



2013 ANNUAL REPORT

WATER SUPPLY

The Town of The Pas draws its raw water from the Saskatchewan River that is gravity fed to a well. The water is pumped from the well into the water treatment plant.

TREATMENT PROCESS

At the well potassium permanganate is introduced to the raw water for taste and odor control.

When the water enters the plant aluminum sulphate and a coagulant are added. The water is then sent to two mixing chambers. In the mixing chambers another coagulant aid is introduced. The raw water and additives are then mixed and suspended solids precipitate from the water. After this point, the water passes through four (4) dual media filters before the finished water is sent into clear wells for storage. Chlorine is added as a residual disinfectant, the water is sterilized by ultra violet reactors and fluoride is added for dental health.

WATER DISTRIBUTION SYSTEM

The treated water is pumped from the water treatment plant to the consumers via a system of underground pipes. The water is metered for consumption and is billed accordingly.

WATER TESTING

- Raw water is tested daily for turbidity, temperature & p.h.
- Treated or finished water is tested daily for turbidity, chlorine residual, temperature and fluoride.
- Water is tested 4 times per year for THM's and HAA's.
- Water is tested yearly for total water chemistries.

BACTERIOLOGICAL TESTING

Samples of raw water, treated water and points in the distribution system are tested bi-weekly for coliforms and E.Coli. The results of these tests are shown in the table below:

BACETERIOLOGICAL MONITORING AND REPORTING	Regulatory Requirement	PWS Performance
Number of raw/incoming water samples	26	
Number of treated water samples	26	26
Number of distribution water samples (2 sampling locations)	26	26
Frequency of testing	Bi-weekly	100%
Total coli form present in water samples	0 TC per 100 mL	100%
E.coli present in water samples	0 EC per 100 mL	100%
COMMENTS: The public water system has met the bacteriological sampling requirements for 2013.		

TURBIDITY TESTING

Turbidity is a measurement of water clarity. This test is used as a benchmark on how the treatment process is working. Facilities are obligated to meet regulatory requirements on the filtering process and the treated water that is sent to consumers. The results of these tests are shown in the table below:

Turbidity Standards	Regulatory Requirement	PWS Performance
Chemically assisted, rapid gravity filtration process	≤ 0.3 NTU in at least 95% of the samples taken per month	100%
	Not to exceed 0.3 NTU for more than 12 continuous hours	100%
	Not to exceed 1.0 NTU at anytime	100%
Frequency of testing	Daily	100%

DISINFECTION TESTING & MONITORING

This testing is done to ensure that the water is safe for the consumer and to meet the regulatory requirements. The results of these tests are shown in the table illustrated below:

Chlorine Requirements	Regulatory Requirement	PWS Performance
(A) Free chlorine residual entering the distribution system	≥ 0.5 mg/L	100%
(B) Free chlorine residual in the distribution system	≥ 0.1 mg/L	86%
(C) Frequency of testing	Daily for A	100%
	Bi Weekly for B	100%
(D) Report submissions	Monthly	100%

FLUORIDE

A fluoride content test is done to the treated water to determine mg/L of fluoride in the treated water and to meet regulatory requirements. The results of these tests are show in the table below:

	Daily Samples Passed	Composite Samples Taken	Composite Samples Passed
Number of fluoride samples	Daily	26	26
Fluoride less than 1.5 mg/L as per CDWG.	100%	100%	100%

DISINFECTION BY-PRODUCTS MONITORING & REPORTING

These tests are done to meet Regulatory requirements. The results of these tests are shown on the following table:

DISINFECTION BY –PRODUCTS MONITORING AND REPORTING	Regulatory Requirement	PWS Performance
A) Trihalomethane sampling requirements	4 times per year	100%
B) Total Trihalomethane Standard	0.1 mg/L	0.089 mg/L
C) Bromodichloromethane sampling requirements	4 times per year	100%
D) Bromodichloromethane Standard	0.016 mg/L	0.0095 mg/L

THM and HAA results were lower than the previous year.

WATER CHEMISTRY ANALYSIS

Chemical analysis tests were done on the raw and treated water on October 28, 2013. The treated water met all the G.C.D WQ maximum-acceptable concentrations for health-based parameters.

EMERGENCY-COMPLIANCE ISSUES-2013

- There were 35 water main breaks in 2013. This is an increase of 25% over 2011 and 60% over 2012. The main reason for the increase is attributed to the colder winter temperatures versus those in 2012.

EXPENSES & UPGRADES

- In 2013 a filter to waste system was set up for all treated water. When the turbidity rises above 0.3 NTU it automatically is sent to the waste stream. This will ensure that only the cleanest water is delivered to the storage reservoirs.
- As a result of the increased water breaks the sewer and water utility ended the year with approximately a \$60,000 deficit.

For general questions during regular business hours call the Engineering Dept. at 1-204-627-1125. For emergency calls please phone 1-204-623-2330



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