



2020 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:

Ken Thiessen – Public Works Supervisor
Dave Rempel – Utilities Manager
Dustin Dyck – Utility Operator
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 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:

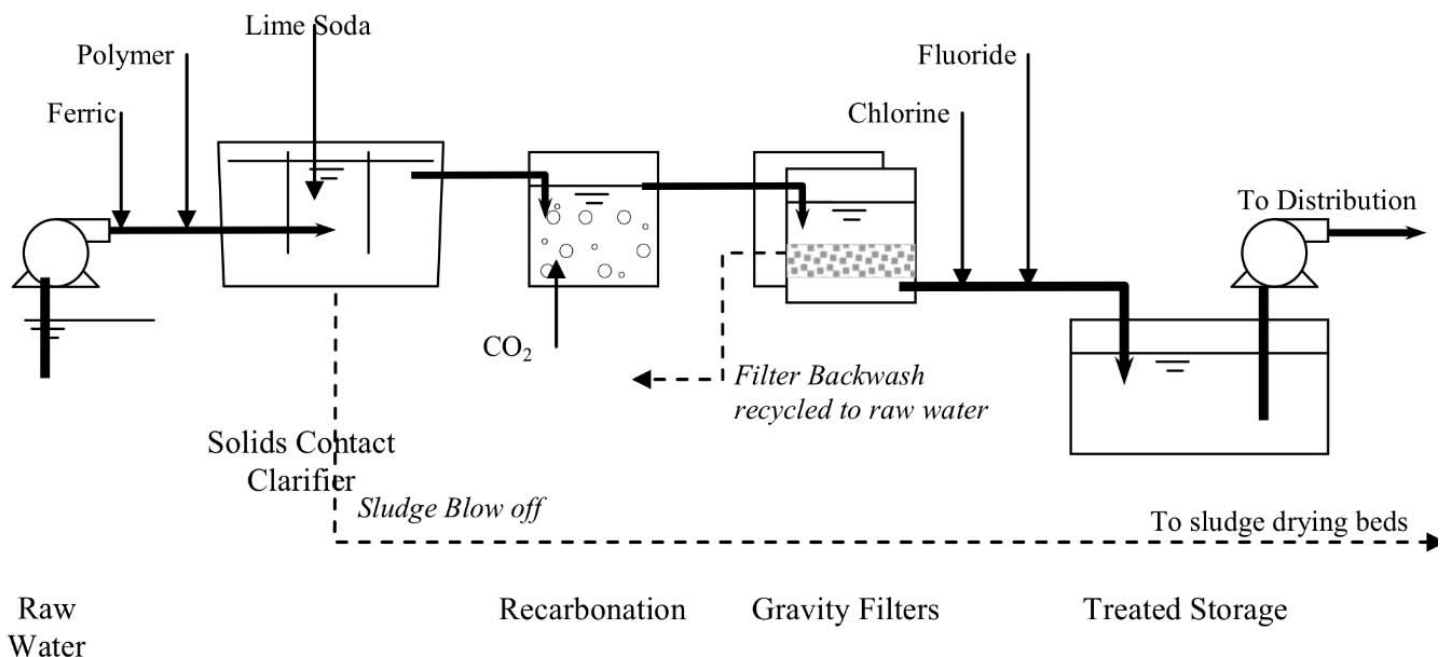
Source

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. It is 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. The treatment systems in the Reinfeld and Schanzenfeld pumphouses were upgraded in 2019 with the purchase of 2 peristaltic chlorine pumps. 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 $\frac{3}{4}$ " – 1 $\frac{1}{2}$ ". The total distribution network is approximately 47 miles long. Generators were installed at both Reinfeld and Schanzenfeld pumphouses in 2017 to maintain constant system pressure during power outages. Gate valves are installed throughout the system to be able to isolate sections of line for emergency or maintenance purposes. Curbstops are installed on each service line 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 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 1.2 days worth of storage. The Reinfeld reservoir was cleaned in 2020 with the Schanzenfeld reservoir scheduled for a 2021 cleaning.



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

As of December 2020, the RRR Water system had 1,087 service connections and billed out an average of 15,287,694 gallons of water per quarter and served an estimated population of 4,348. These systems service 4 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 Gallons per minute. 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 use 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.

In 2020 the Schanzenfeld and Reinfeld systems were upgraded to an electronic monitoring system that allows the operators to monitor pressures, reservoir levels, and flows off-site. This also allows us to diagnose problems and help us trend the operations of our pumphouses.

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 2020 Chlorination results leaving the Schanzenfeld and Reinfeld reservoirs as reported by the Utility Operator.

2020 Schanzenfeld

Month	# of Samples	
	Taken	Compliance
January	30	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%

2020 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	100%

The following outlines the 2020 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.

Blumstein

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

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 9/20	0	0	Yes	1.00	1.48	Yes
Jan 23/20	0	0	Yes	1.07	1.50	Yes
Feb 6/20	0	0	Yes	1.00	1.21	Yes
Feb 21/20	0	0	Yes	0.95	1.46	Yes
Mar 6/20	0	0	Yes	0.76	1.07	Yes
Mar 19/20	0	0	Yes	1.50	1.88	Yes
Apr 2/20	0	0	Yes	0.98	1.13	Yes
Apr 17/20	0	0	Yes	0.55	0.92	Yes
Apr 30/20	0	0	Yes	0.84	1.11	Yes
May 14/20	0	0	Yes	0.42	0.68	Yes
May 28/20	0	0	Yes	0.96	1.28	Yes
June 11/20	0	0	Yes	0.51	0.56	Yes
June 25/20	0	0	Yes	0.76	1.09	Yes
July 9/20	0	0	Yes	0.92	1.10	Yes
July 22/20	0	0	Yes	0.37	0.70	Yes
Aug 7/20	0	0	Yes	0.45	0.86	Yes
Aug 24/20	0	0	Yes	0.41	0.77	Yes
Sept 2/20	0	0	Yes	0.57	0.91	Yes
Sept 17/20	0	0	Yes	0.37	0.68	Yes
Sept 30/20	0	0	Yes	0.76	0.98	Yes
Oct 15/20	0	0	Yes	0.36	0.86	Yes
Oct 28/20	0	0	Yes	0.36	0.72	Yes
Nov 12/20	0	0	Yes	0.51	1.09	Yes
Nov 25/20	0	0	Yes	0.64	0.98	Yes
Dec 10/20	0	0	Yes	0.73	1.01	Yes
Dec 24/20	0	0	Yes	0.55	1.03	Yes

Reinfeld Distribution

Coliforms & E. coli – Distribution system

Date

In Distribution System

	Coliforms	E. coli		Chlorine Free	Chlorine Total	
	ms MPN/ 100ml	MPN/100ml	Compliant	mg/L	mg/L	Compliant
Jan 9/20	0	0	Yes	1.58	2.13	Yes
Jan 23/20	0	0	Yes	1.33	1.84	Yes
Feb 6/20	0	0	Yes	0.96	1.43	Yes
Feb 21/20	0	0	Yes	1.36	1.89	Yes
Mar 6/20	0	0	Yes	0.70	1.09	Yes
Mar 19/20	0	0	Yes	1.54	1.87	Yes
Apr 2/20	0	0	Yes	0.84	1.10	Yes
Apr 17/20	0	0	Yes	0.86	0.99	Yes
Apr 30/20	0	0	Yes	1.21	1.56	Yes
May 14/20	0	0	Yes	0.85	0.99	Yes
May 28/20	0	0	Yes	0.91	1.11	Yes
June 11/20	0	0	Yes	0.86	1.20	Yes
June 25/20	0	0	Yes	1.14	1.36	Yes
July 9/20	0	0	Yes	1.00	1.37	Yes
July 22/20	0	0	Yes	0.78	1.20	Yes
Aug 7/20	0	0	Yes	0.75	1.11	Yes
Aug 24/20	0	0	Yes	0.78	1.00	Yes
Sept 2/20	0	0	Yes	1.02	1.39	Yes
Sept 17/20	0	0	Yes	1.01	1.26	Yes
Sept 30/20	0	0	Yes	0.99	1.32	Yes
Oct 15/20	0	0	Yes	0.89	1.14	Yes
Oct 28/20	0	0	Yes	1.01	1.28	Yes
Nov 12/20	0	0	Yes	1.31	1.62	Yes
Nov 25/20	0	0	Yes	1.26	1.48	Yes
Dec 10/20	0	0	Yes	1.21	1.61	Yes
Dec 24/20	0	0	Yes	1.08	1.43	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 9/20	0	0	Yes	1.42	1.82	Yes
Jan 23/20	0	0	Yes	1.26	1.56	Yes
Feb 6/20	0	0	Yes	0.88	1.11	Yes
Feb 21/20	0	0	Yes	1.56	1.94	Yes
Mar 6/20	0	0	Yes	0.90	1.28	Yes
Mar 19/20	0	0	Yes	1.62	2.00	Yes
Apr 2/20	0	0	Yes	0.98	1.28	Yes
Apr 17/20	0	0	Yes	0.98	1.11	Yes
Apr 30/20	0	0	Yes	1.59	1.89	Yes
May 14/20	0	0	Yes	0.72	1.04	Yes
May 28/20	0	0	Yes	0.76	0.91	Yes
June 11/20	0	0	Yes	1.01	1.36	Yes
June 25/20	0	0	Yes	1.06	1.28	Yes
July 9/20	0	0	Yes	0.96	1.24	Yes
July 22/20	0	0	Yes	0.95	1.21	Yes
Aug 7/20	0	0	Yes	1.15	1.35	Yes
Aug 24/20	0	0	Yes	0.41	0.58	Yes
Sept 2/20	0	0	Yes	0.95	1.30	Yes
Sept 17/20	0	0	Yes	0.85	1.30	Yes
Sept 30/20	0	0	Yes	0.87	1.21	Yes
Oct 15/20	0	0	Yes	0.96	1.29	Yes
Oct 28/20	0	0	Yes	0.78	1.20	Yes
Nov 12/20	0	0	Yes	1.23	1.50	Yes
Nov 25/20	0	0	Yes	1.25	1.57	Yes
Dec 10/20	0	0	Yes	1.23	1.43	Yes
Dec 24/20	0	0	Yes	1.18	1.43	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 2020, 2022 and so on. These were the results from **2020**.

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 2020 producing the following results. Compliance with provincial standards is dependent on the effectiveness of the treatment process.

THM's

Feb. 2020	0.135 mg/L
May 2020	0.104 mg/L
Aug. 2020	0.253 mg/L
Nov. 2020	0.189 mg/L

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 80 ug/L (micrograms/liter). Compliance with provincial standards is dependent on the effectiveness of the treatment process. Testing was done in Reinfeld producing the following results.

HAA's

Feb. 2020	62.2 ug/L
May 2020	48.3 ug/L
Aug. 2020	72.5 ug/L
Nov. 2020	69.4 ug/L

Water system incidents.

4 water breaks were recorded for 2020.

Drinking water safety orders on system.

None

Boil water advisories issued.

2 maintenance boil water advisories were issued on the Red River Regional system.

Warnings issued or charges laid in accordance with Drinking Water Safety Act.

None.

Major Expenses Incurred.

SCADA systems for Reinfeld and Schanzenfeld

Future system expansion.

Possible Reservoir and Pumping Station