TOWN OF RIVERS PUBLIC WATER SYSTEM ANNUAL REPORT – 2012

The Town of Rivers, Manitoba strives to provide high quality drinking water in sufficient quantity to meet the needs of the public. It is our goal to do so in a safe, cost effective manner while remaining in compliance with the regulatory requirements governing the provision of drinking water.

The operation of our water system is regulated in part by the Drinking Water Safety Regulation (MR40/2007), which came into force on March 1, 2007. Section 32(1) of the regulation stipulates that water systems serving 1,000 or more persons must prepare an annual report to its water users. Therefore, the following report has been prepared for the Town of Rivers water consumers.

Where does our water come from?

The Town of Rivers used water from four deep wells in the late 1940's, but abandoned the wells when it bought the CNR dam on the Little Saskatchewan River south of town. Between 1961 (when the water treatment plant was built) and 1978, the plant was expanded to its present capacity of 1.6 million litres/day (360,000 imperial gallons/day).

In 1991 the town began pumping water from Lake Wahtopanah, abandoning the reservoir at the river. This change has improved water quality thus reducing the cost of the treatment process.

How does the water get to our tap?

Two 20 horse submersible pumps pump the raw water from Lake Wahtopanah to the water treatment plant through 2.5 kms of 250 mm pipe. Activated Carbon and Potassium Permanganate are added to the raw water. The raw water enters the water treatment plant where Clearpac Plus is added followed by a mixing process. The water then goes through the clarifiers (settling basins) and into the filters. After the water is filtered, it flows to a 250,000-litre clearwell under the water treatment plant where Chlorine and Fluoride are added. These processes are designed to clarify the water and remove microbial contaminants, such as bacteria and organic materials that are naturally found in surface waters. The water is then distributed to the consumer and the water tower through a grid series of 150 mm piping approximately 8 kms long. The water tower has a capacity of 364,000 litres and its height provides the appropriate pressure to the system. When the distribution pumps at the water treatment facility are not running, the system is fed from the water tower.

What chemicals are used in the treatment of our water?

The clarity of surface water changes each season and is dependent on the weather (amount of precipitation, temperature, spring runoff, etc.). As the water changes, adjustments are made to the process to ensure the best possible finished water. The following is a list of the chemicals we currently use and a brief description of their function.

Activated Carbon - Applied to the raw water to control any taste and odour that may be present.

Potassium Permanganate - Applied to the raw water as an oxidant to aid in disinfection and another means of controlling taste and odour. It is also of value by adding weight to the particles.

Clearpac Plus - A coagulant used to settle out impurities in the raw water entering the plant. The addition of this chemical brings the particles together to form a ball heavy enough to drop to the bottom of the clarifier.

Chlorine - Applied to the filter effluent to rid the water of any harmful bacteria. An adequate amount of chlorine is added before the water enters the storage reservoir to ensure an effective kill and to provide a disinfectant residual throughout the distribution piping.

Fluoride - Fed into the filter effluent as a deterrent to tooth decay, Fluoride is added as part of the Provincial Fluoridation Program.

Clearhib 5 – A liquid inhibitor formulated to control corrosion and scale build-up. Fed into the filter effluent to help control the build-up of scale on our distribution lines.

Is our water tested? What for? When?

Water tests are taken on a routine basis to ensure that the water is safe and to monitor how well the treatment process is working. We test the water at the water treatment facility every day. We also test the water in the distribution system, as well as the raw water regularly. It is a regulatory requirement that all water test results associated with water safety be submitted to the provincial Office of Drinking Water for review.

Disinfectant Testing: We test the level of chlorine in the treated water twice per day to ensure that the water leaving the water treatment plan has enough chlorine to ensure proper disinfection throughout the system. We also test chlorine levels in the distribution system every time we take water sample for bacterial testing.

Turbidity Testing: Turbidity is defined as the cloudiness of a fluid caused by individual particles. Turbidity testing is a measurement of the clarity of water. We use turbidity to tell us how well our treatment process is working and to make adjustments to our chemical feed rates throughout the year as the water changes. Turbidity is tested daily as the raw water enters the treatment facility, before and after each filter.

Bacterial Testing: We test the raw water (untreated lake water), the treated water (leaving the water treatment plant) and the water in the distribution system at two locations every two week (bi-weekly) for the presences of Total Coliform and E. Coli bacteria. If these bacteria are present in the water it is an indication that disease-causing organisms may be present. If the laboratory results are positive, we resample and test again. If the results are still positive, a boil water advisory may be issued to the town at which time the public would be notified by the various media.

Trihalomethane (THM) Testing: Trihalomethanes (THMs) are by-products of the water treatment process. They are formed when natural organic material, such as the decaying vegetation commonly found in lakes and reservoirs, reacts with chlorine used to treat the water. This reaction produces "disinfection by-products," the most common of which are THMs. Sampling is done four times per year, every second year, and the standard is based on these tests.

What are the results of the tests?

The following list summarizes all the treated water test results for 2012:

	Testing parameter	Standard	Frequency	Test Results
•	Bacterial	0-TC*,0-EC*	Biweekly	100% compliance
•	Chlorine (leaving reservoir)	0.5 mg/l	daily	100% compliance
•	Chlorine (in system)	0.1 mg/l	biweekly	100% compliance
•	Turbidity	0.3 NTU*	daily	100% compliance
•	THM (Trihalomethanes)	0.1 mg/l	quarterly	0.341 mg/l

*TC (total coliforms)
*EC (Escherichia coli)
*NTU (nephelometric units)

How do we alert Public Utilities Staff to water emergencies?

There are mechanisms in place to alert Utilities Staff to any emergencies that might affect the town's water supply. There is an operator on call 24 hours a day, 7 days a week. The operator is available via cell phone at all times. In addition to this, the entire system is alarmed through AAA Alarms and the operator is notified through a pager if there is a problem anywhere in the system.

Were there any emergencies, regulatory compliance issues or other operational issues to report in 2012?

There were no emergencies, compliance issues or operational issues in 2012.

Future system expansion or expenses expected?

Some of the issues we are facing are: the need for a storage reservoir to increase our treated water capacity (we currently have approximately one day of storage, we should have three days of storage), an aging water treatment facility that will need to be upgraded to continue to meet water quality guidelines, and an aging wastewater lagoon that is in the process of being replaced.

Who can we call with questions or concerns regarding our drinking water?

For general questions during regular business hours, call the **Town of Rivers Office** from 9:00 am to 5:00 pm at **204-328-5250** or the **Water Treatment Plant operator** at **204-328-7480**.

For after hour's emergencies, the operator-on-call is **Randy King** @ **204-573-7841**, **Jeff Worth** @ **204-573-7840,** or **Mike Beaule** @ **204-761-5756**.