

# Public Water System Annual Report

Southwest Regional Water Treatment Plant & Southwest Regional Water Co-op  
2013

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## Introduction:

The 2013 Annual Report for the Melita Water Treatment Plant summarizes the water utility's ability to produce safe potable water and meet or exceed provincial regulations. We hope that the following report answers any and all questions regarding the water system. It is our belief that the public has a right to access information related to the drinking water they consume. To that end the following report has been prepared for the residents who are users of the system.

### 1. Description of the Water System

The Southwest Regional Water Co-op Public Water System (PWS) provides safe potable drinking water to the residents of Melita, Arthur, Brenda, Napinka, Medora and Waskada through the distribution systems and to other rural residents by means of the Truck Fill System at the Water Treatment Plant (WTP). Treated water produced from the WTP meets or exceeds all health and aesthetic objectives as stated in the *Guidelines for Canadian Drinking Water Quality*.

The Melita Water Treatment Plant



### 1.1. Water Supply Source

The WTP receives groundwater from four wells located at 16 km North East of Melita @ NW23-5-27W. The wells draw groundwater from the Oak Lake Aquifer. The wells were drilled to a depth of 33 feet. Raw water pumped from the wells into a 200 mm (8 inch) pipeline where it flows directly into the WTP for processing and treatment.



Well Site 1

During 2007-2008, the Town of Melita developed a new Public Water System (PWS) which includes two groundwater wells, a Water Treatment Plant (WTP) in NW6-4-26W, and a raw water pipeline between the wells and the WTP. During the initial 6 months of operation it was determined the water supply wells have insufficient capacity due to the presence of impervious clay ridges which were not detected during the initial groundwater sourcing study. As a result, a new well field was developed on municipal right-of-way between SE24-5-27W and SW19-5-26W which is located 3.2kms east of the existing wells. This well field consists of two 760 mm (30 inch) wells, however, only the north well was mechanised and connected to the raw water supply line. This site will not be operational until spring 2010.

As water flows through the ground it dissolves metals and minerals. In the case of the Melita water supply, the water has come into contact with primarily iron and manganese. These items do not pose health concerns, rather they are known as aesthetic water quality parameters.

On September 23, 2010 the new well field was brought online. On December 16, 2010 it was decided to test the water coming from the new well field for Iron Bacteria due to production issues at the WTP. The tests came back positive and the decision was made to stop pumping and bring the original well field back online. The original well site was brought back online in early 2011 after it was swabbed and flushed to remove any iron bacteria from the raw water supply line to prevent contamination of the original well site. A plan is in place to treat the new well site and hopefully clear it of iron bacteria. At no time did iron bacteria enter the reservoir or any part of the distribution system.

## 1.2. Water Treatment Process

Raw water is pumped to the WTP where approximately 90% of the flow is directed through reverse osmosis membranes. The remaining 10% by-passes through a sand-filter with 3 new UV (ultraviolet) units prior to blending with membrane permeate. Blended flow is chlorinated with sodium hypochlorite and then stored in a 1,000,000 litre concrete reservoir for distribution. Since membranes remove most dissolved minerals, blending permeate with filter water allows the operation to produce treated water with a more desirable hardness and PH. Approximately 13% of membrane flow (11% of the raw water) is discharged as membrane concentrate to the Souris River. Treated water is distributed to the Co-op and a bulk water (truck) fill is available for rural usage.

Truck Fill





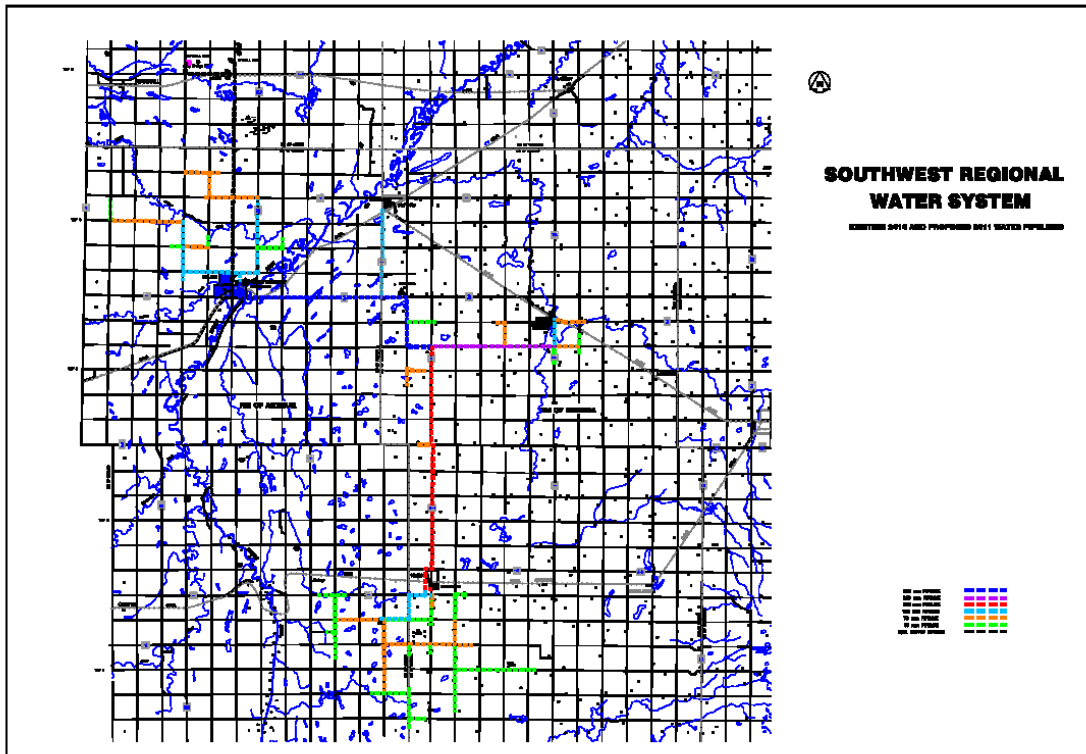
The MTU (Main Treatment) Unit



The Sand Filter

### 1.3. Distribution System

Treated water from the reservoir, located underneath the WTP, is pumped throughout the Melita distribution system via two 7.5 horsepower duty pumps, with one 30 horsepower emergency standby pump for firefighting purposes. The SWRWC has one 7.5 horsepower duty pump. The SWRWC consists primarily of High Density Polyethylene Pipe. 12 miles of 8" raw water supply line, the distribution consists of the following 11 miles of 10", 5 miles of 8", 10 miles of 6", 18 miles of 4", 23 miles of 3", 25 miles of 2", for a total of 104 miles of pipe in the ground. A map of the current distribution system as it looks today is on the next page, the Waskada Rural Water Co-op already had several miles of pipe in place but is now part of the overall distribution system. The WTP also has a natural gas powered generator located in the building that powers the distribution pumps during times of a power failure.



The Distribution Pumps



The Generator

#### 1.4. Storage Reservoir

The storage reservoir for the Co-op's drinking water has a capacity of 1,000,000 litres or 220,000 Imperial Gallons, which gives us an available storage time of 2 days without plant operation. Currently the plant runs daily keeping the reservoir full, the main reason for this is to have enough water on hand for firefighting and domestic use. It also helps to keep the water fresh and well circulated.

### **1.5. Number of Connections, Population Served and types of Water Users**

The Melita distribution system is comprised of 592 service connections, with a population of 1056 (2006 Statistics Canada Census) approximately. The distribution system also services a few rural connections located directly around town in the RM of Arthur.

In June of 2010 Phase 1 of the Rural Pipeline began construction and the South West Regional Water Co-op was formed which includes to date the Town of Melita, R.M. of Arthur, R.M. of Brenda, Village of Waskada and the Waskada Rural Water Co-op.

In phase 1; Arthur has 14 rural service connections, Brenda has 74 service connections 12 are rural connections 38 in Napinka and 24 in Medora. Connections to the Southeast of Melita were completed and came online in June, serving Brenda, Napinka, Medora and additional connections in Arthur, completing phase 1 of the co-op pipeline. Waskada, the existing Waskada Rural Water Co-op and additional connections in Arthur and Brenda came online in January 2012, when phase 2 was completed.

### **1.6. Classification and Certification**

- The Melita WTP is classified as a Class 2 Water Treatment Facility.
- Certification Level of Operators;
  - Brock Bolton, Level 2
  - Rob McCutcheon, currently in the process of obtaining certification.

### **1.7. Hydrological Investigations**

In 2005, KGS Group conducted a groundwater sourcing study near the Broomhill truck loader station approximately 16 km north of Melita. The objective of the study was to carry out exploratory drilling and installation of a production well with sufficient capacity for the Town's water supply. KGS Group conducted an EM34 survey and drilled approximately 20 test-holes and installed 15 monitoring wells. A 96.5 hour pump test at a constant 15 L/s pump rate was completed and drawdown was monitored. In October 2005, a 200 mm (8 inch) production well was installed on the NW23-5-27W on the Broomhill Wildlife Management Area (WMA). The water level was recorded to be 1.8 meters below ground at the time of drilling. A second production well was installed 15 meters south of the first in 2007 so that one well could act as a backup supply.

After commissioning the WTP in 2009, a monitoring well system was installed which showed a significant water table drop over the first 6 months of operation. Subsequent test drilling by KGS Group showed that the aquifer was not continuous as originally determined from the 2005 investigations. Newer test drilling at close intervals showed the presence of clay ridges that separated the larger aquifer into smaller basins. It was determined that these clay ridges result in an "egg carton" or "ice cube tray" effect such that once the water table dropped below the top of the ridges, the production wells, which are located into a much smaller basin, are unable to sustain withdrawals necessary to sustain Melita.

### **1.8. Artificial Recharge**

Test drilling activities in 2009 revealed at least three separate basins in close proximity to the well field. The basins are referred to as the south, middle and north basins whereby the production wells are located in the south basin. In addition, the Broomhill truck loader station is also located in the south basin. Due to the water table drop, the pump in the truck fill had to be lowered to maintain its operation. Recharge infrastructure include a 760 mm (30 inch) well was installed in both the middle and north basin. A 75 mm pipe line was installed from the middle basin well to the south production well. This would allow groundwater from the middle basin to be pumped to the production well site and artificially recharge the south basin. However, due to Manitoba Hydro power restrictions, this well can only be pumped while the production well is not in operation. The WTP generally requires water for about 13 hours a day on average for 2012, such that the middle basin is pumping only when needed. When recharging is required the pump is turned on and runs continually until water levels are back up to an acceptable level and then turned off until needed. Pumping groundwater from the middle basin to the south basin commenced on August 26<sup>th</sup>, 2009 on an as needed basis and wasn't used in 2010 and since then only as needed.

Since the middle basin could only be pumped intermittently, the north basin well was temporarily equipped with a pump, generator and overland pipeline to speed up the water table recovery. Pumping from this basin occurred from September 3<sup>rd</sup> to September 21<sup>st</sup> until water levels significantly recovered and the north basin water table prevented further pumping. The water table in the north basin has since recovered. In 2012 the north basin was converted to a supplemental well to improve operating pressures and flows to the plant when it is in operation.

Currently, the middle basin well is intermittently pumped to the production well site in an attempt to maintain water levels until the new well field located on the SE24-5-27W can be put into operation. KGS Group determined that pumping from all three basins will not be sustainable to meet Melita demands and recommended developing the new well site. At this point the new well field is still not in operation as all attempts to remove the iron bacteria from it have failed.

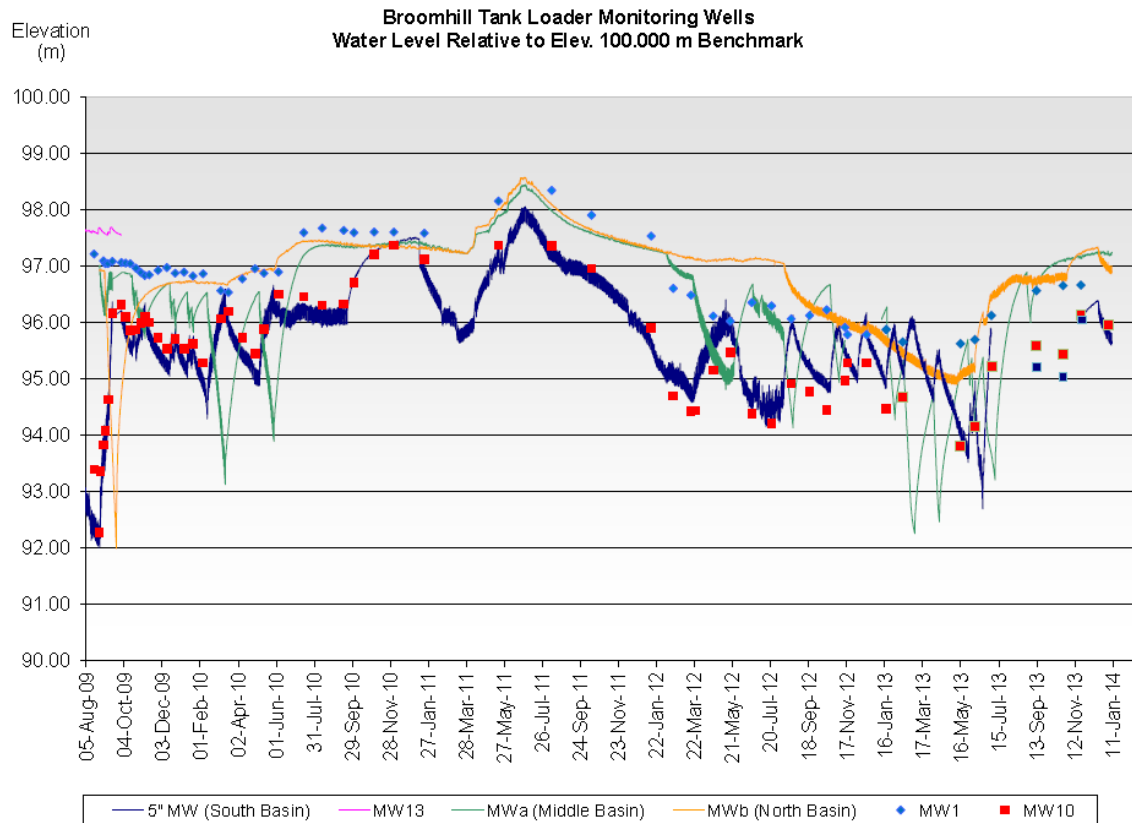
The updated graph on page 11 shows ground water levels at various points at and around the original wells.



Recharge Wells

### 1.9. Groundwater Levels and Monitoring

Groundwater monitoring commenced in July 2009. As many as four pressure transducers were initially set-up and currently three pressure transducers are continuous and manual readings. This graph uses a benchmark of 100.00 m in order to compare levels in each the three basins.



The locations of all monitoring wells are shown in the appendices. 5" MW represents the water table depth near the production well, while MWa and MWb represent the water table depth in the middle and north basins.

In 2007, the Manitoba Water Services Board (MWSB) developed a groundwater monitoring plan for the existing well field (site 1) as required in Environment Act license No. 2745 issued to the Town of Melita. On October 5, 2009, MWSB requested a minor alteration to this license to include the new well field (site 2) located on the SE24-5-27W. As a result, Manitoba Conservation requires a revised water level monitoring plan.

Once operational, site 2 will become the main supply for the Town of Melita. Site 1 will remain as a backup supply. Therefore, the groundwater monitoring plan will include monitoring of both sites. The following groundwater monitoring plan is proposed for a period of two years commencing site 2 operation. After two years, the location and frequency of groundwater monitoring is proposed to be re-evaluated.

### **Site 1 – NW23-5-27W**

In 2009, three new monitoring wells were installed at site 1. A 125 mm monitoring well (MW-21) was installed 15 m east of the production wells in the south basin, a 50 mm monitoring well (MW-22) located 110 m north of the north production well in the middle basin, and a 50 mm monitoring well (MW-23) located 245 m north of the north production well in the north basin. All three monitoring wells were equipped with pressure transducers. However, it is proposed to maintain two pressure transducers at MW-21 and MW-22 for continuous monitoring. A manual water level reading with an electronic tape is proposed semi-annually at MW-10, MW-23 and MW-14. The monitoring of these wells will provide water level data on each of the three basins as well as MW-14 located outside of the basins.

### **Site 2 – SE24-5-27W**

The proposed monitoring system for site 2 will include pressure transducers installed in MW-103 near the proposed production well and in MW-104 located adjacent to the Harmon farmstead. Manual level readings are proposed semi-annually at MW-100, MW-101 and MW-102. MW-100 is located near the Miner and Carr properties. Each monitoring well is protected with a locked steel cover. However at each monitoring well location, a second 50 mm monitoring well (without steel cover and lock) was provided for public observations.

## **2. Water Testing**

Water tests are taken daily on a routine basis to ensure that the water is safe and to monitor how well the treatment process is performing. We test the water at the WTP and in the distribution system. We perform daily tests at the WTP on 6 different aspects of the treatment process.

- Distribution Tests (*water taken from a point in the distribution system*) on average 6 tests per day.
- Treated Tap (*water taken from a point in the WTP before it leaves the plant*) on average 6 tests per day.
- Raw (*untreated well water as it enters the WTP*) on average 4 tests per day.
- Permeate (*water from the R.O. Unit before chemical addition*) on average 3 tests per day.
- Sand-filter (*treated water from the sand-filter, before it blends with R.O. water*) 7 tests per day, 5 when chlorine isn't used as a pre-treatment.
- MTU or Main Treatment Unit (*water from all 12 vessels and 3 stages*) 15 tests per day for conductivity.

There are on average 42 tests performed a day at the WTP and another 6 rurally, or 1,460 tests a month, 17,520 tests a year.

### 2.1. Bacterial Testing

We sample the raw water (untreated well water), the treated water (water leaving the treatment plant) and the water in two locations in the distribution system one from the Melita lodge because of its location on the system and the other from a list of strategic locations (within the Town of Melita) every two weeks (bi-weekly) for the presence of Total Coli forms (TC) and E. Coli (EC) bacteria. If these bacteria are present in the water it is an indication that disease causing organisms may also be present. Since the completion of phase 2 Melita WTP staff now collects 6 samples instead of the 10 samples a year ago. New licences were issued in 2012 and now Melita, Brenda (Napinka and Medora) and Waskada have to do their own sampling for their distribution systems. These 6 samples are then sent via courier to a provincially sanctioned lab in Winnipeg for testing.

### 2.2. Disinfection

The final step in the treatment of safe water is disinfection. Disinfection is the selective destruction or inactivation of potential disease causing organisms in water. Per the *Drinking Water Safety Act* the Melita PWS must ensure that a disinfection residual of at least:

- 0.5 mg/L of free chlorine per litre of water is detectable at the point where water enters the distribution system, after a minimum contact time of 20 minutes.
- 0.1 mg/L of free chlorine per litre of water is detectable at all times at any point in the distribution network.

### 2.3. Type of Disinfection Used

The Melita WTP disinfects by adding a 12% sodium hypochlorite solution to the water via 3 chlorinator pumps. One for the raw water before it enters the sand-filter (pre-treatment) and two for the blended water before it enters the reservoir. In 2012 three UV units were added after the filter.

### 2.4. Equipment Redundancy and Monitoring Requirements

As required by the *Drinking Water Safety Act* the Melita PWS ensures continuous disinfection is maintained at the WTP by keeping in stock all spare parts required for the chlorinators, as well there are two spare chlorinator pumps kept at the plant. Disinfection residuals are monitored continuously by an online monitor that monitors the water continuously as it leaves the



Online Monitoring Equipment

WTP. We also monitor the residuals daily at the WTP and in the distribution system; these tests are performed at the WTP after the samples are collected. The results of all tests are recorded on our records at the WTP as well as Monthly Chlorination Report forms which are sent to the regional *Drinking Water Officer* at the end of each month, to check for standard compliance.

## **2.5. Turbidity Testing**

Turbidity is a measurement of the clarity of water. We use turbidity as another means to tell us how well our treatment system is working and to remove particles and other contaminants that can cause the water to look cloudy and affect our disinfection process. Turbidity is tested daily, the raw, treated, sand-filter and distribution by a portable testing meter. The water from the sand-filter and from the MTU are monitored continuously while the plant is in operation, by two separate online turbidity monitors. The results of all turbidity tests are recorded on our records at the WTP as well as Monthly Turbidity Report forms which are sent to the regional *Drinking Water Officer* at the end of each month to check for standard compliance.

## **2.6. Other Testing Performed at the WTP**

- Iron Testing: Is performed daily on the following samples, distribution, treated tap, sand-filter. Every 5 days on the raw and every 10 days on permeate.
- Manganese Testing: Is performed daily on the following sample, sand-filter and every 7 days on the distribution, treated tap, raw and permeate.
- PH Testing: Is performed daily on the following samples, treated tap, raw, permeate and concentrate.
- Hardness Testing: Is performed every 10 days on the following samples, raw and treated tap.
- Fluoride Testing: Is performed daily on the distribution sample. See section 5 for more on fluoride. (Discontinued)
- Chlorine Testing: Is performed daily on the following samples, distribution, and treated tap and sand-filter. As previously described in sections 2.2 and 2.3.
- Conductivity Testing: Is performed daily on the following samples, permeate, distribution, treated tap, raw, sand-filter and all 12 vessels on the RO unit.

## **2.7. Plant Operation**

The WTP is monitored continuously by the computer system; it is continuously taking readings from 60 different locations by sensors, probes and meters. This information is displayed in real-time on a different number of screens (*see Figure A, B, C which show three different computer screens*) and is also recorded and compiled in the form of a trend. These trends can be accessed at any time and show a history of plant operation in various areas (*see Figure D for an example of a trend screen*).

Figure A

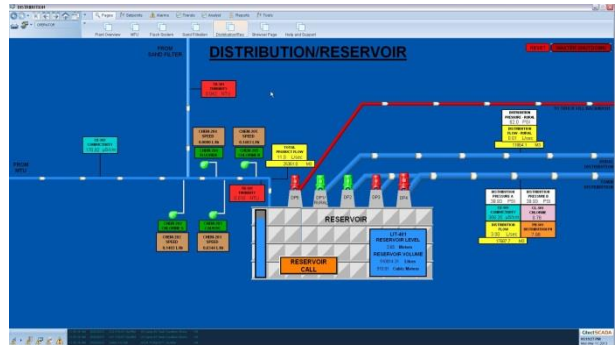
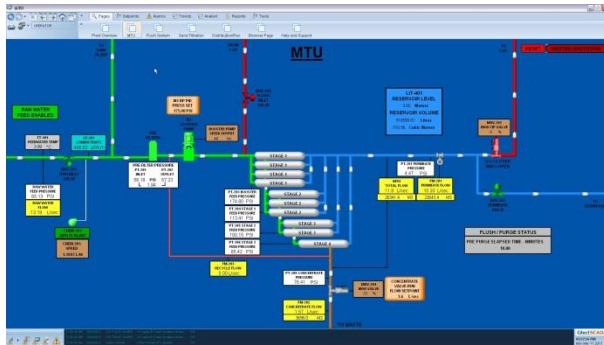


Figure B

Figure C

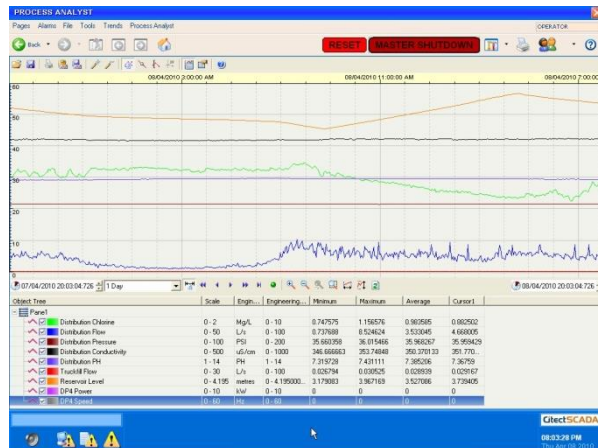
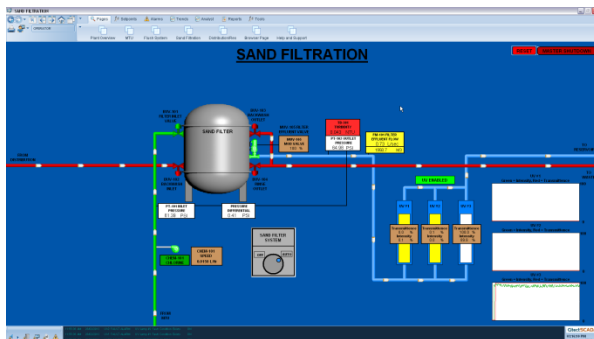


Figure D

## 2.8. Chemicals Added to our Water and Why

- Sodium Hypochlorite 12%: (Chlorine) Disinfectant, source of available chlorine.
- Pre-Treat Plus: (Antiscalant) Injected in the raw water before the membranes to protect them.
- Sodium Hydroxide 50%: (Caustic Soda) Acid neutralization raises PH.

### **3. Disinfectant Residual, Turbidity, Bacteria and Overall Performance Results**

For 2013, the SWRWC PWS has met all regulatory requirements in regard to monitoring and reporting in the WTP, leaving the WTP and in the distribution system (*see Appendix “B” – Annual Audit – 2013*).

#### **3.1. List of Water Quality Standards**

The province of Manitoba has adopted a number of water quality standards from the *Guidelines for Canadian Drinking Water Quality* developed by Health Canada and two regulations under the *Drinking Water Safety Act*. A copy of the Annual Audit – 2013 from the Office of Drinking Water is located in *Appendix “B”*.

### **4. Water System Incidents and Corrective Actions**

In 2013 the SWRWC PWS still has two residents with taste and odour issues due to line size and length and the SWRWC has a plan in place to permanently solve the problem for one and a maintenance plan for the other.

### **5. Additional Records Required**

As of August 2012 fluoride is no longer added to the water.

**Daily Log Sheets** are also kept to check plant performance, copies of these forms are sent into the Water Services Board for review.

**Distribution Flows and Pressures Data Sheets** are also kept to keep an eye on flows and pressures of the water leaving the reservoir.

**Conductivity Sheets** are also kept to check plant performance, copies are also sent into the Water Services Board for review.

**Pressures and Flows** are also recorded at 4 locations on the rural pipeline (Napinka, the Booster Station, Medora and Waskada).

### **6. Drinking Water Safety Orders and Actions Taken in Response**

In 2013, no drinking water safety orders were issued for the Melita PWS.

### **7. Boil Water Advisories Issued and Actions Taken in Response**

No Boil Water Advisories were issued in 2013.

### **8. Warnings Issued/Charges Laid in Accordance with the Drinking Water Safety Act**

In 2013, no warnings were issued or charges laid for the SWRWC PWS.

### **9. Major Expenses Incurred**

Membranes were replaced in the Main Treatment Unit in August.

#### **10. Future System Expansion and/or Increased Production**

A second skid or treatment unit will be added to the WTP in 2014 to help with water production because of the expansion to the system the WTP could not keep up with the demand, as a result flows leaving the reservoir during the summer months were far greater than what was going into it.

#### **11. Water Production/Usage for 2013**

The treatment system capacity was designed to meet a 20 year future demand for Melita as well as additional capacity for the rural water system. Although that has proven to be incorrect and will be revised accordingly as after only 4 years several upgrades have already taken place and more scheduled for this year. The water system production and usage are summarized in the following charts in ***Appendix "A" – Usage Charts.***

## Appendix “A” – Usage Charts

### Raw

Total Gals	Highest Day	Lowest Day	Daily Average
50,078,194	252,863	5,507	137,201

### Melita

Total Gals	Highest Day	Lowest Day	Daily Average
25,468,070	135,242	54,405	69,776

### Melita Truck Fill

Total Gals	Highest Day	Lowest Day	Daily Average
1,344,706	13,877	0	3,684

### Napinka

Total Gals	Highest Day	Lowest Day	Daily Average
4,911,460	26,652	3,965	13,456

### Napinka Truck Fill

Total Gals	Highest Day	Lowest Day	Daily Average
66,050	2,291	0	181

### Medora

Total Gals	Highest Day	Lowest Day	Daily Average
533,265	4,846	220	1,461

### Waskada

Total Gals	Highest Day	Lowest Day	Daily Average
6,388,544	40,088	6,608	17,503

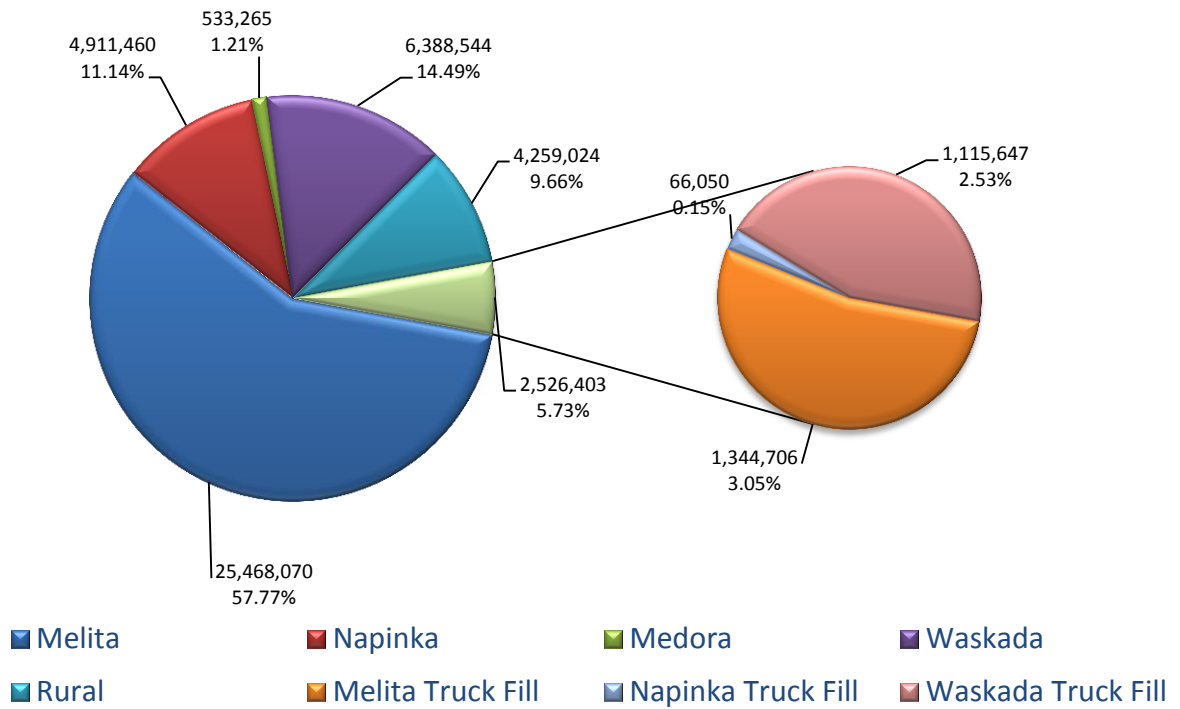
### Waskada Truck Fill

Total Gals	Highest Day	Lowest Day	Daily Average
1,115,647	26,238	0	3,057

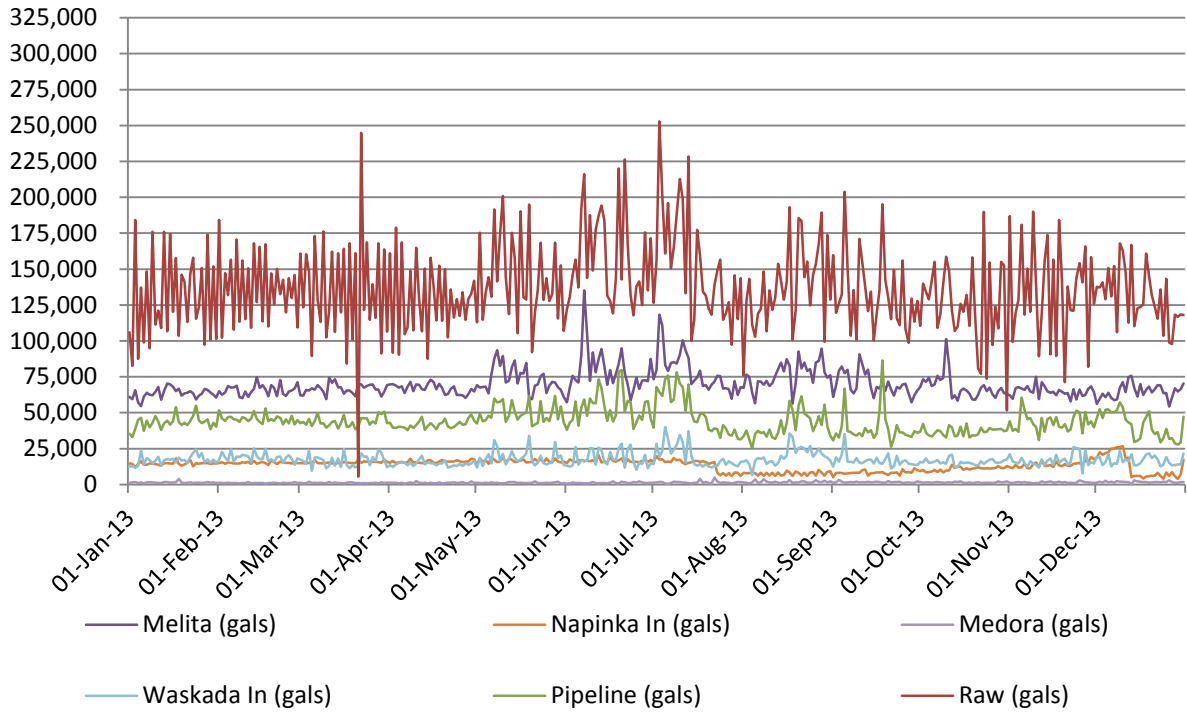
### Rural

Total Gals	Highest Day	Lowest Day	Daily Average
4,259,024	N/A	N/A	11,668

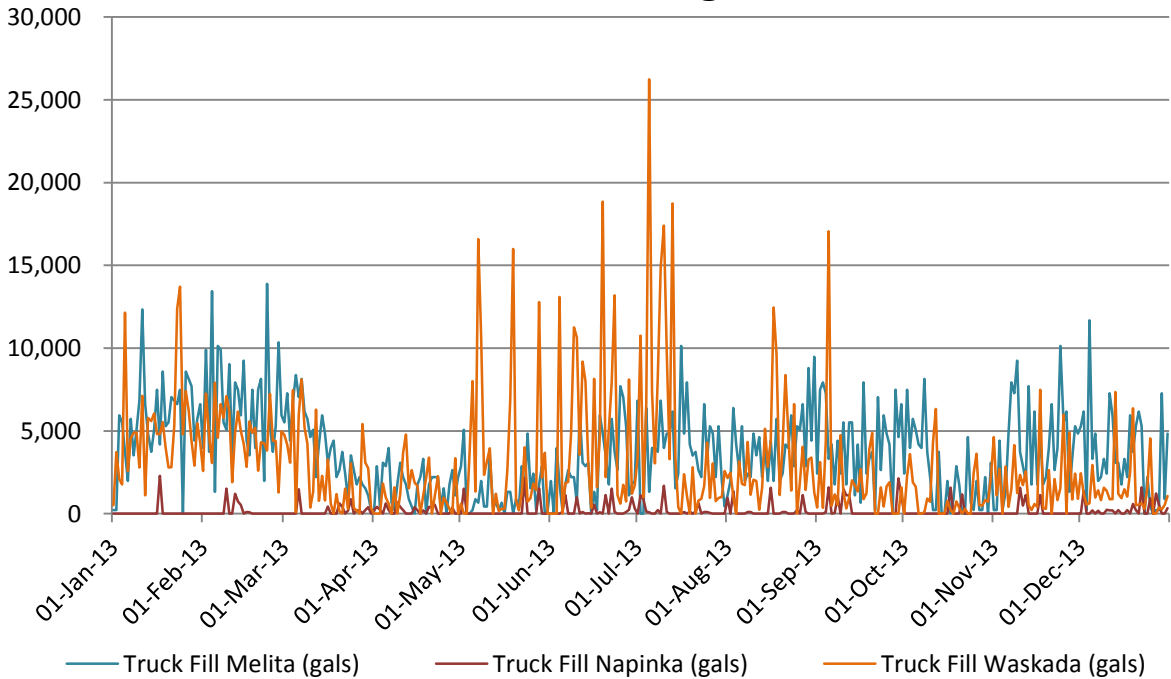
## 2013 Usage Chart in Imperial Gallons




## 2013 Usage Chart



## 2013 Truck Fill Usage Chart




## Appendix “B” – Annual Audit 2013

		<b>Conservation and Water Stewardship</b> <b>Office of Drinking Water</b>		<b>Public Water System</b> <b>Annual Audit Report</b>	
Water System:	Code:	Operating Licence Number:	Reporting Period:	Date:	
Southwest Regional Water Co-op – PWS	205.10	PWS-11-495 A	2013	2014/01/28	

Water Quality Standards		Percent Compliance	Corrective Action Forms
<b>Bacterial</b>			
E. coli	Less than one E. coli bacteria detectable per 100mL in all treated water	100%	0
Total coliform	Less than one total coliform bacteria detectable per 100mL in all treated water	100%	0
E. coli	Less than one E. coli bacteria detectable per 100mL in all distributed water	100%	0
Total coliform	Less than one total coliform bacteria detectable per 100mL in all distributed water	100%	0
<b>Comments:</b>	The public water system has met its bacterial water quality standard for 2013.		
<b>Disinfection</b>			
Chlorine residual	A free chlorine residual of at least 0.5 mg/L in water entering the distribution system following a minimum contact time of 20 minutes	100%	0
	A free chlorine residual of at least 0.1 mg/L at all times at any point in the water distribution system	100%	0
Ultra Violet	95% of the volume of water produced per month is disinfected within validated conditions	1000%	0
<b>Comments:</b>	The public water system has met its disinfection water quality standard for 2013.		
<b>Physical</b>			
Turbidity	Less than or equal to 0.1 NTU in 99% of the measurements in a month of the effluent from each membrane filtration unit	100%	2
	Not exceed 0.3 NTU for any continuous measurement	100%	0
<b>Comments:</b>	The percent compliance for your system is presented this year with a corrective action form. Please be advised that corrective action forms will no longer be a factor in turbidity compliance. The public water system has met its turbidity water quality standard for 2013.		
<b>Chemical</b>			
Total trihalomethanes (to include: bromodichloromethane, bromoform, chloroform, dibromochloromethane)	Less than or equal to 0.10 mg/L as annual average of quarterly samples	0.008 mg/L	
Arsenic	Less than or equal to 0.01 mg/L	< 0.00020 mg/L	
Fluoride	Less than or equal to 1.5 mg/L	< 0.10 mg/L	

<b>Manitoba</b> 		<b>Conservation and Water Stewardship</b> <b>Office of Drinking Water</b>		<b>Public Water System</b> <b>Annual Audit Report</b>	
Water System:	Code:	Operating Licence Number:	Reporting Period:	Date:	
Southwest Regional Water Co-op – PWS	205.10	PWS-11-495 A	2013	2014/01/28	


Nitrate	Less than or equal to 10 mg/L measured as nitrogen	<b>0.0684 mg/L</b>
Uranium	Less than or equal to 0.02 mg/L	<b>0.00155 mg/L</b>
Benzene	Less than or equal to 0.005 mg/L	<b>&lt; 0.0001 mg/L</b>
Trichloroethylene	Less than or equal to 0.005 mg/L	<b>&lt; 0.001 mg/L</b>
Tetrachloroethylene	Less than or equal to 0.03 mg/L	<b>&lt; 0.001 mg/L</b>
<b>Comments:</b>	On October 28, 2013, the public water system undertook general chemistry sampling and the report indicated that the treated water met all health related guidelines.	
	The public water system has met the THM water quality standard for 2013.	

Monitoring Requirements		Percent Compliance
<b>Bacterial</b>		
Total coliform and E. coli	Bi-weekly sampling program with each set of samples consisting of one raw, and one treated sample at the Melita plant, and a minimum of one outgoing distribution sample each from the reservoirs of Napinka and Waskada, , and one distribution sample each from the rural municipalities of Arthur and Brenda	100%
	Consecutive sample sets must be separated by at least 12 days	100%
Comments:	The public water system has met its bacteriological sampling requirement for 2013.	
<b>Disinfection</b>		
Free chlorine (treated water)	Continuous sampling of water entering the distribution system following at least twenty minutes of contact time at the Melita water treatment plant	100%
	A confirmatory sample to be taken weekly at a location established by the Drinking Water Officer	100%
Free chlorine (distribution system)	On a bi-weekly basis, at the same time and locations as bacteriological distribution system sampling in the rural municipalities of Arthur and Brenda	100%
	On a daily basis outgoing from the reservoirs of Napinka and Waskada	100%
Total chlorine (treated water)	One sample per day of water entering the distribution system following at least twenty minutes of contact time at the Melita water treatment plant	100%
Total chlorine (distribution system)	On a bi-weekly basis, at the same times and locations as bacteriological distribution system sampling in the rural municipalities of Arthur and Brenda	100%
	On a daily basis outgoing from the reservoirs of Napinka and Waskada	100%
UV intensity	Continuous monitoring of UV intensity level for each operating UV unit	100%
Comments:	The public water system has met its disinfection monitoring requirement for 2013.	
<b>Physical</b>		

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Turbidity	One raw water sample per day.	100%
	Continuous sampling of the effluent from each operating particulate filter	100%
	Continuous sampling of the effluent from each operating membrane filtration unit, or the combined filter effluent from the particulate filter and the membrane filtration units	100%
	A confirmatory sample to be taken weekly at location(s) established by the Drinking Water Officer	100%
<b>Comments:</b> The public water system has met its turbidity monitoring requirement for 2013.		
<b>Chemistry</b>		
General chemistry (to include arsenic, benzene, fluoride, nitrate, trichloroethylene, tetrachloroethylene, and uranium)	One raw and one treated water sample once each	100%
Trihalomethanes (THMs)	One preserved distribution system samples taken on a quarterly basis during February, May, August, and November, every second year, leaving a pumphouse reservoir	100%
Lead	As per the instructions of the Drinking Water Officer	N/A
<b>Comments:</b> The public water system has met its general chemistry monitoring requirement for 2013. The public water system has met its regulatory requirement for 2013 with regard to submitting quarterly water samples for THM analysis. As identified in Table 2 of your Operating Licence, your next set of samples will be required in 2015.		

Reporting Requirements		
Disinfection	Submit original monthly disinfection report forms within seven days after the end of each calendar month	100%
Physical	Submit original monthly turbidity report forms within seven days after the end of each calendar month	100%
Corrective Actions	Submit original corrective action report for minor exceedences as described in the most recent version of the Office of Drinking Water “Operational Guidelines for Public and Semi-public Water Systems”, along with the monthly disinfection, or turbidity report form	100%
Emergency	Immediately notify the Office of Drinking Water of any condition that may affect the ability of the water system to produce or deliver safe drinking water including treatment upsets or bypass conditions, contamination of the source water or treated water, a filtration or disinfection system failure, or a distribution system failure	100%
<b>Comments:</b> The public water system has met its regulatory reporting requirements for 2013.		

		<b>Conservation and Water Stewardship</b> <b>Office of Drinking Water</b>		<b>Public Water System</b> <b>Annual Audit Report</b>	
Water System:	Code:	Operating Licence Number:	Reporting Period:	Date:	
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### Other Regulatory Requirements

#### *Engineering Assessment*

Due Date	February 1, 2012
Date Received	
<b>Comments:</b>	This due date can be found in clause 2.4 of your Operating Licence.

#### *Operating Licence Expiry Date*

Expiry Date	May 31, 2016
<b>Comments:</b>	Please be advised that you are required to apply for renewal of your operating licence 60 days prior to its expiry

#### *Water System Annual Report*

Due Date	March 31, 2013
Date Received	March 13, 2013
<b>Comments:</b>	Your 2013 Water System Annual Report is due March 31, 2014. Your annual report must be submitted to your Drinking Water Officer with a cover letter including the following information: the date that the report was placed on an Internet website and website address, the location where free paper copies are available, and the method(s) used to notify water users that the report is available.

### Inspection

System Inspected	August 8, 2013
Inspection Letter Sent	August 15, 2013
<b>Comments:</b>	The purpose of the inspection was to determine any concerns related to the provision of safe drinking water. Water plant operator Rob McCutcheon was present during the inspection. The collection of chemical samples this year was discussed with the operator and a pre-printed laboratory chain of custody was provided. The combined turbidity was measured as 0.07 NTU, within the provincial standard of 0.1 NTU. The free chlorine residual entering the distribution system was measured as 0.75 mg/L, which is above the regulatory requirement of minimum 0.5 mg/L.