

The Local Government District of Pinawa

Public Water System Annual Report

2015

Public Water System Annual Report

-2015-

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Name of the Legal Owner: **The Local Government District of Pinawa**

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L.G.D. of Pinawa

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Introduction:

The 2015 Public Water System Annual Report summarizes the ability of the Local Government District of Pinawa to produce and provide safe potable water to our constituents which meets all provincial regulations.

1. Description of the Water System:

The Local Government District of Pinawa Public Water System provides potable drinking water to a population of approximately 1500 residents. Treated water from the water treatment plant meets all health and aesthetic objectives as stated in the *Guidelines for Canadian Drinking Water Quality* as well as all provincial regulations.

1.1 Water Supply Source

The Local Government District of Pinawa Water Treatment Plant draws its supply water from the Winnipeg River. The Winnipeg River has an abundant supply of high quality water which is easily treated to meet all standards.

The Water Treatment Plant intake is approximately 20 feet below the surface of the river. The water is then pumped into the Water Treatment Plant situated on the banks of the Winnipeg River just south of the junction of Willis Dr. and Massey Ave.

1.2 Water Treatment Processes

The high quality of water which comes out of the Winnipeg River requires a minimal amount of treatment to meet all provincial requirements. Upon entering the water treatment plant and entering our Actiflo treatment system the raw water is injected with a product called Magnafloc LT22S, which is a flocculating agent, an Aluminum Sulphate Solution, which is a further flocculating agent, and Actisand, which is fine silica sand. These processes are geared mainly towards treating the turbidity and colour of the raw water. The raw water comes out of the Winnipeg River with an average turbidity between 13-20 nephelometric turbidity units (NTU). The Actiflo processes drop this figure to on average between 0.5-1.0 NTU. The water which has been treated through the Actiflo then proceeds to our two activated charcoal filters. After going through the filters the treated water is at approximately 0.025-0.035 NTU. This number is approximately 10% of our regulated limit. The legal requirement for our treated water is 0.3 NTU after these filters. The water is then stored in a 900,000 litre clearwell.

A result of the Atiflo/ Chemical processes is that the water pH drops to approximately 6.3-6.5. This water is then treated with Sodium Hydroxide 50% solution to raise the pH from 6.3-6.5 to a level of 7.0-7.2. This means that the treated water is very close to neutral which aids in controlling corrosion and deposits. The clearwell water is further treated with gas chlorine as a disinfecting agent. Our distribution water must leave the water treatment plant with a minimum of 0.5mg per litre of free chlorine residual. The water is also treated with Clearhib4 which is a sequestering agent which aids in controlling corrosion of our distribution system as well as residential hot water tanks etc.

1.3 Water Treatment and Distribution Capacities

The Pinawa Water Treatment Plant operates at an incoming rate of 30 litres per second and runs for approximately 5 hours per day using two 15hp raw water jockey pumps. We treat approximately 650000 litres daily on average. Our plant has a maximum treatment capacity of 70 litres per second.

Treated water is sent into the distribution system via a 25hp primary duty pump and two secondary 60hp distribution pumps. Distribution system pressure is maintained at between 50-53psi using frequency drive pumps and a pressure relief system.

1.4 Distribution System

Pinawa's water distribution system is approximately 20 kilometres long and is comprised of approximately 85% cast and 15% polyvinyl chloride (PVC). Distribution piping varies in size from 14" to 6".

1.5 Number of Connections, and water user types

Pinawa has approximately 660 residential connections and approximately 20 commercial connections as well as one seasonal residential complex connection. Also in 2009 The Ironwood Housing complex attached to the water system and supplies a seniors independent and supported living complex which will house approx 75 people. As well another connection was made to a housing complex at Trillium Ridge which serve 6 lots. We also supply water to Pioneer Bay Campground seasonally (May-October) with approximately 200 tenants. In 2015 a line was installed to supply Tim Hortons Childrens Camp with water and sewer.

1.6 System Classification and Certification

A Class 2 Water Treatment Facility

A Class 1 Water Distribution System

2. Disinfection System in Use.

The Local Government District of Pinawa uses liquefied gas chlorine as our disinfection method. Disinfection is the selective destruction or inactivation of potential disease causing organisms in water. As per the *Drinking Water Safety Act* the L.G.D. of Pinawa Public Water System must ensure that we maintain a free 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 L.G.D. of Pinawa Water Treatment Plant disinfects using liquefied gas chlorine in a 95-100% concentration. Chlorine is added to the system using 2 US Filters demand chlorinators.

2.2 Need for Redundancy and Monitoring

The “Drinking Water and Safety Act” requires that disinfection is continuously maintained. To ensure this we use two separate chlorine bottle systems allowing for redundancy in the system itself where one side can be turned off and the disinfecting needs will be met by the remaining side. As well spare chlorinators are kept in stock as

well as a supply of spare chlorine bottles and some spare parts which are more prone to fail or need replacing.

Disinfectant total and free residuals are checked and recorded daily at the water treatment plant and bi-weekly at points throughout the distribution system. Results are recorded on the appropriate monitoring forms and are sent to the regional Drinking Water Officer at the end of each month.

2.3 Disinfectant Residual Overall Performance and Results

For the year 2015 The L.G.D. of Pinawa Public Water System has met 99.72% of the regulatory requirements for treated water and 100% for distributed water.

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 concentrations for drinking water. Concentration values in excess of the standards constitute a possible health-related issue and require corrective actions. The 2015 results for the Pinawa Public Water System are summarized in the following tables:

3.1 Disinfection Monitoring and Reporting

	Regulatory Requirement	Pinawa Water System Performance
Free Chlorine Residual entering the Distribution System	≥ 0.5 mg/L	Did not meet requirement May/16 – boil water advisory
Frequency of Testing	Daily	Fully meets requirements
Free Chlorine Residual in the Distribution System	≥ 0.1 mg/L	Fully meets requirements
Frequency of Testing	Bi-Weekly	Fully meets requirements
Report Submissions	Monthly	Fully meets requirements

3.2 Bacteriological Monitoring and Reporting

	Regulatory Requirement	Pinawa Water System Performance
Number of Raw/Incoming Water Samples	26	Fully meets requirements
Number of Treated Water Samples	26	Fully meets requirements
Number of Distribution Water Samples	26	Fully meets requirements
Frequency of Testing	Bi-weekly	Fully meets requirements
Total Coliform (TC) Present in Water Samples	0 TC per 100mL	Fully meets requirements
E. Coli (EC) Present in Water Samples	0 EC per 100mL	Fully meets requirements

3.3 Turbidity Monitoring and Reporting

	Regulatory Requirement	Pinawa Water System Performance
Chemically assisted, rapid gravity filtration process	≤0.3NTU in at Least 95% Of samples	Did not meet requirement May/16 – boil water advisory
Standard	Never to exceed 1.0 NTU	Did not meet requirement May/16 – boil water advisory
Frequency of Testing	Continuous	Fully meets requirements
Report Submissions	Monthly	Fully meets requirements

3.4 Disinfection By-products Monitoring and Reporting

	Regulatory Requirement	Pinawa Water System Performance
Trihalomethane sampling requirements	Quarterly	Fully meets requirements
Total Trihalomethane Standard	0.1mg/L	Did not meet requirement twice Aug/15 -- 0.137 Dec/15 – 0.109
Haoacetic Acid sampling requirements	Quarterly	Fully meets requirements
Haloacetic Acid Standard	0.08mg/L	Fully meets requirements

- Pinawa was required to provide THM samples in 2015

4. Water System Alterations, Incidents and Corrective Actions

4.1 Water Breaks

Date	Location	Type of Incident
June 24, 2015	5 Connaught	Water Line Break
June 26, 2015	4 McGregor	Water Line Break
November 30, 2015	13 Stanley	Water Line Break
December 7, 2015	Burrows-Stanley	Valve Repair

All waterline repairs were done while the waterline was still under minimal positive pressure to ensure no in line contamination. After repairs were completed waterlines were flushed and checked to make sure that a satisfactory disinfectant residual was maintained prior to being put back into service. All repairs were done in such a way as to minimize down time for users and as much advance notice given as possible.

4.2 Water Hook-Ups

During 2015 Tim Horton's Camp hooked up to our water system.

5. Drinking Water Safety Orders on Water System and Corrective Actions Taken

During 2015, there were no Drinking Water Safety Orders issued for the Pinawa Public Water System.

6. Boil Water Advisories Issued on Water System and Corrective Actions Taken

During 2015 we had one boil water advisory issued for low chlorine levels and high turbidity levels. Corrective action taken

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

During 2015 the Treatment plant was issued a warning for failure to provide the annual report. The report was then finished and submitted to the director.

8. Major Expenses Incurred in 2015

There were no major expenses incurred in 2015

9. Anticipated Future Major Cost Items, System Expansion and/or Increased Production

- Replace old cast water mains with PVC water pipe.
- Top-up Anthracite in Filter Beds.

Collection Date	Sample Identification	TC	EC
30-Dec-14	PINAWA 2 - TREATED - WTP	0	0
30-Dec-14	PINAWA 3 - DISTRIBUTION - WB LEWIS	0	0
14-Jan-15	PINAWA 1 - RAW	4	0
14-Jan-15	PINAWA 2 - TREATED	0	0
14-Jan-15	PINAWA 3 - DISTRIBUTION @ CLUB	0	0
14-Jan-15	PINAWA 3 - DISTRIBUTION @ LEWIS	0	0
28-Jan-15	PINAWA 1 - RAW	2	0
28-Jan-15	PINAWA 2 - TREATED	0	0
28-Jan-15	PINAWA 3 - DISTRIBUTION - LEWIS	0	0
28-Jan-15	PINAWA 4 - DISTRIBUTION : CLUB	0	0
11-Feb-15	PINAWA 2 - TREATED	0	0
11-Feb-15	PINAWA 3 - DISTRIBUTION @ PINAWA CLUB	0	0
12-Feb-15	PINAWA 1 - TREATED	0	0
12-Feb-15	PINAWA 2 - DIST CLUB	0	0
12-Feb-15	PINAWA 3 - DIST LEWIS	0	0
25-Feb-15	PINAWA 1 - RAW	4	0
25-Feb-15	PINAWA 2 - TREATED - WTP	0	0
25-Feb-15	PINAWA 3 - DISTRIBUTION - W.B. LEWIS	0	0
11-Mar-15	PINAWA 2 - TREATED WTP	0	0
11-Mar-15	PINAWA 1 - RAW	3	0
11-Mar-15	PINAWA 3 - DISTRIBUTION @ W.B. LEWIS DIST.	0	0
25-Mar-15	PINAWA 1 - RAW	8	0
25-Mar-15	PINAWA 3 - DISTRIBUTION	0	0
25-Mar-15	PINAWA 2 - TREATED	0	0
08-Apr-15	PINAWA 1 - RAW WPG RIVER	1	0
08-Apr-15	PINAWA 3 - DISTRIBUTION @ W.B. LEWIS	0	0
08-Apr-15	PINAWA 2 - TREATED WTP	0	0
22-Apr-15	PINAWA 3 - DISTRIBUTION - W.B. LEIS	0	0
22-Apr-15	PINAWA 1 - RAW	10	3
22-Apr-15	PINAWA 2 - TREATED - WTP	0	0
06-May-15	PINAWA 1 - RAW	9	1
06-May-15	PINAWA 2 - TREATED	0	0
06-May-15	PINAWA 3 - DISTRIBUTION	0	0
20-May-15	PINAWA 1 - RAW	4	0
20-May-15	PINAWA 2 - TREATED - WTP	0	0
20-May-15	PINAWA 3 - DISTRIBUTION @ PINAWA CLUB	0	0
25-May-15	PINAWA 1 - RAW	27	0
25-May-15	PINAWA 2 - TREATED	0	0
25-May-15	PINAWA 3 - DISTRIBUTION - CLUB	0	0
25-May-15	PINAWA 4 - DISTRIBUTION - LEWIS CENTER	0	0
26-May-15	PINAWA 1 - RAW	10	1
26-May-15	PINAWA 2 - TREATED	0	0
26-May-15	PINAWA 3 - DISTRIBUTION - CLUB	0	0
26-May-15	PINAWA 4 - DISTRIBUTION - LEWIS	0	0
03-Jun-15	PINAWA 1 - RAW	12	0

03-Jun-15	PINAWA 2 - TREATED	0	0
03-Jun-15	PINAWA 3 - DISTRIBUTION - WB LEWIS	0	0
17-Jun-15	PINAWA 1 - RAW - WTP RIVER	18	0
17-Jun-15	PINAWA 2 - TREATED - WTP	0	0
17-Jun-15	PINAWA 3 - DISTRIBUTION - WB LEWIS	0	0
02-Jul-15	PINAWA 1 - RAW	53	0
02-Jul-15	PINAWA 2 - TREATED	0	0
02-Jul-15	PINAWA 3 - DISTRIBUTION @ LEWIS	0	0
15-Jul-15	PINAWA 1 - RAW - WPG RIVER	89	0
15-Jul-15	PINAWA 3 - DISTRIBUTION @ 37 DEVONSHIRE	0	0
15-Jul-15	PINAWA 2 - TREATED - WTP	0	0
29-Jul-15	PINAWA 1 - RAW	62	0
29-Jul-15	PINAWA 2 - TREATED	0	0
29-Jul-15	PINAWA 3 - DISTRIBUTION - WB LEWIS	0	0
10-Aug-15	PINAWA 1 - RAW	43	2
10-Aug-15	PINAWA 2 - TREATED	0	0
10-Aug-15	PINAWA 3 - DISTRIBUTION @ LEWIS	0	0
10-Aug-15	PINAWA 4 - DISTRIBUTION @ 2 ABERDEEN	0	0
14-Aug-15	PINAWA 1 - WTP	0	0
14-Aug-15	PINAWA 2 - DIST - W.B. LEWIS	0	0
14-Aug-15	PINAWA 3 - DISTRIBUTION - PINAWA CUB	0	0
26-Aug-15	PINAWA 1 - RAW	0	0
26-Aug-15	PINAWA 2 - TREATED	0	0
26-Aug-15	PINAWA 3 - DISTRIBUTION	0	0
09-Sep-15	PINAWA 1 - RAW	0	0
09-Sep-15	PINAWA 2 - TREATED	0	0
09-Sep-15	PINAWA 3 - DISTRIBUTION @ LEWIS	0	0
22-Sep-15	PINAWA 1 - RAW	130	1
22-Sep-15	PINAWA 2 - TREATED	0	0
22-Sep-15	PINAWA 3 - DISTRIBUTION	0	0
07-Oct-15	PINAWA 2 - TREATED	0	0
07-Oct-15	PINAWA 3 - DISTRIBUTION	0	0
09-Oct-15	PINAWA 1 - RAW	118	1
21-Oct-15	PINAWA 1 - RAW	0	0
21-Oct-15	PINAWA 2 - TREATED	0	0
21-Oct-15	PINAWA 3 - DISTRIBUTION -WB LEWIS	0	0
04-Nov-15	PINAWA 1 - RAW	0	0
04-Nov-15	PINAWA 2 - TREATED	0	0
04-Nov-15	PINAWA 3 - DISTRIBUTION @ LEWIS	0	0
18-Nov-15	PINAWA 1 - RAW	>200	0
18-Nov-15	PINAWA 2 - TREATED	0	0
18-Nov-15	PINAWA 3 - DISTRIBUTION @ LEWIS	0	0
02-Dec-15	PINAWA 1 - RAW	1	0
02-Dec-15	PINAWA 2 - TREATED	0	0
02-Dec-15	PINAWA 3 - DISTRIBUTION @ W8 LEWIS	0	0
16-Dec-15	PINAWA 1 - RAW	15	0

16-Dec-15	PINAWA 2 - TREATED	0	0
16-Dec-15	PINAWA 3 - DISTRIBUTION - CLUB	0	0
29-Dec-15	PINAWA 1 - RAW	9	0
29-Dec-15	PINAWA 2 - TREATED	0	0
29-Dec-15	PINAWA 3 - DISTRIBUTION	0	0