2011 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 was 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. A 300,000L reservoir expansion was completed in the fall of 2010 to accommodate the increase in water connections.

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 NW¼ 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 and 1 (one) 300,000 litre reinforced concrete 3-cell reservoir located in NW ¼ 28-2-4W. With a capacity of 500,000 litres, the reservoir acts 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 2011 the Schanzenfeld Water Utility system had 354 service connections, billed out an average of 4,546,889 gallons per quarter and served an estimated population of 1,380. The system services two Elementary Schools, 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 reservoirs house one – 2 horsepower variable speed pump and 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, 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.

How is the Utility Operator 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 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.

The chart on the following page outlines the 2011 Chlorination results leaving the Schanzenfeld reservoir as reported by the Utility Operator.

2011 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 2011 test results as submitted by the Operator to Maxxam 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				In Distribution System		
	Coliforms	E. coli		Chlorine Free	Chlorine Total	
	MPN/100ml	MPN/100ml	Compliant	mg/L	mg/L	Compliant
Jan 3/11	0	0	Yes	0.77	1.24	Yes
Jan 18/11	0	0	Yes	0.76	1.23	Yes
Jan 31/11	0	0	Yes	0.83	1.45	Yes
Feb 22/11	0	0	Yes	0.72	1.25	Yes
Mar 1/11	0	0	Yes	1.11	1.59	Yes
Mar 14/11	0	0	Yes	0.95	1.47	Yes
Mar 28/11	0	0	Yes	1.34	1.78	Yes
Apr 11/11	0	0	Yes	0.96	1.32	Yes
Apr 27/11	0	0	Yes	0.60	0.94	Yes
May 9/11	0	0	Yes	1.01	1.32	Yes
June 1/11	0	0	Yes	0.92	1.30	Yes
June 6/11	0	0	Yes	1.08	1.45	Yes
June 20/11	0	0	Yes	0.92	1.36	Yes
July 4/11	0	0	Yes	0.83	1.23	Yes
July 18/11	0	0	Yes	0.38	1.06	Yes
Aug 2/11	0	0	Yes	0.96	1.43	Yes
Aug 15/11	0	0	Yes	0.93	1.42	Yes
Aug 29/11	0	0	Yes	0.77	1.24	Yes
Sept 12/11	0	0	Yes	0.41	0.88	Yes
Sept 26/11	0	0	Yes	0.19	0.63	Yes
Oct 11/11	0	0	Yes	0.50	1.05	Yes
Oct 24/11	0	0	Yes	0.71	1.17	Yes
Nov 7/11	0	0	Yes	0.84	1.38	Yes
Nov 21/11	0	0	Yes	0.66	1.09	Yes
Dec 5/11	0	0	Yes	0.82	1.28	Yes
Dec 19/11	0	0	Yes	0.54	1.09	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.

In 2011, THM testing was not required.

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.