2016 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:

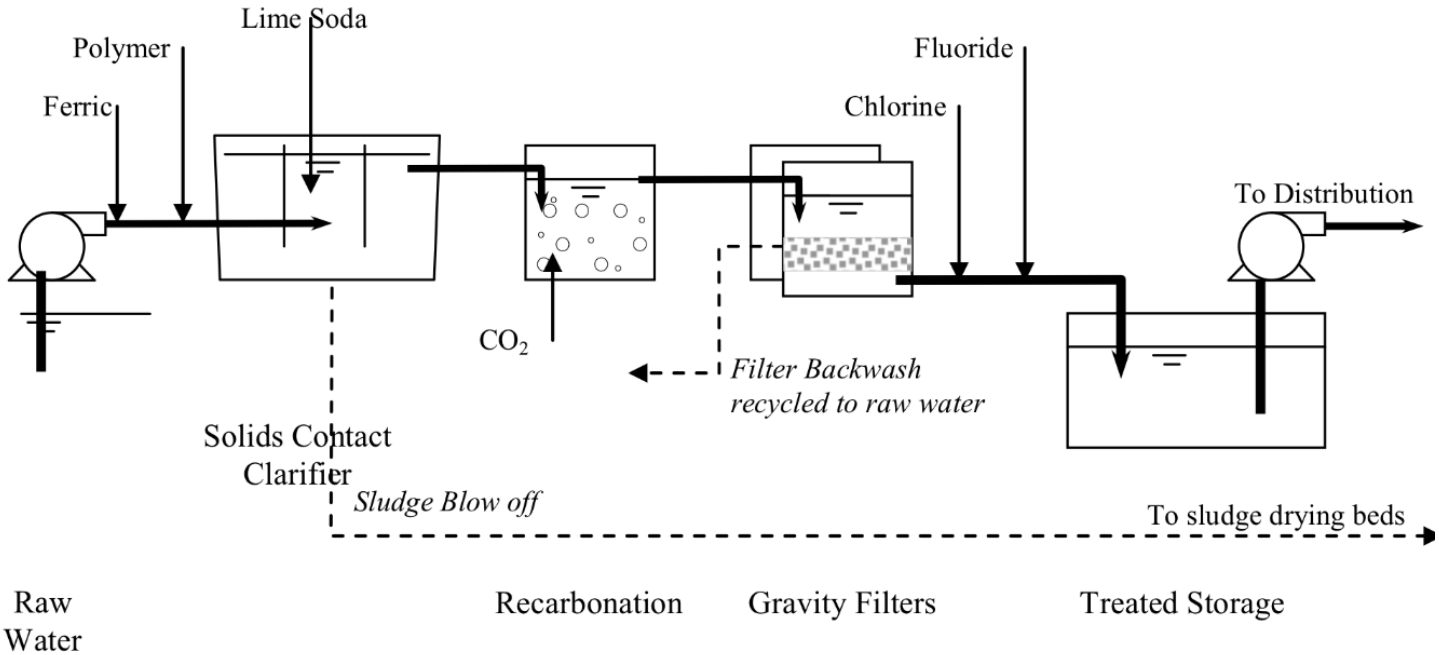
Source

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.

pvwc.ca



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 45 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. ***Customers should take care not to damage valves.***

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 1.5 days worth of storage.

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

As of December 2016 the RRR Water system had 1051 service connections and billed out an average of 14,815,005 gallons per quarter and served an estimated population of 4200. 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.

These charts outline the 2016 Chlorination results leaving the Schanzenfeld and Reinfeld reservoirs as reported by the Utility Operator.

2016 Schanzenfeld

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	97%

2016
Reinfeld

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	97%

The following outlines the 2016 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 Distribution

Coliforms & E. coli – Distribution system

Date	In Distribution System					
	Coliforms MPN/100ml	E. coli MPN/100ml	Compliant	Chlorine Free mg/L	Chlorine Total mg/L	Compliant
Jan 6/16	0	0	Yes	0.88	1.43	Yes
Jan 27/16	0	0	Yes	1.08	1.62	Yes
Feb 11/16	0	0	Yes	1.32	1.67	Yes
Feb 25/16	0	0	Yes	1.17	1.68	Yes
Mar 11/16	0	0	Yes	0.42	0.71	Yes
Mar 23/16	0	0	Yes	1.01	1.47	Yes
Apr 7/16	0	0	Yes	0.97	1.38	Yes
Apr 21/16	0	0	Yes	0.71	1.02	Yes
May 6/16	0	0	Yes	1.04	1.13	Yes
May 20/16	0	0	Yes	1.15	1.53	Yes
June 3/16	0	0	Yes	0.43	0.91	Yes
June 16/16	0	0	Yes	0.78	1.20	Yes
July 6/16	0	0	Yes	1.03	1.32	Yes
July 27/16	0	0	Yes	0.69	1.23	Yes
Aug 10/16	0	0	Yes	0.78	1.19	Yes
Aug 25/16	0	0	Yes	0.83	1.21	Yes
Sept 8/16	0	0	Yes	1.23	1.51	Yes
Sept 21/16	0	0	Yes	0.95	1.31	Yes
Oct 6/16	0	0	Yes	0.35	0.95	Yes
Oct 21/16	0	0	Yes	0.53	0.96	Yes
Nov 2/16	0	0	Yes	0.99	1.46	Yes
Nov 16/16	0	0	Yes	0.31	0.56	Yes
Dec 16/16	0	0	Yes	0.97	1.37	Yes
Dec 30/16	0	0	Yes	1.01	1.49	Yes

Schanzenfeld Distribution

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 6/16	0	0	Yes	1.03	1.48	Yes
Jan 27/16	0	0	Yes	0.88	1.42	Yes
Feb 11/16	0	0	Yes	1.32	1.67	Yes
Feb 25/16	0	0	Yes	0.07	0.41	No
Mar 11/16	0	0	Yes	1.06	1.47	Yes
Mar 23/16	0	0	Yes	1.00	1.47	Yes
Apr 7/16	0	0	Yes	1.29	1.73	Yes
Apr 21/16	0	0	Yes	0.69	0.92	Yes
May 6/16	0	0	Yes	0.58	0.97	Yes
May 20/16	0	0	Yes	0.08	0.38	No
June 3/16	0	0	Yes	0.64	1.07	Yes
June 16/16	0	0	Yes	0.56	1.20	Yes

July 6/16	0	0	Yes	0.34	0.92	Yes
July 27/16	0	0	Yes	0.46	0.81	Yes
Aug 10/16	0	0	Yes	0.30	0.69	Yes
Aug 25/16	0	0	Yes	0.02	0.34	No
Sept 8/16	0	0	Yes	0.97	1.39	Yes
Sept 21/16	0	0	Yes	0.39	0.76	Yes
Oct 6/16	0	0	Yes	0.43	0.88	Yes
Oct 21/16	0	0	Yes	0.19	0.64	Yes
Nov 2/16	0	0	Yes	1.05	1.46	Yes
Nov 16/16	0	0	Yes	0.34	0.41	Yes
Dec 16/16	0	0	Yes	0.77	1.19	Yes
Dec 30/16	0	0	Yes	0.73	1.28	Yes

Blumstein

This system runs off of PVWC line between Winkler and Morden. The chlorine residual is dependent on PVWC chlorination.

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 6/16	0	0	Yes	0.41	0.92	Yes
Jan 27/16	0	0	Yes	0.07	0.42	No
Feb 11/16	0	0	Yes	0.07	0.31	No
Feb 25/16	0	0	Yes	0.31	0.67	Yes
Mar 11/16	0	0	Yes	0.22	0.48	Yes
Mar 23/16	0	0	Yes	0.38	0.68	Yes
Apr 7/16	0	0	Yes	0.25	0.59	Yes
Apr 21/16	0	0	Yes	0.71	1.10	Yes
May 6/16	0	0	Yes	0.34	0.61	Yes
May 20/16	0	0	Yes	0.26	0.63	Yes
June 3/16	0	0	Yes	0.32	0.74	Yes
June 16/16	0	0	Yes	0.27	0.57	Yes
July 6/16	0	0	Yes	0.38	0.68	Yes
July 27/16	0	0	Yes	0.18	0.58	Yes
Aug 10/16	0	0	Yes	0.39	0.86	Yes
Aug 25/16	0	0	Yes	0.21	0.53	Yes
Sept 8/16	0	0	Yes	0.13	0.33	Yes
Sept 21/16	0	0	Yes	0.05	0.50	No
Oct 6/16	0	0	Yes	0.05	0.35	No
Oct 21/16	0	0	Yes	0.03	0.40	No
Nov 2/16	0	0	Yes	0.27	0.56	Yes
Nov 16/16	0	0	Yes	0.03	0.27	No
Dec 16/16	0	0	Yes	0.17	0.38	Yes
Dec 30/16	0	0	Yes	0.08	0.33	No

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 2016, 2018 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 2016 producing the following results. Compliance with provincial standards is dependent on the effectiveness of the treatment process.

THM's

February 2016	0.156
June 2016	0.170
August 2016	0.204
November 2016	0.218

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. Compliance with provincial standards is dependent on the effectiveness of the treatment process.

HAA's

February 2016	0.0311
June 2016	0.0918
August 2016	0.145
November 2016	0.0866

Water system incidents.
None.
Drinking water safety orders on system.
None.
Boil water advisories issued.
None
Warnings issued or charges laid in accordance with Drinking Water Safety Act.
None.
Major Expenses Incurred.
None.
Future system expansion.
None.