

2008 Annual Report

Schanzenfeld Water Utility System



Introduction:

The Initial phase of the Schanzenfeld Water Utility System was constructed in the late 1970's with the water being taken from a well located east of Schanzenfeld. The water was drawn out of the Winkler Aquifer and received minimal treatment. In 1997, a new well was drilled in NW ¼ 28-2-4W which also drew water out of the Winkler Aquifer, this water was filtered using a greensand filtration system. Also constructed at this time were the existing reservoir, pump house and mainline running from the reservoir south to Schanzenfeld. This system began receiving treated water from the Pembina Valley Water Co-op in August of 2002 and continues to receive water from the PVWC. Water is provided to the un-incorporated villages of Schanzenfeld, Chortitz, Friedensruh 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.

Description of the Water System:*Source*

The Schanzenfeld Water Utility 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 Winkler south booster station where it is pumped south into the Schanzenfeld reservoir located in NW ¼ 28-2-4W and 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.

Upon entering the Schanzenfeld reservoir 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. Leaving the Schanzenfeld Reservoir the water is pumped through a 150 millimeter PVC pipeline south to the Village of Schanzenfeld. 100 millimeter lines branch off of the main line to feed the Villages of Chortitz, Schanzenfeld and Friedensruh. Various 75 millimeter and 50 millimeter lines also feed portions of the villages and numerous rural properties in the area. The total distribution system runs approximately 15 miles.

Storage Reservoirs

The Schanzenfeld Water Utility System operates 1 (one) 200,000 litre reinforced concrete 2-cell reservoir located in NW ¼ 28-2-4W. The Reservoir acts as a buffer to alleviate peak demands and maintain adequate pressure on the system. At current demands, the reservoir holds approximately 1 day worth of storage.

Number of connections, population served, types of water users

As of December 2009 the Schanzenfeld Water Utility system had 295 service connections, billed out an average of 4,325,500 gallons per quarter and served an estimated population of 1,000. The system services an Elementary School, several Churches and a number of large Agricultural & Commercial users while the majority of connections are for residential properties. Each connection is equipped with a water meter to measure water volumes for monitoring, administrative, and billing purposes.

Classification/Certification

The Schanzenfeld Water Utility System is classified as a Class One (1) Distribution System. Classification/certification is regulated under Manitoba Conservation's Water and Wastewater Facility Operators Regulation under *The Environment Act*. The Utility Operator employed by the RM of Stanley is certified under provincial regulation.

Equipment:

The water reservoir houses one – 2 horsepower variable speed pump & two - 5 horsepower variable speed pumps with a combined pumping rate of 150 gpm. All water lines on the system are made of PVC materials.

Monitoring Equipment, how it works.

The reservoir uses electronic tele-metering equipment for monitoring the reservoir operations. This system notifies the utility operator by way of telephone of any problem with the reservoir regarding pressures, water levels, power failures, temperatures, & 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.

How are Public Works Staff notified in cases of emergencies?

The RM of Stanley Utility Operator is notified by telephone of any emergency or discrepancy with the system. A Utility Operator is on call 24 hours/day.

Water quality standards

Water samples are retrieved, tested & 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.

The chart on the following page outlines the 2008 Chlorination results leaving the Schanzenfeld reservoir as reported by the Utility Operator.

2008 Chlorination Report

Month	# of Samples Taken	Compliance
January	31	100%
February	29	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 2008 test results as submitted by the Operator to ALS Laboratory Group 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 below.

Coliforms & E. coli - Outflow Treated

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 2/08	0	0	Yes	n/a	n/a	n/a
Jan 14/08	0	0	Yes	n/a	n/a	n/a
Jan 28/08	0	0	Yes	0.28	0.85	Yes
Feb 12/08	0	0	Yes	0.02	0.024	No
Feb 25/08	0	0	Yes	0.53	1.12	Yes
Mar 10/08	0	0	Yes	0.6	1.19	Yes
Mar 25/08	0	0	Yes	0.04	0.47	No
Apr 7/08	0	0	Yes	0.61	1.15	Yes
Apr 21/08	0	0	Yes	0.95	1.42	Yes
May 6/08	0	0	Yes	0.25	0.65	Yes
May 20/08	0	0	Yes	0.61	1.04	Yes
Jun 2/08	0	0	Yes	0.89	1.28	Yes
Jun 16/08	0	0	Yes	0.98	1.35	Yes
Jun 30/08	0	0	Yes	0.79	1.16	Yes
Jul 14/08	0	0	Yes	0.14	1.18	Yes
Jul 15/08	n/a	n/a	n/a	0.52	0.89	Yes
Jul 16/08	n/a	n/a	n/a	0.68	1.14	Yes
Jul 28/09	0	0	Yes	0.71	1.13	Yes
Aug 12/08	0	0	Yes	0.44	0.88	Yes
Aug 25/08	0	0	Yes	0.67	1.09	Yes
Sep 8/08	0	0	Yes	0.54	0.99	Yes
Sep 23/08	0	0	Yes	0.65	1.03	Yes
Oct 6/08	0	0	Yes	0.86	1.19	Yes
Oct 20/08	0	0	Yes	0.13	0.49	Yes
Nov 3/08	0	0	Yes	0.31	0.7	Yes
Nov 18/08	0	0	Yes	0.15	0.48	Yes
Dec 1/08	0	0	Yes	0.48	0.91	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.

Every two years, quarterly testing is done for THM's as required by the Office of Drinking Water. 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 100 micrograms per litre of water. The THM standard is based on an average of four samples per year with the results from these tests are below.

	THM's				THM's
	Bromodichloro- methane	Bromoform	Chloroform	Chlorodibromo- methane	
Feb 12/08	0.047	0.0005	0.077	0.011	0.14
May 23/08	0.043	0.0008	0.073	0.029	0.15
Aug 12/08	0.024	0.0002	0.1	0.0067	0.13
Nov 18/08	0.035	<0.0005	0.087	0.0072	0.13

The RM of Stanley continues to work with the Pembina Valley Water Co-op as the provider of the water in an effort to help them reduce the level of THM's.

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.

In 2008 the Municipality retained Genivar Engineering to complete a Utility Rate Study on the Municipality's utility systems. This study estimates a possibility of 20 new connections per year on this system for the next number of years.

The study also estimates that water consumption on this system to grow by 6.02% per year to total consumption reaching approximately 91,000 cubic meters by 2012. An estimated 355 water utility connections are predicted for 2012.

For projected demands in 2012, the recommended reservoir storage volume would be 500,000L which will require a 300,000L expansion to the existing 200,000L reservoir.

The RM of Stanley has been awarded Federal & Provincial grant funding for this reservoir expansion as part of a regional reservoir expansion project which includes 2 other reservoirs in other areas of the Municipality. The Schanzenfeld reservoir project is being planned for construction in 2010 with an estimated completion cost of \$300,000.