Town of Arborg
Public Water System Annual Report 2020

In compliance with Section 32(1) of the *Drinking Water Safety Regulation* (MR40/2007), the Town of Arborg presents the following report on the treatment and distribution of water to its residents.

1. **Description of the Water System**:

In 1995, a 450,000 Imperial Gallon Reservoir and Pumping Station were constructed, adjacent to the original Water Treatment Plant (opened in 1966), to satisfy the increased demand for the Town's domestic and fire flow water requirements.

The Town of Arborg Public Water System provides potable drinking water to the Town's population of 1,232 (2016 Census), and to a number of residents located in the adjacent rural Municipality. Treated water produced from the Water Treatment Plant meets all health objectives as stated in the *Guidelines for Canadian Drinking Water Quality*.

1.1. ***Water Supply Source***:

Located 4.5 km west of the Town of Arborg Water Treatment Plant, a groundwater well is the source of our water supply. Drilled in 1994 to a depth of approximately 95 meters, this well pumps raw water into a 250 mm pipeline. The pump is controlled by the reservoir level at the plant site. The design capacity of the well pump is 8.3L/s (132 us gpm) capable of supplying the Town's peak daily water consumption.

1.2. ***Water Treatment Process***:

Raw water piped from the above source is pre-chlorinated as it enters the treatment facility. It is fed through a Multi Media Filtration System installed in 2005 to assist in reducing the iron content of the source water. Once through the filtration, water is chlorinated again before being stored in two reservoirs until needed. The filtration system is cleaned twice a week using a backwash effect to clear accumulation. This filtration system has reduced the high iron content of our water supply. The plant maintains treated levels at between 0.25 and 1.0 mg/l.

1.3. ***Distribution System***:

The approximate length of the distribution system is 11,615 m. The watermains are comprised of approximately 32% Cast Iron, 67% PVC and 1% Asbestos Cement. In 2010, the length of the distribution system increased as did the use of PVC piping, reducing the amount of the Cast Iron in use. This was further reduced by the 2015 Watermain Renewal Project which was completed in 2016.

Treated water is pumped throughout the distribution system by one-5 hp pump with a pumping capacity of 70 gpm, and two-10 hp pumps with a pumping capacity of 140 gpm each. The standby pump is an electric pump with a 50hp motor rated at 2,000 USGPM (126L/s). (This electric pump replaces the diesel engine driver vertical turbine standby pump.)

There is one distribution line exiting the Treatment Plant, from there, the distribution system is looped to avoid mass water service interruption during regular maintenance of lines, or in the event of a watermain break.

The Water Treatment Plant is alarmed and monitored on a 24 hours basis by Chubb Security. As of 2020 alerts are sent directly to the Operator's mobile phone when significant anomalies in the supply or distribution processes are detected. Prior to this, the Operator was alerted only by call from Chubb Security.

1.4. ***Storage Reservoir(s***)

Treated Water (1) Capacity: 225,000 Imperial Gallons
Treated Water (2) Capacity: 225,000 Imperial Gallons
Water enters into and is distributed from the cells simultaneously.

1.5. ***Number of Connections, population served and types of water users***:

As of December 31, 2020, the Town of Arborg distributes water to 554 connections within its boundaries, with 4 additional Sewer only connections. Although there are some industrial and manufacturing customers within our boundaries, the majority of users are a mixture of residential and commercial customers. Noteworthy water consumers include: 2 - Seniors Lodges; 2 - Schools; 1 - Hospital; 1 - Daycare Facility; the Recreation Centre (5 facilities including an outdoor pool); 2 - Residential Care Facilities; and 2 - Restaurants. All water service connections are metered.

Arborg also distributes to 9 properties located in the Municipality of Bifrost-Riverton, including; 16-unit apartment building, Ag Service Supplier, Fire Hall, single family dwelling and a duplex.

1.6. ***Classification and Certification:***

- Class I Water Treatment Facility; and
- Class I Water Distribution Facility

Under *The Environment Act's Water and Wastewater Facility Operators Regulation* Certification Level of Operators:

- **Bruce B. Swanson**
  - Water Treatment Class II Operator
  - Water Distribution Class II Operator
  - Certificate No. 2012-257 Expires November 21, 2023

- **Wes Gislason**
  - Operator in Training

- **Brent A. Melsted**
  - Water Treatment Class I Operator
  - Water Distribution Class I Operator
  - Certificate No. 2014-032 Expires March 15, 2024

2. **Disinfection System in Use:**
The Town of Arborg uses Pre and Post Chlorination disinfection systems. Raw water is pre-chlorinated as it enters the treatment facility, washed through filters, and pre-chlorinated again prior to entering the reservoirs.

2.1. Type of Disinfection System Used:

The Town of Arborg disinfects by adding Calcium Hypochlorite solution to the water via an on-line chlorinator pump; Dosage Control: Flow-Paced.

2.2. *Equipment Redundancy and Monitoring Requirements:*

There are 2 pumps each for pre- and post-chlorination which alternate each time they are called for. There are backup chlorine pumps, for both pre- and post-chlorination, kept on hand in the plant, along with spare parts for both.

Residuals are monitored and recorded daily in the plant and bi-weekly in the distribution system.

Monthly chlorination report forms are sent to the regional Drinking Water Officer at the end of each month with copies kept locally on file.

2.3. *Disinfectant Residual Overall Performance/Results*

There was no 2020 Water System Overview conducted by the RDWO in 2020. However, the 2020 Annual Compliance Audit shows no non-compliant events or orders.

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 attached Schedules details the 2020 testing of samples taken from our water distribution system as well as the raw water prior to treatment.

The raw and treated water is tested on a bi-weekly basis for the presence of Total Coliform and E-coli bacteria. If these bacteria are present, it is an indication that disease causing organisms may be present. The date of testing and the corresponding results is included on Schedule “A”. The average biweekly results of Chlorine Free and Chlorine Residual are also included on Schedule “A”.

The treated water leaving the plant is tested continuously for a level of chlorine that is enough for proper disinfection in the distribution system. The minimum standard for the Arborg Water Treatment is 0.5 mg/l. Reports are sent monthly to the Office of Drinking Water as per requirements. A summary of this data is included on Schedule “B”.

Information on Water quality / Treatment Standards, from the 2019 Chemistry Analysis, is attached as Schedule “C”.

4. **Water System Incidents and Corrective Actions:**

   Event #1 – September 16th, 285 Main Street. Slow leak detected. No interruption in service. Repair was not completed until September 18th due to delay in receiving necessary part, and disruption of a natural gas line causing evacuation of the area for a number of hours.

   Event #2 – October 6th, 287 Ingolfs Street. Slow leak detected. No interruption of service. Repair completed same day.

   Event #3 – December 20th, 295 William Street. Watermain break. No interruption in service. Repair completed same day.

   No corrective action or emergency reporting was required.

5. **Additional Records Required:**
   N/A

6. **Drinking Water Safety Orders and Actions Taken in Response:**
   There were no Safety Orders issued for the Town of Arborg in the year 2020.

7. **Boil Water Advisories and Actions Taken in Response:**
   There were no Boil Water Advisories issued for the Town of Arborg in the year 2020.

8. **Warnings Issued or Charges Laid on the System win Accordance with The Drinking Water Safety Act:**
   No Warnings were issued for the Town of Arborg in the year 2020.

9. **Major Expenses Incurred:**

10. **Other 2020 Notables:**

    - In May of 2020, with the retirement of Operator Marcel Sutyla, the Town of Arborg hired Wes Gislason. Mr. Gislason completed Water Treatment 1 and 2, and Wastewater Collection 1 in the fall of 2020. He is registered for Water Distribution 1 and Wastewater Treatment 1 early in 2021.

11. **Future System Upgrades and/or Increased Production**:

    - Continued upgrade of watermains from cast iron to PVC as funds permit.
      - Order of replacement has been determined and documented.

    - The Manitoba Water Services Board Water & Sewer Utilities Study is in progress but now yet completed.

2020 Public Water System
Town of Arborg

Date	Raw		Treated		Treated	
	Coliform	E.coli	Chlorine Free	Chlorine Total	Coliform	E.Coli
06-Jan-20	0	0	0.910	1.080	0	0
22-Jan-20	0	0	0.920	1.120	0	0
03-Feb-20	0	0	0.940	1.120	0	0
18-Feb-20	0	0	0.960	1.110	0	0
20-Feb-20	0	0	1.080	1.260	0	0
03-Mar-20	0	0	1.020	1.190	0	0
16-Mar-20	0	0	0.970	1.180	0	0
30-Mar-20	0	0	0.930	1.160	0	0
14-Apr-20	0	0	0.990	1.190	0	0
28-Apr-20	0	0	0.940	1.130	0	0
12-May-20	0	0	1.010	1.210	0	0
25-May-20	0	0	0.970	1.170	0	0
09-Jun-20	0	0	0.940	1.100	0	0
23-Jun-20	0	0	0.960	1.160	0	0
20-Jul-07	0	0	0.930	1.140	0	0
21-Jul-20	0	0	1.040	1.220	0	0
04-Aug-20	0	0	0.960	1.120	0	0
18-Aug-20	0	0	0.980	1.150	0	0
01-Sep-20	0	0	1.010	1.160	0	0
14-Sep-20	0	0	0.880	1.060	0	0
28-Sep-20	0	0	1.090	1.270	0	0
13-Oct-20	0	0	1.000	1.170	0	0
26-Oct-20	0	0	0.940	1.100	0	0
09-Nov-20	0	0	0.850	1.030	0	0
23-Nov-20	0	0	0.790	0.970	0	0
07-Dec-20	0	0	0.800	0.970	0	0
21-Dec-20	-	-	0.910	1.120	-	-
30-Dec-20	0	0	0.940	1.130	0	0

* Feb 18 water results for 598 River Road came back with a coliform reading of 1, retested
* Feb 20 retest from Feb 18 came back with a normal reading
* Dec 21 Samples did not arrive at Lab until December 29th
* Dec 30 Samples were retest of December 21st

2020 Free Chlorine – Standard 0.5 mg/l	January	February	March	April	May	June	July	August	September	October	November	December
Total Number of Measurements	31	29	31	30	31	30	31	31	30	31	30	31
Number Meeting Standard	31	29	31	30	31	30	31	31	30	31	30	31
Compliance %	100	100	100	100	100	100	100	100	100	100	100	100

Town of Arborg
Water Quality Standards

Parameter	Quality Standard	Arborg Raw	Arborg Treated
Arsenic	≤ 0.01 mg/L	0.001 mg/L	0.00017 mg/L
Benzene	≤ 0.005 mg/L	<0.0005 mg/L	
Ethylbenzene	≤ 0.14 mg/L	<0.0005 mg/L	
Fluoride	≤ 1.5 mg/L	0.511 mg/L	0.502 mg/L
Lead	≤ 0.01 mg/L in the water distribution system	<0.0005 mg/L	0.000309 mg/L
Nitrate	≤ 45 mg/L ,measured as nitrate (10 mg/L measured as nitrogen)	<0.005 mg/L	0.0069 mg/L
Nitrite	≤ 3 mg/L ,measured as nitrate (1 mg/L measured as nitrogen)	<0.001 mg/L	<0.001 mg/L
Trichloroethylene	≤ 0.005 mg/L	<0.0005 mg/L	
Tetrachloroethylene	≤ 0.01 mg/L	<0.0005 mg/L	
Toluene	≤ 0.06 mg/L	<0.0005 mg/L	
Total Xylenes	≤ 0.09 mg/L	<0.00064 mg/L	
Uranium	≤ 0.02 mg/L	0.000061 mg/L	0.000055 mg/L