

Town of Arborg
Public Water System Annual Report 2014

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 34% Cast Iron, 65% PVC and 1% Asbestos Cement. Following the 2010 Watermain Extension & Renewal Project, the length of the distribution system increased as did the use of PVC piping, reducing the amount of the Cast Iron in use.

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.

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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 530 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:
 - o **Bruce B. Swanson**
 - Water Treatment Class II Operator
 - Water Distribution Class II Operator
 - Certificate No. 2012-257 Expires November 28, 2017
 - o **Marcel N. Sutyla**
 - Water Treatment Class I Operator
 - Water Distribution Class II Operator
 - Certificate No. 2014-033 Expires March 21, 2019
 - o **Brent A. Melsted**
 - Water Treatment Class I Operator
 - Water Distribution Class I Operator
 - Certificate No. 2014-032 Expires March 21, 2019

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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:

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 2014 Annual Audit indicates we had fulfilled obligations in 2014.

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	≥ 0.5 mg/l	100%
Free chlorine residual in the distribution system	≥ 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.

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	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. Scheduled chemical analysis collection is being scaled back for PWS serving in excess of 1,000 people beginning in 2013; replaced with targeted parameter specific study program. 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 10, 2014, 275 St Philips Drive

Break occurred at approx. 7:30 AM. By 8:30 AM area had been isolated and pressure at the plant was normal. MTS and Manitoba Hydro were contacted and work began as soon as other utility services were marked. Service was restored to 21 residences and 2 businesses by 3:30 PM the same day.

Event #2 – March 4, 2014, Crosstown Avenue; from Nordal Bay to Benson Street

Low pressure was noticed at approximately 1 PM; area located at 1:25 PM. Public Works attempted to leave some pressure for affected residences however it affected the entire system. Locates done morning of March 5th, could not locate break until morning of March 6th. Service restored at 10:30 AM. Non-potable water was provided to all 4 residences during the interruption in service.

Event #3 – March 28, 2014, 367 Birch St

Break occurred on Friday evening. Potable & non-potable was offered & supplied to any of the 14 affected residences that requested. Repair was completed by 4 PM on March 29th.

Event #4 – March 29, 2014, 348 Ardal St

Due to above break, this repair was not started until March 30th. Potable & non-potable water was offered and supplied where requested. Leak detecting equipment & operator was hired to locate break but was unsuccessful. Repair was eventually located by Public Works department and work completed 7 PM on March 30th. 9 residences and 4 businesses were affected.

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Water System Incidents and Corrective Actions – cont'd

Event #5 – May 5, 2014, Backlane East of 331 1st Ave.

Public Works reported the slow leak at approximately 8:30 AM. There was no interruption of service to nearby residences and businesses. Work was completed same day.

Event #6 – May 7, 2014 St Philips Dr

Break occurred early in the morning, area was isolated by 8 AM; low pressure was available to all 21 residences and 2 businesses in the area. Work was completed in under 1 hour.

Event #7 – May 29th, 2014 1st Ave at Main St

Line is a dedicated Hydrant line, no residences or businesses were affected. Frost in the ground made excavation difficult. Repair was completed on June 3th. Fire Department was notified of the non-working hydrant for the period it was not available for use.

Event #8 – July 24, 2014, Bunnie Pl

Due to installation of new Fire Hydrant by Evergreen School Division on Mill Street, residents were temporarily without water while Public Works repaired valve in order to isolate the service interruption for Event #9.

Event #9 – July 24, 2014, Mill Ave from David St to St Peter St

Due to installation of new Fire Hydrant by Evergreen School Division, residents were notified of the service interruption by contractor on site. 3 residences were affected for the entire day.

Event #10 – August 21, 2014, St Philips Dr east of Gislason Dr

1 residence, 1 duplex and a 16 unit apartment building were affected. Break occurred early in the morning and was repaired shortly after mid-day. Potable and non-potable water was offered & supplied to anyone who requested.

Event #11 – September 24, 2014, St Philips Dr at Gislason Dr

Break occurred around midnight. Same residents affected by Event #10 were again inconvenienced. Water service restored by 11 AM, same day.

Event #12 – September 26, 2014, 596 Greenwood Ave

Seemed to be isolated to this one residence, no pressure loss at plant. No other residences affected. Curb stop was shut off, and water allowed to drain from ditch. No further work was required by Public Works department as it was later determined to be a problem pertaining solely to plumbing in the residence.

Event #13 – October 4, 2014, 590 Greenwood Ave

14 residences were affected. Service was restored same day.

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Water System Incidents and Corrective Actions – cont'd

Event #14 – October 5, 2014, William St at Mobile Home Park Rd
Approximately 15 residences were affected, however, low pressure service was maintained until the break was repaired same day.

Event #15 – October 11, 2014, 477 River Rd
Break occurred overnight. Low pressure service was maintained to 8 residences and 3 businesses until repair work was completed at 3:30 PM.

Event #16 – October 16 & 17, 2014, Water Treatment Plant
On the morning of the 17th, plant operator discovered a small amount of antifreeze on the floor of the plant. Contact with the Drinking Water Officer Derek Clarke was made, and maintained throughout the incident. It was determined the reservoirs were not affected and there was no risk of contamination to the PWS. No warnings were issued. Plant operators cleaned the spill and surrounding area to the satisfaction of all parties.

Event #17 & #18 – October 21 & 23, 2014, 455 River Rd
3 residences and 2 businesses were affected during all breaks. Watermain is scheduled for replacement in 2015. Although main was repaired, the line continued to breach in nearby spots shortly thereafter. Potable and non-potable water was provided to all residences and offered to the businesses who both declined. See also Event # 19.

Event #19 – October 24, 2014, 455 River Rd
After repairing on the 23rd, pipe again broke approximately 1 hour after service was restored. Decision was made to cut and plug pipe at that corner to eliminate bend and weak point. Service was restored by 2 PM to all affected. This line is scheduled for replacement in 2015 (see Watermain Renewal Project information in Section 11).

Event #20 – October 27, 2014, 441 River Rd
Fire Hydrant connection was discovered to be leaking. Repair work necessitated interruption in service to same as Events 17, 18,& 19 as it was located just west of these event locations.

Event #21 – November 18, 2014, 355 River Rd
Break occurred west of Event 17 through 19. Repair was completed before 4 PM same day.

Event #22 – December 30, 2014, 281 Benson St
Approx. 25 residences affected by the break. Public Works was unable to provide low pressure service to the area. Service was restored at approximately 1 PM the same day.

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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 2014.

7. Boil Water Advisories and Actions Taken in Response:

There were no Boil Water Advisories issued for the Town of Arborg in the year 2014.

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 2014.

9. Major Expenses Incurred:

New Chlorine Pump WTP (x2)	\$ 2,100
Well to Plant Communication System	\$ 6,610
WTP Upgrade Completed to Date	\$ 85,338

10. Other 2014 Notables:

Replacement of existing manual read water meters to remote R900 read meters commenced this year. All new installations are required to purchase the new meters. As of December 31st, 2014, 91 R900 meters are in use. Total replacement will be phased over the upcoming 5 years.

11. Future System Upgrades and/or Increased Production:

The following work, started in 2014, will be completed in 2015 at the Water Treatment Plant:

- Electrical Services Upgrade
- New Standby Generator
- Portable Dehumidifiers
- Building Ventilation Upgrade
- Chlorinator Upgrade

As well, the following areas will be part of the 2015 Watermain Replacement Project (originally scheduled for completion in 2014, the project was delayed due to funding approval)

- St. Philips Drive (fr River Rd crossing to Gislason Dr) – upgrade to 250mm
- River Road (Ingolfs St to St. Peter St; St. Peter St to David St; David St to Benson St; Benson St to Arborg Ave; Arborg Ave to Fire Hall)
- First Avenue (Fr lane West of Main St to Lane West of Ardal St, North side of First Ave; fr lane West of Main St to Hydrant near Main St, South side of First Ave)
- Gislason Dr
- Lane West of Main Street (fr Second Ave to Third Ave)