2015 Annual Report

Red River Regional Public Water System
System Code: 218.25
Reinfeld, Schanzenfeld, Blumstein

Name of the public water system:
Red River Regional Public Water System

Name of the legal owner:
Rural Municipality of Stanley

Water Source:
Red River - Pembina Valley Water CO-OP

Emergency Contact Information:

Call the RM of Stanley Office: 204-325-4101

In the event of an emergency outside of regular business hours you will be transferred to an on-call operator.

Office Fax: 204-325-4008
Email: info@rmofstanley.ca

Name of Contact Persons:

Dave Rempel – Utilities Manager
Melanie Walker – Utilities – (Administrative)

Introduction:

The Red River Regional system has three different local systems amalgamated into one. The Reinfeld, Schanzenfeld, Blumstein and surrounding areas are represented within the RRR. The Schanzenfeld Utility System began receiving treated water from the Pembina Valley Water Co-op in August of 2002 and continues to receive water from the PVWC. The existing reservoir, pump house and mainline running from the reservoir south to Schanzenfeld was constructed in 1997. Water is provided to the un-incorporated villages of Schanzenfeld, Chortitz, Friedensruh, Reinfeld and various other rural properties in the general area. The system continues to expand in order to service continued development being experienced in the area. A 300,000L reservoir expansion was completed in the fall of 2010 in Schanzenfeld and Reinfeld to accommodate the increase in water connections.

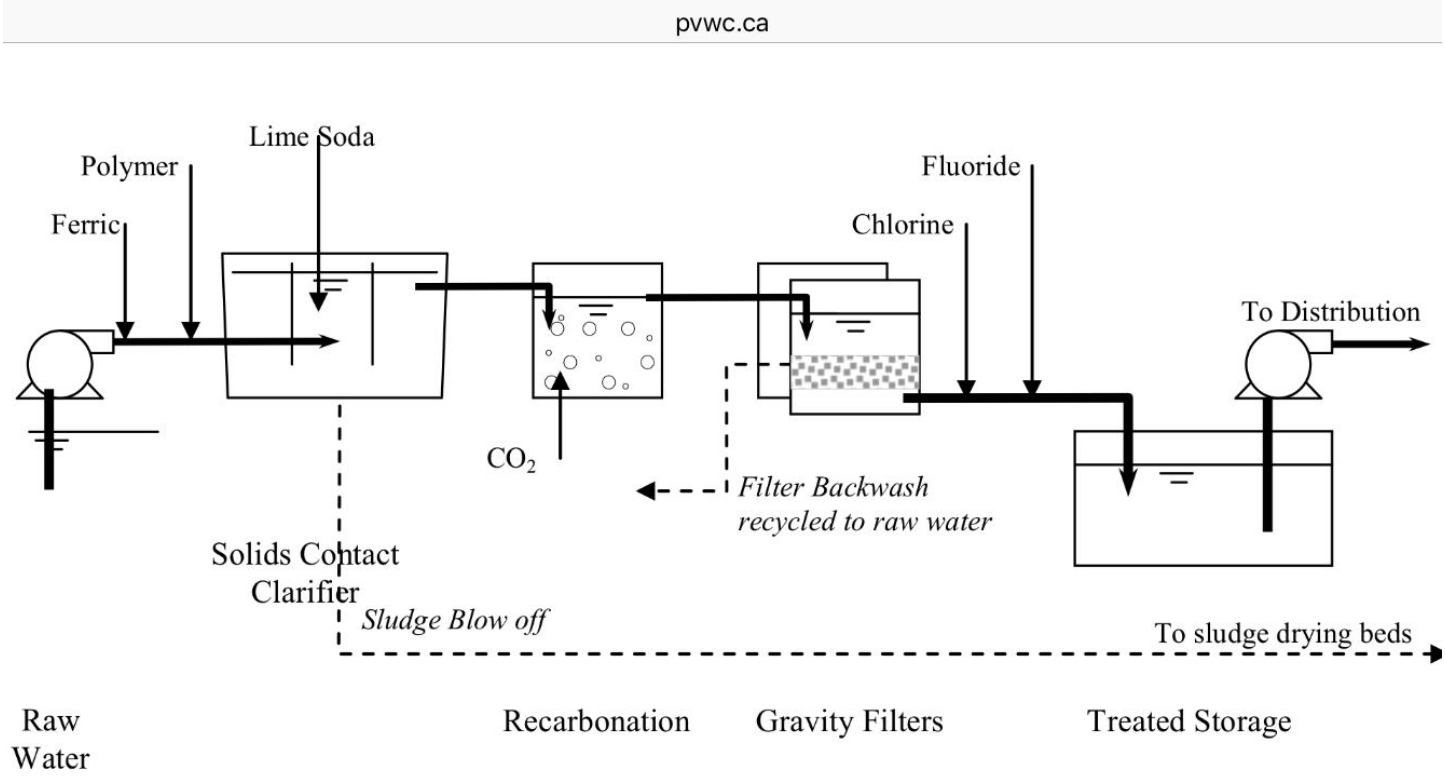
Description of the Water System:

Source

The Red River Regional (RRR) Water System purchases water from the Pembina Valley Water Co-op which draws the water from the Red River at the Letellier Treatment facility in Letellier MB. The Pembina Valley Water Co-op is a wholesaler of water which it sells to the RM of Stanley. The treated water is pumped west along PVWC main lines up to the Reinfeld reservoir and then to the Winkler south booster station where it is pumped into the Schanzenfeld reservoir where it is then then distributed to the final consumers.

Treatment

The water is treated at the Pembina Valley Water Co-op Treatment Plant in Letellier. A detailed description of their treatment process can be obtained directly from the PVWC at 204-324-1931 or email: pvwc@mts.net.



Upon entering Stanley's reservoirs, the treated water is re-chlorinated to ensure that required disinfection residuals are maintained throughout the system. Treated water is then pumped throughout the distribution system to the final consumer.

Distribution

The distribution system is a network of underground pipes which delivers the water to the end consumers. When the water leaves the reservoirs, it is pumped through various sizes of PVC pipe (2"-6"). Most service line sizes range from ¾" – 1 ½". The total distribution network is approximately 40 miles long. Gate valves are installed throughout the system in order to be able to isolate sections of line for emergency or maintenance purposes. Curbstops are installed on each service line in order to be able to shut off residential lines in case of emergencies.

Storage Reservoirs

The RRR operates 1 (one) 200,000 litre reinforced concrete 2-cell reservoir and 1 (one) 300,000 litre reinforced concrete 3-cell reservoir north of Schanzenfeld (NW ¼ 28-2-4W) and 1 (one) 200,000 litre reinforced concrete 2-cell reservoir and 1 (one) 300,000 litre reinforced concrete 3-cell reservoir in Reinfeld. With a capacity of 500,000 litres each, these reservoirs act as a buffer to alleviate peak demands and maintain adequate pressure on the system. At current demands, the reservoirs hold approximately 2 days worth of storage.

Number of connections, population served, & types of water users

As of December 2015 the RRR Water system had 1041 service connections and billed out an average of 14,577,711 gallons per quarter and served an estimated population of 4164. These systems service two Elementary Schools, 7 Churches and a number of large Agricultural & Commercial users while the majority of connections are for residential properties. The RRR also supplies water to Boundary Trails Hospital. Each connection is equipped with a water meter to measure water volumes for monitoring, administrative, and billing purposes. Water meters are read quarterly by the customer.

Classification/Certification

The RRR System is classified as a Class Two (2) Distribution System. Classification/certification is regulated under Manitoba Conservation's Water and Wastewater Facility Operators Regulation under *The Environment Act*.

Equipment:

Each pumphouse houses one – 2 horsepower variable speed pump and three - 5 horsepower variable speed pumps with a combined pumping rate of 225 gpm. All water lines on the system are made of PVC materials. The line pressure along the corridor from Winkler to Morden is supplied by PVWC.

How is the Utility Operator notified in cases of emergencies?

The water pumphouses uses electronic tele-metering equipment for monitoring operations. This system notifies the utility operator by way of telephone in case of any problems regarding pressures, water levels, power failures, temperatures, and noise levels. This equipment also allows the utility operator to monitor several components of the reservoir operations while off-site through the use of a telephone. The RM of Stanley Utility Operator is notified by telephone in case of any emergency or discrepancy with the system. A Utility Operator is on call 24 hours/day. In case of an emergency call the RM of Stanley office where you will be transferred to an on-call operator. Emergency #: **1-204-325-4101**

Water Quality Standards

Water samples are retrieved, tested, and recorded onsite for chlorine levels each day. There are two chlorine standards, one for leaving the reservoir and one for within the distribution system. The minimum free chlorine standards are 0.5 mg/L leaving the reservoir and 0.1mg/L throughout the distribution system.

This chart outlines the 2015 Chlorination results leaving the Schanzenfeld reservoir as reported by the Utility Operator.

2015 Chlorination Report

Month	# of Samples Taken	Compliance
January	31	100%
February	28	100%
March	31	100%
April	30	100%
May	31	100%
June	30	100%
July	31	100%
August	31	100%
September	30	100%
October	31	100%
November	30	100%
December	31	100%

The following outlines the 2015 test results as submitted by the Operator to ALS Environmental for analysis. Samples are submitted every two weeks from the incoming treated water (PVWC), the outgoing treated water from the reservoir, and a distribution system location. The distribution chlorine residuals are measured at the same time and location as the bacteriological distribution samples and are included in the chart on the next page.

Reinfeld

Date	Coliforms & E. coli - Outflow Treated			In Distribution System		
	Coliforms MPN/100ml	E. coli MPN/100ml	Compliant	Chlorine Free mg/L	Chlorine Total mg/L	Compliant
Jan 7/15	0	0	Yes	1.03	1.51	Yes
Jan 21/15	0	0	Yes	1.07	1.65	Yes
Feb 4/15	0	0	Yes	1.01	1.54	Yes
Feb 19/15	0	0	Yes	1.33	1.81	Yes
Mar 4/15	0	0	Yes	0.92	1.47	Yes
Mar 19/15	0	0	Yes	0.67	1.21	Yes
Apr 1/15	0	0	Yes	0.96	1.37	Yes
Apr 15/15	0	0	Yes	1.05	1.41	Yes
June 4/15	0	0	Yes	0.79	1.25	Yes
June 17/15	0	0	Yes	1.21	1.53	Yes
July 2/15	0	0	Yes	0.91	1.31	Yes
July 15/15	0	0	Yes	0.86	1.26	Yes
July 31/15	0	0	Yes	0.91	1.33	Yes
Aug 12/15	0	0	Yes	1.11	1.50	Yes
Aug 27/15	0	0	Yes	0.91	1.31	Yes
Sept 10/15	0	0	Yes	0.41	0.82	Yes
Sept 30/15	0	0	Yes	1.08	1.54	Yes
Oct 8/15	0	0	Yes	1.10	1.62	Yes

Oct 22/15	0	0	Yes	0.75	1.31	Yes
Nov 6/15	0	0	Yes	0.88	1.34	Yes
Nov 19/15	0	0	Yes	2.18	2.20	Yes
Dec 2/15	0	0	Yes	1.13	1.65	Yes
Dec 23/15	0	0	Yes	0.94	1.47	Yes

Schanzenfeld

Coliforms & E. coli - Outflow Treated

Date				In Distribution System		
	Coliforms MPN/100ml	E. coli MPN/100ml	Compliant	Chlorine Free mg/L	Chlorine Total mg/L	Compliant
Jan 7/15	0	0	Yes	0.83	1.40	Yes
Jan 21/15	0	0	Yes	0.96	1.65	Yes
Feb 4/15	0	0	Yes	0.77	1.54	Yes
Feb 19/15	0	0	Yes	1.00	1.81	Yes
Mar 4/15	0	0	Yes	0.48	1.47	Yes
Mar 19/15	0	0	Yes	0.78	1.21	Yes
Apr 1/15	0	0	Yes	0.94	1.37	Yes
Apr 15/15	0	0	Yes	0.76	1.41	Yes
June 4/15	0	0	Yes	0.84	1.23	Yes
June 17/15	0	0	Yes	1.08	1.60	Yes
July 2/15	0	0	Yes	0.81	1.36	Yes
July 15/15	0	0	Yes	0.42	0.82	Yes
July 31/15	0	0	Yes	0.33	0.86	Yes
Aug 12/15	0	0	Yes	0.51	0.87	Yes
Aug 27/15	0	0	Yes	0.22	0.52	Yes
Sept 10/15	0	0	Yes	0.37	0.81	Yes
Sept 30/15	0	0	Yes	1.15	1.61	Yes
Oct 8/15	0	0	Yes	0.11	0.39	Yes
Oct 22/15	0	0	Yes	0.77	1.29	Yes
Nov 6/15	0	0	Yes	1.10	1.10	Yes
Nov 19/15	0	0	Yes	0.93	1.35	Yes
Dec 2/15	0	0	Yes	0.61	1.01	Yes
Dec 23/15	25	0	No	0.66	1.37	Yes

Blumstein

Date	Coliforms & E. coli - Outflow Treated			In Distribution System		
	Coliforms MPN/100ml	E. coli MPN/100ml	Compliant	Chlorine Free mg/L	Chlorine Total mg/L	Compliant
Jan 7/15	0	0	Yes	0.49	0.99	Yes
Jan 21/15	0	0	Yes	0.61	1.10	Yes
Feb 4/15	0	0	Yes	0.78	1.24	Yes
Feb 19/15	0	0	Yes	0.59	1.00	Yes
Mar 4/15	0	0	Yes	0.54	1.03	Yes
Mar 19/15	0	0	Yes	0.58	1.00	Yes
Apr 1/15	0	0	Yes	0.69	1.06	Yes
Apr 15/15	0	0	Yes	0.67	1.02	Yes
June 4/15	0	0	Yes	0.74	1.19	Yes
June 17/15	0	0	Yes	0.96	1.45	Yes
July 2/15	0	0	Yes	0.41	0.83	Yes
July 15/15	0	0	Yes	0.54	0.78	Yes
July 31/15	0	0	Yes	1.01	1.45	Yes
Aug 12/15	0	0	Yes	0.19	0.63	Yes
Aug 27/15	0	0	Yes	0.21	0.61	Yes
Sept 10/15	0	0	Yes	0.07	0.42	Yes
Sept 30/15	0	0	Yes	0.13	0.52	Yes
Oct 8/15	0	0	Yes	1.06	1.37	Yes
Oct 22/15	0	0	Yes	0.49	0.99	Yes
Nov 6/15	0	0	Yes	0.23	0.27	Yes
Nov 19/15	0	0	Yes	0.29	0.79	Yes
Dec 2/15	0	0	Yes	0.00	0.10	Yes
Dec 23/15	0	0	Yes	0.31	0.74	Yes

At any time when the free chlorine residual requirement is not met immediate action is taken by the Operator to adjust amounts of chlorine being added to ensure future compliance.

THM's & HAA's

Every two years, quarterly testing is done for THM's & HAA's as required by the Office of Drinking Water. Reporting years are 2014, 2016, and so on.

Trihalomethanes (THM's) are formed when chlorine reacts with naturally occurring organic matter in the water. Studies have shown a link between high levels of THM's and cancer. For that reason the province has set a health based standard for THM's of ***0.1mg/L.*** THM's were tested in the Schanzenfeld Public Water System in 2014 producing the following results.

THM's

February 2014	0.1140
May 2014	0.1020
August 2014	0.1370
November 2014	0.1273

Haloacetic acids (HAAs) are a common undesirable by-product of drinking water chlorination. HAAs can be formed by chlorination, ozonation or chloramination of water with formation promoted by slightly acidic water, high organic matter content and elevated temperature. Chlorine from the water disinfection process can react with organic matter and small amounts of bromide present in water to produce various HAAs. The MAC (maximum acceptable concentration) for HAA's is ***0.08mg/L***. Our testing produced these results.

HAA's

February 2014	0.0655
May 2014	0.0609
August 2014	0.119
November 2014	0.0656

Water system incidents.
None.
Drinking water safety orders on system.
None.
Boil water advisories issued.
1 customer was advised to boil their water due to a contaminated tap sample.
Warnings issued or charges laid in accordance with Drinking Water Safety Act.
None.
Major Expenses Incurred.
None.
Future system expansion.
None.