

Public Water System Annual Report

- 2007 -

Name of the Public Water System: **Lorette Public Water System**

Name of the legal owner: **The Rural Municipality of Taché**

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Chief Administrative Officer,
The Rural Municipality of Taché.

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Introduction:

The 2007 Annual Report for the Town of Lorette summarizes the current Water Utility System.

1. Description of the Water System:

The Town of Lorette is located approximately 30 kilometers south-east of Winnipeg and has an approximate population of 1994 (2006 census) whereby an approximate 1100 town residents are currently served by three wells completed to the carbonate aquifer.

1.1. Water supply source

The Lorette Water System receives groundwater from the carbonate aquifer through three wells located at the West and East ends of town. The primary water source is a pumphouse with two wells at the northwest corner of Ferland Bay. The first well constructed in 1976 and the second in 1987. The second source is the east end pumphouse the well being drilled in 1996. All wells were drilled to a depth of approximately 130 feet. Raw water is pumped from the wells into the pump house, disinfected and distributed through 4 & 6" lines.

As water flows through the ground it dissolves metals and minerals. In the case of the carbonate aquifer, the water has come into contact with calcium, potassium, magnesium, sodium, iron & manganese. Current hardness level of the east well sits at 363 mg/L and the west well is at 321 mg/L. See "Appendix "A".

1.2. Water treatment process

Calcium, iron and manganese are metals that cause laundry and plumbing fixture staining problems. In addition, these materials can build up in the distribution pipes and cause reduced flow. Calcium carbonate causes hardness in water which diminishes the ability of the water to react with soap and form lather. Hardness also forms scale deposits in kettles, hot water tanks, washing machines, etc. which can reduce the life expectancy of these appliances.

With regard to hardness, people have individual preferences about the amount of hardness they desire in their water. Individual homeowners, who desire softer water, have the ability to install water softeners.

The Lorette water system currently does not treat water from its sources prior to distribution.

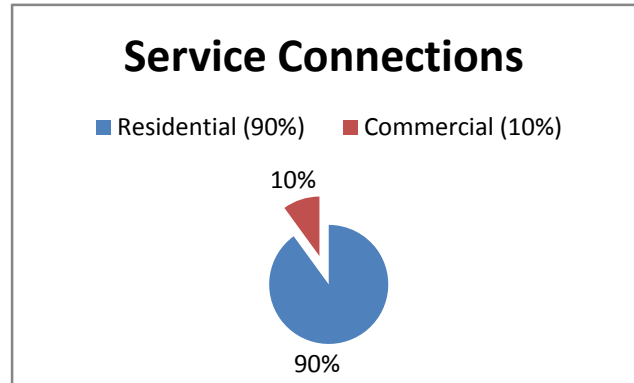
1.3. Distribution system

Disinfected water is pumped from the primary pumphouse throughout the Lorette distribution system via 5hp Goulds submersible pumps that deliver over 5L/second each, 8L/second combined. Disinfected water is pumped from the secondary pumphouse via a 10hp Goulds submersible capable of delivering 10L/second.

1.4. Number of connections, population served and types of water users

The Town of Lorette distribution system is comprised of 464 service connections. All service connections are metered. 417 are residential and 47 are commercial. (See Figure 1)

Figure 1



1.5 Classification and Certification

-Class 1 Water Treatment Facility Classification

-Certification level of operators:

- Ray Fiola,
Class 1 Water Treatment, Collection and Distribution
Class 1 Wastewater Collection and Treatment

2. Disinfection System in Use

The final step in the treatment of safe water is disinfection. Disinfection is the selective destruction or inactivation of potential disease causing organisms in water. The *Drinking Water Safety Act* requires a 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.
- The Lorette PWS achieves the 0.5 mg of free chlorine per litre of water, however does not have the means to provide the 20 minute contact time.
- The Lorette PWS achieves the 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 current water disinfection process consists of each pumphouse having a water meter which paces operation of a sodium hypochlorite solution feed pump.

2.2 Equipment redundancy and monitoring requirements

As required by the *Drinking Water Safety Act* the Lorette PWS ensures continuous disinfection is maintained at the plant by keeping in stock all spare parts required for the chlorinator. A complete spare chlorinator is also kept at the plant.

Disinfectant residuals are monitored daily at the water treatment plant and periodically in the distribution system and recorded on the appropriate monitoring forms. Monthly chlorination report forms are sent to the regional Drinking Water Officer at the end of each month.

2.3 Disinfectant residual overall performance/results

For 2007, the Lorette Public Water System has met all regulatory requirements in regard to monitoring and reporting disinfection residuals leaving the water plant and in the distribution system.

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 2007 results for the Lorette Public Water System are summarized in the following table:

Source	Parameter	Standard	Frequency	Test Results
Groundwater	TC & EC*	No TC or EC	Bi-weekly	Boil water advisory
	Disinfectant	WTP (>0.5 mg/L)	Daily	100% Compliance
		Distribution (0.1 mg/L)	Periodically	100% compliance
	Lead	0.01 mg/L		0.00 mg/L
	Arsenic	0.01 mg/L	Every three years.	0.001 mg/L
	Benzene	0.005 mg/L		0.00 mg/L
	Fluoride	1.5 mg/L		0.7 & 1.1mg/L
	Nitrate	as nitrate: 45mg/L as nitrogen: 10mg/L		
	Tetrachloroethylene	0.03 mg/L		0.00 mg/L
	Trichloroethylene	0.005 mg/L		0.00 mg/L
	Uranium	0.02 mg/L		0.00 mg/L

**Bacterial testing:* We test the raw water (untreated well water), the disinfected water (leaving the pumphouse facility) and the water in the distribution system every two weeks for the presence of Total Coliform (TC) and E. coli (EC) bacteria. If these bacteria are present in the water it is an indication that disease causing organism may also be present.

4. Water System Incidents and Corrective Actions

No incidents to report in the 2007 operating year.

5. Additional records required

As a result of the Boil Water Advisory placed on the Lorette PWS due to unsatisfactory microbiological results on July 15, 2005, the Municipality was compelled to undertake bi-weekly monitoring of 5 private wells within a 50m radius of municipal wells.

6. Boil Water Advisories issued and Actions Taken in Response

In July of 2005 the Chief Medical Officer of Health placed a Boil Water Advisory (Appendix “B”) on the Lorette Water Supply as a result of unsatisfactory microbiological results. The system has been on this boil water advisory since that date.

In response to this incident, the Municipality carried out visual well inspections and bacteriological sampling in the community of Lorette. 9 private wells within 150 meters of Lorettes East and West pumphouses are currently being sampled on a bi-weekly basis.

Further actions include the Municipality engaging the services of Cochrane Engineering to undertake an assessment of the current water system and make recommendation on actions to upgrade the public water system. The Municipality applied for a water rights license to construct a new well. The Municipality has also applied for funding consideration by the Provincial and Federal Governments for a project to undertake drilling a new water supply well into the sandstone aquifer, the construction of a reservoir and pumphouse to provide for adequate chlorine contact time. Extension of the public distribution system will provide those residences within the LUD of Lorette that are currently serviced by private wells to connect to the public water system. A program to decommission private wells is also included.

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

There were no warnings issued or charges laid on the Lorette PWS.

8. Expenses Incurred

Monitoring Water Quality of Private Wells -	\$ 4,306.05
Engineering services -	\$38,849.50
Drilling services -	\$ 938.90
Environmental License -	\$ 5,000.00

9. Future System Expansion and/or Increased Production

The Municipality has acquired Environment Act License No. 2851 & Water Stewardship Permit No. PWS-08-P46 licensing the construction and operation of the development being a water supply system for municipal purposes for the community of Lorette, components of the project include two existing wells in the Carbonate Aquifer, one new well in the Sandstone Aquifer, a treated water reservoir and a pumphouse and water treatment building along with the installation of new watermains to service previously unserved areas. The Municipality anticipates moving forward with this project during the summer and fall of 2008.