

Town of Arborg
Public Water System Annual Report 2018

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) which, to date, continues to exceed the Town's peak daily water consumption. This source is alarmed and monitored by Chubb Security for any significant change in operation warranting immediate attention.

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 once a week using a backwash effect to clear accumulation. This filtration system has reduced the high iron content of our water supply to below the acceptable level of 5.4 mg/l. The plant maintains levels at between 1.0 and 2.0 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.)

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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. Operators are notified immediately if there are any changes in the operation of the equipment providing a constant flow of water to the distribution system.

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:

The Town of Arborg distributes water to 548 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 3 - 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 and duplex.

1.6. Classification and Certification:

- Class I Water Treatment Facility; and
- Class I Water Distribution Facility
- Certification Level of Operators:
 - o **Bruce B. Swanson**
 - Water Treatment Class II Operator
 - Water Distribution Class II Operator
 - Certificate No. 2012-257 Expired November 21, 2023

 - o **Marcel N. Sutyla**
 - Water Treatment Class I Operator
 - Water Distribution Class II Operator
 - Certificate No. 2014-033 Expires March 21, 2019
(Renewal application has been submitted)

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

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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

As notified in 2014 by the ODW, the Town of Arborg Public Water System no longer receives Annual Compliance reports. The 2015 Engineering Assessment Report was received in April, 2016. Although there were some recommendations, no issues were identified as being of urgent in nature.

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 following tables recap the 2016 testing of samples taken from our water distribution system as well as the raw water prior to treatment.

The treated water leaving the plant is tested continuously for a level of chlorine that is enough for proper disinfection in the distribution system.

A file reporting the average biweekly results of Chlorine Free and Chlorine Residual is attached to this document as Schedule "A". Reports are sent monthly to the Office of Drinking Water as per requirements.

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.

A report detailing the date of testing and the corresponding results is attached to this document as Schedule "A".

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4. Water System Incidents and Corrective Actions:

Event #1 – March 15th, 229 Benson Street. Break occurred at 4 PM. Isolated to 17 residences. Cable locates contacted. Potable & non-potable water supplies where required. Difficult repair took most of March 16th to complete.

Event #2 – June 21st, Lot 14 Mobile Home Park. Break occurred at 3:30 PM. Repair completed by 6:30 PM. Within 20 minutes of restoration of water service, a 2nd break occurred approx.. 10' away. All repair work completed by 8 PM. Approximately 23 residences affected.

Event #3 – July 5th, 383 Birch Street. Break occurred early morning. Repaired same day. Approximately 14 residences affected.

Event #4 – September 25th, 369 St. Philips Drive. Break occurred early morning with decreased Plant pressure sounding the alarm. PW attended at 6 AM and isolated the break within 30 minutes. Plant pressured restored in time for peak usage hours. Break repaired by 1 PM.

Event #5 – October 22, 369 St. Philips Drive. Break occurred in similar area as Event #4 while Stand-by Pump testing at the Plant was in process. Cable locates were requested, and repair completed by 1:30 PM. 1 residence was affected. PW was unaware this residence was also affected during Event #4. Note was made to move the residence connection when this line is replaced.

Event #6 – November 23, 316 William Street. Break occurred in the morning. PW was able to keep low flow service until repair worked started at 11:20 AM. 13 residences affected.

Event #7 – November 23, 323 First Avenue. While repairing Event #6, PW accidentally did slight damage to this service line (which is connected to the Main in Event #6) to a 5 unit Apartment complex. Service was interrupted for approximately 3 hours, however, no calls were received from affected residents.

Event #8 – December 27th, 624 Woodfield Avenue. Break first reported by message to office at 4:42 PM. PW alerted due to low pressure at Plant. Service could not be maintained to 14 residences in the affected area. Cable locates completed by 9:30 AM on December 28th. PW commenced work immediately and completed the repair by 12:30 PM with total restoration of service. 2 calls were received at office during the repair.

The ODW Compliance Report noted a July 18th high bacterial report for one of the random residential test sites. Retesting took place immediately with results falling into the correct parameters.

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 2018.

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7. Boil Water Advisories and Actions Taken in Response:

There were no Boil Water Advisories issued for the Town of Arborg in the year 2018.

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

No Warnings were issued for the Town of Arborg in the year 2018.

9. Major Expenses Incurred:

Water Treatment Plant Upgrades:

- Replace diesel standby pump with an electrical pump;
- Removal of diesel tank located above the water reservoir;
- Replace the 5hp domestic pump;
- Replace pipes, fittings, valves meters and associated equipment between the 3 distribution pumps and the distribution / fire pump header in the plant, as they are rusting, leaking and/or seizing;
- 2nd Mag Meter installation which is located on the raw water inlet line.

Total Cost of these upgrades was \$403,833 (net GST). \$400,000 was cost shared by Municipal, Provincial and Federal levels of Government (1/3, 1/3, 1/3); Costs over \$400,000 were paid by the Town of Arborg.

10. Other 2018 Notables:

11. Future System Upgrades and/or Increased Production:

- WTP Filtration System PLC Hardware Replacement (2019)
- WTP Control System – HMI Remote Access (2019)

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

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Schedule "A"

<u>Date</u>	<u>Raw</u>		<u>Treated</u>		<u>Treated</u>		
	<u>Coliform</u>	<u>E.coli</u>	<u>Chlorine Free</u>	<u>Chlorine Total</u>	<u>Coliform</u>	<u>E.Coli</u>	
3-Jan-18	0	0	0.970	1.200	0	0	
15-Jan-18	0	0	0.930	1.100	0	0	
30-Jan-18	0	0	0.940	1.090	0	0	
12-Feb-18	0	0	0.880	1.000	0	0	
26-Feb-18	0	0	0.860	0.980	0	0	
12-Mar-18	0	0	0.890	1.010	0	0	
26-Mar-18	0	0	0.900	1.070	0	0	
9-Apr-18	0	0	0.960	1.130	0	0	
23-Apr-18	0	0	0.900	1.040	0	0	
7-May-18	0	0	0.820	0.970	0	0	
22-May-18	0	0	0.850	0.970	0	0	
4-Jun-18	0	0	1.040	1.180	0	0	
18-Jun-18	0	0	1.040	1.210	0	0	
3-Jul-18	0	0	1.080	1.230	0	0	
16-Jul-18	0	0	1.030	1.220	0	0	
30-Jul-18	0	0	1.120	1.280	0	0	
13-Aug-18	0	0	0.930	1.040	0	0	
27-Aug-18	0	0	1.040	1.190	0	0	
10-Sep-18	0	0	1.070	1.230	0	0	
24-Sep-18	0	0	1.110	1.280	0	0	
9-Oct-18	0	0	1.050	1.240	0	0	
23-Oct-18	0	0	1.200	1.380	0	0	
5-Nov-18	0	0	1.100	1.250	0	0	
19-Nov-18	0	0	0.790	0.930	0	0	
6-Dec-18	0	0	0.680	0.840	0	0	
17-Dec-18	0	0	0.920	1.080	1	0	
18-Dec-18	-	-	*	0.910	1.080	0	0

* Retest Treated