Town of Arborg
Public Water System Annual Report 2015

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 1,152 (2011 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.

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. A diesel engine driver vertical turbine pump, which starts up automatically and has a pumping capacity of 2,000 us gpm, is the backup power provision.

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 533 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 6 properties located in the Rural Municipality of Bifrost, including a 16 unit apartment building and 1 duplex.

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

- Class I Water Treatment Facility; and
- Class I Water Distribution Facility
- Certification Level of Operators:
  - **Bruce B. Swanson**
    - Water Treatment Class II Operator
    - Water Distribution Class II Operator
    - Certificate No. 2012-257 Expires November 28, 2017
  - **Marcel N. Sutyla**
    - Water Treatment Class I Operator
    - Water Distribution Class II Operator
    - Certificate No. 2014-033 Expires March 21, 2019
  - **Brent A. Melsted**
    - Water Treatment Class I Operator
    - Water Distribution Class I Operator
    - Certificate No. 2014-032 Expires March 21, 2019

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:*
A back up chlorine pump, for both pre and post chlorination, is 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*
The Town of Arborg Public Water System 2015 Annual Audit has, as yet, not been received. The 2014 indicated our Engineering Assessment Report is due September 2015. A request to extend the deadline was approved by Manitoba Conservation. A draft copy of the report has been received by the Town of Arborg and is currently under review.

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 2014 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.

Disinfection Monitoring & Reporting	Requirement	Compliance
Free Chlorine residual entering the distribution system	$\geq$ 0.5 mg/l	100%
Free chlorine residual in the distribution system	$\geq$ 0.1 mg/l	100%
Frequency of Testing	Bi-weekly	100%
Report Submissions	Monthly	100%

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.

	Requirement	Compliance
Number of Raw/Incoming Water samples	Bi-weekly	100%
Number of treated water samples	Bi-weekly	100%
Number of distribution water samples	Bi-weekly	100%
Frequency of Testing	Bi-weekly	100%
Total Coliform present in water samples	<1 TC per 100ml	100%
E-Coli present in treated water samples	0 EC per 100ml	100%

The Office of Drinking Water submitted water samples for chemical analysis on April 22, 2013. The concentration of total dissolved solids exceeded the aesthetic objective, and iron content in treated water was slightly higher than the guide limit, however, neither were noted as being of concern to the ODW. This report is available in detail at the Town of Arborg Municipal Office. The PWS has been notified of changes to the chemistry sampling program directly affect our system. Next chemical analysis is scheduled for 2016.

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

Event #1 – February 21, 2015, 373 Main Street
Break occurred in early morning. Work was not completed and service was restored to 8 residences and 3 businesses until 9 PM. Potable and non-potable water was provided where necessary.

Event #2 – March 18, 2015, 358 St Philips Drive
Break was located in the driveway of residence. Frost delayed digging however, once the break was exposed, the repair was made rapidly. Water service was restored at approx. 6 PM. Residents had been contacted to advise water would be supplied if it appeared the break could not be repaired same day.

Event #3 – August 30, 2015, 323 St Philips Drive
Break occurred on Sunday morning. PW attempted to retain service to all residents however they were unsuccessful. Able to isolate the impact to 7 residences. Potable and non-potable water was provided to all residences who expressed a need.

Information submitted to the Office of Drinking Water indicates 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 2015.

7. **Boil Water Advisories and Actions Taken in Response:**
   There were no Boil Water Advisories issued for the Town of Arborg in the year 2015.

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 2015.

9. **Major Expenses Incurred:**

Watermain Renewal Project	$1,729,671
Water Meter Renewal Project	$ 250,000
Water Treatment Plant Upgrade	$ 105,105

10. **Other 2015 Notables:**
    The Town of Arborg will complete the upgrade from manual read water meters to RMRS by March 31st, 2016. As well, the 2015 Watermain Renewal Project replaced 3 mains located on St Philips Drive, River Road and the main servicing Main & Ardal Streets North. These mains were responsible for the majority of the 24 Water Interruption Incidents reported in 2014.

11. **Future System Upgrades and/or Increased Production**:
    Distribution Flow Magmeter Replacement
    Pressure Reducing Valves etc.
    Heater Exchange Unit replacement