Annual Report

2025

Name of the Public Water System: **Municipality of Russell Binscarth Public Water System**

Name of the Legal Owner: Municipality of Russell Binscarth

Contact Person: Adrienne Falloon Chief Administrative Officer

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Water System's Emergency Number: (204) 773-6009

Name of Operator: Shaun Seib Water Treatment Plant Operator II

Date prepared: March 4th, 2026

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Adrienne Falloon
Chief Administrative Office
Municipality of Russell Binscarth

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Introduction:

The 2025 Annual Report for the Municipality of Russell Binscarth summarizes the Water Utility's ability to produce safe potable water and meet provincial regulations.

1. Description of the Water System:

The Municipality of Russell Binscarth Public Water System provides potable drinking water to a population of 2,743 residents (2024 Census). Treated water produced at the Russell Binscarth Regional 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 Russell Binscarth Regional Water Treatment Plant receives ground water from 2 wells located approximately 11 kilometers northeast of Russell. The 2 wells draw raw ground water from a large sand and gravel aquifer. The raw water from the wells is pumped into a 250 mm pipeline which is reduced to a 200 mm pipeline and flows to the Russell Binscarth Regional Water Plant for treatment.

Both wells were drilled in 2015 at a depth of approximately 150 feet. Both wells are active and are the exclusive sources of water for the town of Russell, village of Binscarth, Angusville and Rossburn.

As the water flows through the ground, it dissolves metals and minerals. In the case of the aquifer accessed by the town of Russell, the water has come into contact with iron and calcium carbonate (hardness causing minerals). These items do not pose health concerns, rather they are known as aesthetic water quality parameters.

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 consists of the use of a 3-Green Sand RO blend system. The water enters the 3-Green Sand filters that are designed to remove iron and manganese from the raw water to acceptable levels. After going through the Green Sand filters, the water enters the R/O membrane through pre-filters then into the main R/O membrane filters. This removes all the rest of the minerals from the water from the Green Sand filters, softening the water down to a total hardness averaging 120-150 mg/L and mineral free. With regards to hardness, people have individual preferences about the amount of hardness they desire in their water. Individual homeowners, who

desire softer water, can install softeners. Once the hardness of the water has been addressed, chlorinating and fluoridation occur by adding hydrofluosilic acid (HFSA) for consumers' dental health. Aqua mag and sodium hydroxide are also added to stabilize the PH level which then prevents water main and household plumbing corrosion and deterioration. The treated water enters the reservoir and is then stored in a treated water reservoir located beneath the plant.

1.3 Distribution System:

Treated water from the Russell Binscarth Regional Water Treatment Plant is stored in the underground reservoir or pumped to the town of Russell Water Tower via one of three 200 GPM pumps. Water is then distributed to the community of Russell from the water tower providing steady pressure and constant. The distribution system within Russell has an approximate piped length of 28 kilometers. Piping is comprised of 75% cast iron and 25% PVC in the community of Russell.

Since April 2018, treated water from the Regional Water Treatment Plant has been distributed to the village of Binscarth through 100 % high density plastic pipe. Piping in the village of Binscarth is comprised of a mixture of cast iron and PVC.

The Russell Binscarth Regional Water Treatment Plant now provides water to 4 other communities via 75 kilometers of high-density plastic pipe: Binscarth and Gambler to the south of Russell and Angusville and Rossburn plus 4 private rural residents to the east of Russell.

A booster station is required due to having to pump water via pipeline through a valley north of Waywayseecappo First Nation, which requires an increase of water pressure to push the water up and out of the valley to the community of Rossburn.

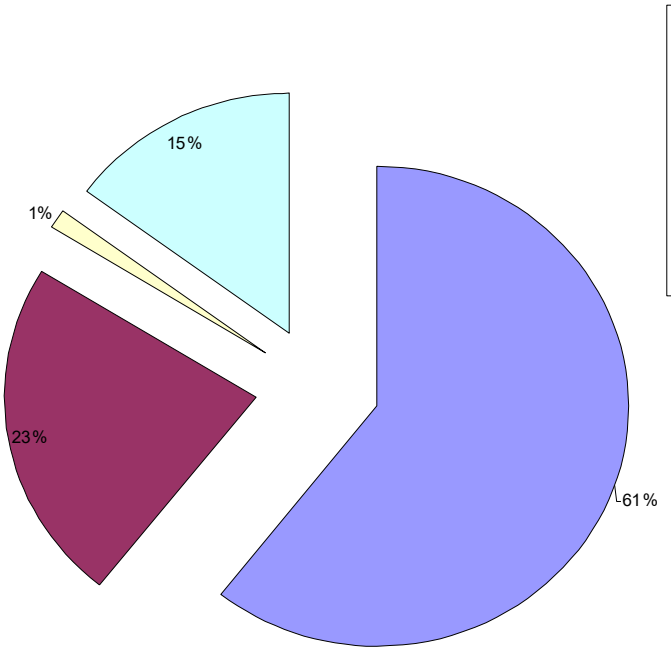
1.4 Storage Reservoirs:

Treated Reservoir – Underground – 1.6 million litres – Russell Treated
Reservoir – Water Towers – 225,000 litres – Russell
Treated Reservoir – Underground – 340,687 litres – Binscarth

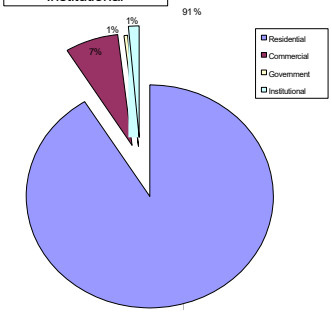
1.5 Connections, Population and Types of Users:

The Municipality of Russell Binscarth distribution system is comprised of – 1,020 service connections: Russell – 800 connections and Binscarth – 220 connections. All service connections are metered. Water is provided with a large demographic (see graph).

Russell



Binscarth



1.6 Classification and Certification:

- The Municipality of Russell Binscarth Regional Water Treatment Plant is a Class II Water Facility as per the Manitoba Conservation's Water and Wastewater Facility Operators Regulation under the Environment Act
- Current operator of the facility and his certification level are as follows:
  - Shaun Seib - Water Treatment Plant Operator Class II
  - Lawrie Lungal - Water Treatment Plant Operator I

2. Disinfection System in Use:

The final step in the treatment of safe water is disinfection. Disinfection is the selective destruction or inactivation of potential disease-causing organisms in water. As per the *Drinking Water Safety Act* the Municipality of Russell Binscarth 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 system used:

The Municipality of Russell Binscarth Regional Water Treatment Plant disinfects by adding 12% sodium hypochlorite solution to water via a chlorination pump.

2.2 Equipment redundancy and monitoring requirements:

As required by the *Drinking Water Safety Act* the Municipality of Russell Binscarth PWS ensures continuous disinfection is maintained at the plant by keeping in stock all spare parts required for the chlorination pump. A complete spare chlorination pump is also kept at the plant.

Disinfectant residuals are monitored daily at the water treatment plant and periodically in the distribution system and recorded on the appropriate monitoring forms. Monthly chlorination 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 Municipality of Russell Binscarth Public Water System has met all regulatory requirements regarding monitoring and reporting disinfection residuals leaving the water treatment plant and in the distribution system. (see Table 1).

Table 1 - Disinfection Monitoring and Reporting		
Chlorine Requirements	Regulatory Requirement	PWS Performance
A) Free chlorine residual entering the distribution system Section 21 (1) a - MR 40/2007	≥ 0.5 mg/L	100%
B) Free chlorine residual in the distribution system Section 22 a - MR 40/2007	≥ 0.1 mg/L	100%
C) Free Ammonia (treated water) Free ammonia has no regulatory standard but a monitoring requirement to ensure the system achieves breakpoint chlorination.	Weekly	100%
D)General Chemistry (parameter list provided by Office of Drinking Water)	One Raw & one Treated sample once every three years	100%
E) Total Metals (distribution system)	Taken at the same time as General Chemistry sampling	100%
F) Arsenic	One raw & one treated sample every year. Limit: 0.010mg/L	Result Raw: 0.0384mg/L Result Treated Regional 2: 0.00047mg/L Result Regional 3 Binscarth: 0.00043mg/L
G) Lead	As per the Instruction of DWO	96% 46 Samples taken with two resamples
H) Manganese	One raw water sample per day. One sample per day from the effluent of the greensand filter. Event based monitoring in the distribution as per ODW-OG-18 monitoring for Manganese in Drinking water. Limit: 0.12 mg/L	Result Raw: 0.408 mg/L Result Treated Regional 2: 0.008mg/L

I) Frequency of testing	Daily	100%
Schedule A - MR 40/2007	Bi-Weekly	100%
J) Report submissions Section 25 (2) - MR 40/2007	Monthly	100%
Comments: The Public Water System has met the regulatory requirements for 2025.		

3. List of Water Quality Standards:

The Province of Manitoba has adopted several water quality standards from the *Guidelines for Canadians 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 Municipality of Russell Binscarth Regional Public Water System are summarized in the following tables (see Table 2 & 3):

Table 2 - Bacteriological Monitoring and Reporting			
	Regulatory Requirement		PWS Performance
Number of raw/incoming water samples Schedule A - MR 40/2007	52		100%
Number of treated water samples Schedule A - MR 40/2007	52		100%
Number of water distribution samples Schedule A - MR 40/2007	156		100%
Frequency of testing Schedule A - MR 40/2007	Bi-Weekly		100%
Total coliform present in water samples Section 3 (1) b - MR 41/2007	<1 TC per 100mL		100%
E. coli present in water samples Section 3 (1) a - MR 41/2007	<1 EC per 100mL		100%

	Comments: The Public Water System has met the regulatory requirements for 2025.

Table 3 - Chemical Water Quality Standards			
	Regulatory Requirement	Russell WTP RAW Water	Russell WTP Treated Water
Total Metals			
Aluminum	0.10 mg/L	< 0.0030 mg/L	0.0030 mg/L
Antimony	0.006 mg/L	<0.0010 mg/L	<0.0010 mg/L
Arsenic	0.01 mg/L	0.0281 mg/L	0.00028 mg/L
Barium	1 mg/L	0.0186 mg/L	0.00155 mg/L
Boron	5 mg/L	0.153 mg/L	0.131 mg/L
Cadmium	0.005 mg/L	< 0.0000050 mg/L	<0.0000050 mg/L
Calcium	N/A	151 mg/L	21.5 mg/L
Chromium	0.05	<0.00010 mg/L	<0.00018 mg/L

Copper	1 mg/L	<0.00050 mg/L	<0.118 mg/L
Iron	0.3 mg/L	2.46 mg/L	<0.010 mg/L
Lead	0.01 mg/L	<0.000050 mg/L	<0.000050 mg/L
Magnesium	0.12 mg/L	53.0 mg/L	7.48 mg/L
Manganese	0.12 mg/L	0.408mg/L	0.008 mg/L
Mercury (Hg) – Total	0.001 mg/L	<0.0000050 mg/L	<0.0000050 mg/L
Potassium	N/A	6.40	1.56 mg/L
Selenium	0.05 mg/L	<0.000050 mg/L	<0.000050 mg/L
Silver	N/A	<0.00010 mg/L	<0.000010 mg/L
Sodium	200 mg/L	27.3 mg/L	51.5 mg/L
Uranium	0.02 mg/L	0.00301 mg/L	0.000412 mg/L
Zinc	5 mg/L	0.0030 mg/L	<0.0104 mg/L
Anions & Nutrients			
Alkalinity (CaCO3)	N/A	465 mg/L	160 mg/L
Ammonia (N)	N/A	0.94 mg/L	<0.010 mg/L
Bicarbonate (HCO3)	N/A	567 mg/L	195 mg/L
Bromide (Br)	N/A	<0.045 mg/L	<0.10 mg/L
Carbonate (CO3)	N/A	<0.60 mg/L	<0.60 mg/L
Chloride (Cl)	250 mg/L	2.88 mg/L	3.23 mg/L
Fluoride (F)	1.5 mg/L	0.195 mg/L	0.718 mg/L
Hydroxide (OH)	N/A	<0.34 mg/L	<0.34 mg/L
Nitrate and Nitrite (N)	10 mg/L	<0.0050 mg/L	<0.0062 mg/L
Nitrate (N)	10 mg/L	<0.0050 mg/L	<0.0062 mg/L
Nitrite (N)	1 mg/L	<0.0010 mg/L	<0.0010 mg/L
Phosphorus (P)	N/A	0.0744 mg/L	1.44 mg/L
Sulfate (SO4)	500 mg/L	175 mg/L	23.3 mg/L
Sulphide (S)	N/A		

Sulphide (H2S)	0.05 mg/L		
Physical Tests dissolved organic carbon			
Hardness (CaCO3)	N/A	595 $_{HTC}$	84.6 $_{HTC}$
Total Dissolved Solids	500 mg/L	689 mg/L	205 mg/L

Comments:			
Volatile Organic Compounds			
Benzene	0.005 mg/L	<0.00ss050 mg/L	<0.00050 mg/L
Ethylbenzene	0.14 mg/L	<0.00050 mg/L	<0.00050 mg/L
Trichloroethylene	0.005 mg/L	Not Tested	Not Tested
Tetrachloroethylene	0.03 mg/L	Not Tested	Not Tested
Toluene	0.06 mg/L	<0.00050 mg/L	<0.00050 mg/L
Total Xylenes	0.09 mg/L	<0.00050 mg/L	<0.00050 mg/L

4. Water System Incidents, Corrective Actions and Maintenance Advisory:

Incident 1: February 24, 2025 : Corner of Jemima and Government Road
A leak was identified at a residence located at the corner of Jemima and Government Road in Binscarth. The DWO was notified and a Boil Water Advisory (BWA) was issued. T&C was called to respond, and a golf-ball-sized hole was discovered. A 16-inch repair clamp was installed. Approximately 15 homes were affected. A water sample was collected on February 26, 2025. The BWA was lifted on March 5, 2025.
No. of House Affected: 15
Length of Time: 9 days

Incident 2: March 19, 2025 : Binscarth School
Water pooling was reported across from the Binscarth School. The leak was significant, as the reservoir was draining rapidly. The area could not be isolated, resulting in a wider impact of approximately 45 houses. A repair clamp was installed to address the issue. Water samples were collected following the repair, and the Boil Water Advisory (BWA) was lifted on April 3, 2025.
No. of House Affected: 45
Length of Time: 14 days

Incident 3: June 27th, 2025 : Binscarth Hotel
During a curb stop repair at the Binscarth Hotel, the corporation stop failed while being shut off. As the crew attempted to control the water loss, a valve was closed that briefly isolated the entire town, resulting in a community-wide Boil Water Advisory (BWA). The necessary replacements were completed, and service was restored within a few hours. Water samples were submitted on July 2, 2025, and the BWA was lifted on July 4, 2025.
No. of House Affected: Townwide
Length of Time: 4 days

Incident 4: July 28th, 2025 : Bicknell and Mather

A leaking fire hydrant at Bicknell and Mather required replacement, which necessitated a water shutdown for Bicknell. The DWO was notified, and a BWA was issued due to line depressurization, requiring two sets of samples. Russell Redi-Mix was contracted to complete the replacement, which was finished the same day, and service was restored. Two consecutive days of sampling were completed, and the BWA was lifted on August 1, 2025.

No. of House Affected:

Length of Time: 3 days

Incident 5: September 29th, 2025 : Corner of Thurston and Westbourne

A water break was reported at the corner of Thurston and Westbourne Street. The DWO was notified, notices were distributed, locates were requested, and Russell Redi-Mix was scheduled for repairs on October 1, 2025. Excavation on October 1st revealed a crack in the mainline; an 8-foot section was removed and replaced with blue pipe, secured with two clamps. One set of water samples was submitted, and the BWA was lifted on October 6, 2025.

No. of House Affected:

Length of Time: 7 days

5. Additional records required:

- In 2025, additional testing was required for lead, arsenic & manganese. See results on page 7.

- Fluoridation program

  As part of Manitoba Health's fluoridation program, hydrofluorosilicic acid (HFSA) is added at the final stage of the water treatment process (see pages 3–4) to support the community's dental health. Water samples are collected biweekly at the WTP and sent to ALS Environmental for analysis. The Municipality of Russell Binscarth public water system targets a fluoride concentration of 0.70 mg/L, consistent with Manitoba Health's recommended operating range of 0.50–0.90 mg/L. In 2025, fluoride levels remained consistently within this range and did not exceed the maximum recommended limit of 0.90 mg/L. The public water system is committed to delivering safe drinking water while supporting good oral health in the community.

- Lead in Manitoba Drinking Water

  Lead is not naturally present in Manitoba source water or in treated water entering the distribution system. It is typically introduced through the corrosion of lead-containing service lines, household plumbing, and fixtures. Health Canada recommends testing for lead at the tap, particularly in higher-risk locations such as homes with known or suspected lead service lines, residences with infants, pregnant individuals, or young children, and homes built between 1975 and 1990, while newer homes are considered lower risk. In 2019, Health Canada established a maximum acceptable concentration (MAC) for lead in drinking water of 0.005 mg/L (5 µg/L), based on samples collected at the tap using appropriate sampling protocols. To help reduce potential exposure, residents may use NSF/ANSI 53-certified pitchers or tap-mounted filters designed to remove lead, especially for drinking and food preparation. In 2025, the Municipality of Russell Binscarth collected forty-six (46) random residential & commercial samples and conducted re-sampling at two locations that initially exceeded the guideline; an overall compliance rate of 96% was achieved. Residents at locations that had non-compliance were notified and provided with precautionary guidance, and once follow-up samples met the standard, they were informed and given additional information on reducing potential lead exposure, including the use of NSF/ANSI 53-certified pitcher or tap-mounted filters designed for lead removal.

Lead Testing

DATE	DWELLING	SAMPLE TYPE	RESULTS MG/L	MAC MG/L
February 27, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
March 11, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
April 21, 2025	Non-Lead Service	30MS Random Day Time	<0.003 MG/L <0.001 MG/L	0.005 MG/L
May 12, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
May 28, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
July 14, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
July 14, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
July 30, 2025	Non-Lead Service	30MS Random Day Time	<0.002 MG/L <0.001 MG/L	0.005 MG/L
July 30, 2025	Lead Service	30MS Random Day Time	<0.027 MG/L <0.001 MG/L	0.005 MG/L
August 19, 2025 re-sample	Non-Lead Service	Random Day Time 30 MS 30MS	<0.001 MG/L <0.001 MG/L <0.001 MG/L	0.005 MG/L
August 12, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
August 12, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
August 27, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
August 27, 2025	Non-Lead Service	30MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
September 9, 2025	Lead Service	30MS Random Day Time	<0.235 MG/L <0.001 MG/L	0.005 MG/L
September 28, 2025 re-sample	Non-Lead Service	30MS 30 MS Random Day Time	<0.002 MG/L <0.001 MG/L <0.002 MG/L	0.005 MG/L
September 9, 2025	Non-Lead Service	30 MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
September 23, 2025	Non-Lead Service	30 MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
September 23, 2025	Non-Lead Service	30 MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
October 21, 2025	Non-Lead Service	30 MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
October 21, 2025	Non-Lead Service	30 MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L
October 21, 2025	Non-Lead Service	30 MS Random Day Time	<0.001 MG/L <0.001 MG/L	0.005 MG/L

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

In 2025, no Drinking Water Safety Orders were issued for the town of Russell Binscarth Public Water System.

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

In 2025, Five (5) Boil Water Advisory were issued for a part of the town of Russell Binscarth Public Water System impacted by water breaks:Incident 1: February 24, 2025
Incident 2: March 19th, 2025
Incident 3: June 27th, 2025
Incident 4: July 28th, 20205
Incident 5: September 29th, 2025

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 System.

9. Major Expenses Incurred:

In 2017, $9.1 million was spent on the construction of a Regional Water Treatment Plant and Pipeline which will take treated water to the communities of Binscarth, Gambler, Angusville and Rossburn.

In 2018, an additional $3.3 million was spent to finalize the construction of the Regional Water Treatment Plant and Pipeline.

In 2020, a 6-inch Water Main Replacement on Shell River Ave between Russell Street and Westbourne Street.

In 2020, a 4-inch water main replacement on Darcy Street between Ellice Avenue and Shell River Avenue.

In 2021, a portion of the 6-inch water main replacement on Main Street was replaced from the 16 Hwy to the Russell Tire Connection.

In 2022, membranes in the RO system have been switched out.

In 2024, we spent $50,000 on a system upgrade in Binscarth. $30,000 for a bleeder system to stop the pumps from shutting down. And $20,000 on new chlorine analyzers.

In 2025, approximately $25,000 was spent on well site to replace a cracked casing on Raco pump #2 and check valve, also including oxidations of both pump 1 & 2.

10. Future System Expansion and/or Increased Production:

- Discussions remain ongoing with neighboring Municipalities regarding future expansion of supply to these areas. The review and replacement of water mains is currently being conducted.

- Beginning in the fall of 2025, water consumption in Rossburn began to double due to increased usage from Waywayseecappo, and we anticipate this trend will continue through most of 2026.

- Discussions of twinning raw water line from old wellsite with a 12” line.