

# Public Water System Annual Report

- 2008 -

Name of the Public Water System: Cartier Regional Water System

Name of the legal owner: Cartier Regional Water Co-op

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Date prepared: March 31, 2008

Dave Pirt  
Operations Supt.  
Cartier Regional Water System

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## ***Introduction:***

The 2008 Annual Report for the Cartier Regional Water System summarizes the Water Utility's ability to produce safe potable water and meet provincial regulations.

### **1. Description of the Water System:**

The Cartier Regional Water System provides potable drinking water to a population of app. 9950 residents. Treated water produced from the Cartier Regional water treatment plant meets all health and aesthetic objectives as stated in the Guidelines for Canadian Drinking Water Quality, with the exception of the level of the THM; bromodichloromethane. This is further discussed in the Office of Drinking Water Annual Audit, which is included in this report as Appendix E.

#### 1.1. Water supply source

The Cartier Regional Water Treatment Plant (WTP) receives surface water from the Assiniboine River.

#### 1.2. Intake structures:

The stainless steel intake structure is specially designed to prevent injury to fish. It is located immediately east of the Baie Ste Paul bridge, & flows through a 400 mm pipe into a concrete wetwell on the south shore of the river. Two submersible pumps are available to pump the raw water through a 300 mm pipeline about 2 kilometers south to the WTP. Raw water can be pumped either to the aerated raw water storage pond, or directly to the WTP raw water wetwell located beneath the water plant. Normal operational strategy is to pump to the storage pond for pre-settling, and pre-treatment ( summer season; as required ) with potassium permanganate. The pond provides a buffer when river water quality may not be optimal ( spring breakup, etc ).

#### 1.3. Water treatment process:

The Cartier Regional WTP is a conventional cold lime softening system. A powerful oxidant, potassium permanganate (  $\text{KMnO}_4$  ), can be fed at the river intake, the raw storage pond inlet, & in the treatment plant, or in any combination required. The  $\text{KMnO}_4$  breaks down organic substances which contribute to taste & odour problems, & can lead to the formation of chlorinated organic compounds known as trihalomethanes ( THM;s ).

Raw water flows from the pond into the WTP raw wetwell, into which Powdered Activated Carbon ( PAC ) is added. The PAC adsorbs organics, again for taste & odour control.

The water is pumped through a magnetic flow meter & a rate control valve, into the reaction zone of the clarifier, where it is rapidly mixed with recirculated sludge & a number of chemicals: lime to increase pH ( relative alkalinity ), which causes carbonate “hardness” minerals & many other dissolved substances to precipitate out; Caustic soda, added as needed for non-carbonate hardness removal; Coagulants, to bind precipitates & sediment together into a settleable “floc”; & occasionally PAC, again for taste & odour control. The water, sludge & chemicals pass from a rapid to a slow mix zone, & then into the clarification zone, where over a two hour period, clear water rises to the surface & solids settle down below. The clear effluent is collected & conveyed into a recarbonation tank where Carbon Dioxide is bubbled through the water to neutralize the high pH. The water then passes through gravity filters incorporating a 400 mm thick layer of Anthracite ( crushed coal ) over a 300 mm thick layer of crushed quartz sand. Turbidity is a measure of the clarity of water, & we have online 24 hr. monitoring of our 4 filter cell effluents, & also our treated water going to the distribution system. After filtration, a small dosage of chlorine is added to kill pathogenic organisms ( bacteria, viruses, etc. ). The free chlorine residual in our treated water entering the distribution system is also monitored continuously. Fluoride is added to a 1 PPM concentration for dental health purposes.

The Cartier Regional water treatment process consists of one treatment train, with provision for expandability to meet future demands.

#### 1.4. Distribution system:

Treated water from the reservoir is pumped throughout the Cartier regional distribution system via two 25 horsepower duty pumps, & a 50 horsepower duty pump. The distribution system is partially looped and has an approximate piped length of 650 kilometres. Piping is comprised of a mix of PE & PVC.

#### 1.5. Storage reservoirs:

Cartier Regional WTP: Raw Storage Reservoir Capacity: 60,000 M3

Cartier Regional WTP: Treated Reservoir Capacity: 1400 M3

Headingley Reservoir: Treated Reservoir Capacity: 1100 M3

St. Francois Xavier Reservoir: Treated Reservoir Capacity: 400 M3

#### 1.6. Number of connections, population served and types of water users:

The Cartier regional distribution system is comprised of 3086 service connections (all metered). We serve a population of app. 9950 in 6 different Rural municipalities; the RM of Cartier, RM of Portage la Prairie, RM of St. Francois Xavier, RM of Headingley, RM of Grey, & the RM of Rosser.

### 1.7. Classification and Certification:

- Class 3 Water Treatment Facility Classification
- Certification level of operators:
  - Dave Pirt; Level 3 Water Treatment, Level 2 Water Distribution
  - Will Thomas, Level 2 Water Treatment & Water Distribution

## **2. Disinfection System in Use:**

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. As per the Drinking Water Safety Act the Cartier Regional Water System must ensure that a disinfectant residual of at least:

- 0.5 mg 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 of free chlorine per litre of water is detectable at all times at any point in the distribution network.

### 2.1. Type of disinfection system used:

The Cartier Regional WTP disinfects by adding Chlorine gas to the treated water via a Regal gas chlorinator.

### 2.2. Equipment redundancy and monitoring requirements:

As required by the Drinking Water Safety Act the Cartier Regional WTP ensures continuous disinfection is maintained at the plant by keeping in stock all spare parts required for the chlorinator. As additional backup, a complete spare chlorinator is also kept at the plant.

Disinfectant residuals are monitored daily at the water treatment plant, and at Headingley & St. Francois Xavier reservoirs. Residuals are also monitored periodically in the distribution system and recorded on the appropriate monitoring forms. Monthly chlorination report forms are sent to the regional Drinking Water Officer at the end of each month.

### 2.3. Disinfectant residual overall performance / results:

For 2008, the Cartier Regional Water System has met all regulatory requirements in regard to monitoring and reporting disinfection residuals leaving the water treatment plant and in the distribution system.

### **3. 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. The parameters are health-based and they express the maximum acceptable concentration for a groundwater supply source. Concentration values in excess constitute a health-related issue and require corrective actions. The 2008 results for the Cartier Regional Water System are summarized in the following table:

Parameter	Standard	Frequency	Test Results
Bacterial; TC & EC **	0 TC, 0 EC	Bi-weekly	100 % passed
Disinfectant Residual	WTP (> 0.5 mg/L)	Daily	100 % compliance
“ “	Distribution (> 0.1 mg/L)	Periodically	100 % compliance
Turbidity	0.30 NTU *	Daily	100 % compliance
Lead	0.01 mg/L	Annual	0.0005 mg/L
Fluoride	1.50 mg/L	“	1.30 mg/L
Arsenic	0.01 mg/L	“	0.0008 mg/L
Iron	0.3 mg/L	“	0.05 mg/L
Nitrate	As Nitrogen; 10 mg/L	“	0.22 mg/L
Uranium	0.02 mg/L	“	<0.0001 mg/L
Trihalomethane (THM) ***	0.100 mg/L	Quarterly	0.071 mg/L

\* NTU (Nephelometric turbidity unit)

\*\* Bacterial testing: We test the raw water (untreated surface water), the treated water (leaving the water treatment facility) and the water in the distribution system every two weeks (bi-weekly) for the presence of Total Coliform (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.

\*\*\* THM: Trihalomethanes 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, or 0.100 mg/L. The THM standard is based on an average of four samples per year. We test THM levels in three locations in the distribution system on a seasonal basis

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

Incident 1: Major water main break (March 5, 2008)

Moon Construction hit our 12" mainline west of Headingley, at the culvert renewal @ 1<sup>st</sup> creek crossing on February 12th. Luckily, it happened around 9:30 AM, so we were able to respond quickly to shutdown. The office of drinking water (DWO) was informed, shock chlorination was performed on the affected section, a repair clamp installed, flushed @ Headingley, & bacterial samples were taken. The line was back in service by 9:30 PM. A bypass line, to get the line away from the position of the new concrete culvert structure was directionally bored late in February. Tie in to the new line was performed on March 3<sup>rd</sup>; again, DWO was informed, shock chlorination performed, etc. The new line went back into service @ 9:00 PM that night. At app 5:00 AM, one of the repair clamps let go, & we again dropped to very low pressure in the mainline. System was shutdown by 7:00 AM, but by this time we had lost app 550 M3 of water. The reason for this failure is believed to be settlement of the directionally bored replacement section. DWO was again involved, shock chlorination performed, repairs made, line flushed, & bacterial samples taken. The line was back in service by 9:45 PM that evening. No further problems have occurred on this section.

#### **5. Additional records required**

As part of Manitoba Health's fluoridation program, water samples are collected on a daily basis from the treated water reservoir and tested on site. Daily fluoride results are recorded and a 14 day composite sample is submitted by-weekly for analysis (See Appendix "D" – 2008 Fluoridation Results). The Cartier Regional WTP strives to maintain a 1.00 mg/L fluoride level. The operating range for fluoride, as identified by Manitoba Health, is 0.80-1.20 mg/L. In 2008, fluoride levels exceeded the 1.20 mg/L recommended limit once.

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

In 2008, no Drinking Water Safety Orders were issued for the Cartier Regional Water System.

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

In 2008, no Boil Water Advisories were issued for the Cartier Regional Water System.

## **8. Warnings Issued or Charges Laid on the System in Accordance with The Drinking Water Safety Act:**

In accordance with the Drinking Water Safety Act, no warnings or charges were issued for the Cartier Regional Water System in 2008.

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

In 2008, the east lime sludge holding cell was cleaned out, with the waste sludge going to the RM of Cartier landfill site for use as cover material. The app. total cost of this project was \$ 31,000.

A new Goulds turbine pump was purchased to replace the existing worn out WDM distribution pump, c/w inverter duty motor, The app. total cost of this project was \$ 9500.

Substantial upgrades were made to confined entry safety equipment; new retrieval winch & numerous new anchor points added @ all sites to facilitate safer use of the entry & retrieval safety equipment. The app. total cost of this was \$ 11,000.

Substantial additions were made again in 2008 to our spare parts inventory for critical components for all sites. The app. total cost of these additions to our spare parts inventory was \$ 8,000. We currently have an estimate of \$ 40,000 in spare parts on hand.

A new turbidimeter was purchased as an addition to our existing instrumentation; we already had turbidimeters on all 4 filter cells, but we added another on the treated discharge header to track the turbidity actually entering the distribution system. The app. project cost was \$ 3500.

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

A proposal has been put forward by CWP Ltd. Partnership, for the addition of UV disinfection for the Cartier Regional WTP. This would provide us with another very effective tool to ensure the safety of the water that we produce for our customers.

Although we currently produce top quality potable water, & control the production of THM's better than the majority of surface water treatment plants in Manitoba, this would be a tremendous addition to our treatment system. Multiple barriers in the treatment process are crucial in the ongoing production of safe potable drinking water.

MWSB is currently reviewing the overall system. With a single treatment train @ the WTP there is some vulnerability to the potential of a large breakdown causing major system service interruptions. With Rosser being added in 2008, & the upcoming 2009 RM of St FX addition, Headingley's ongoing expansion, the Women's jail, & compliance problems w/ the Headingley Gaol's WTP, the demand will be increasing on our system. Additional treated water storage @ the WTP site & elsewhere, alternative treatment systems, etc. are all being looked into to ensure our continued, uninterrupted supply of top quality potable water to our consumers.

## Appendix A; Cartier WTP Bacteriological results

Date	Raw TC / EC	Treated TC / EC	Free Cl2 residual	
Jan 3 / 08	> 200 / 41	0 / 0	1.44 mg/L	
Jan 16 / 08	>200 / 34	0 / 0	1.72 mg/L	
Jan 30 / 08	>200 / 38	0 / 0	1.60 mg/L	
Feb 12 / 08	>200 / 50	0 / 0	1.78 mg/L	
Feb 27 / 08	101 / 14	0 / 0	1.72 mg/L	
Mar 12 / 08	200 / 21	0 / 0	1.86 mg/L	
Mar 25 / 08	45 / 4	0 / 0	1.48 mg/L	
Apr 8 / 08	101 / 5	0 / 0	1.72 mg/L	
Apr 22 / 08	8 / 0	0 / 0	1.87 mg/L	
May 6 / 08	53 / 0	0 / 0	1.60 mg/L	
May 20 / 08	56 / 5	0 / 0	1.75 mg/L	
Jun 3 / 08	25 / 3	0 / 0	1.51 mg/L	
Jun 16 / 08	70 / 2	0 / 0	1.81 mg/L	
Jul 3 / 08	118 / 4	0 / 0	1.43 mg/L	
Jul 15 / 08	101 / 0	0 / 0	1.89 mg/L	
Jul 28 / 08	>200 / 8	0 / 0	1.55 mg/L	
Aug 12 / 08	165 / 0	0 / 0	1.63 mg/L	
Aug 26 / 08	>200 / 0	0 / 0	1.90 mg/L	
Sep 9 / 08	118 / 3	0 / 0	1.96 mg/L	
Sep 30 / 08	66 / 2	0 / 0	1.88 mg/L	
Oct 7 / 08	145 / 5	0 / 0	1.92 mg/L	
Oct 22 / 08	70 / 0	0 / 0	1.70 mg/L	
Nov 6 / 08	>200 / 2	0 / 0	1.72 mg/L	
Nov 19 / 08	66 / 1	0 / 0	1.65 mg/L	
Dec 3 / 08	34 / 1	0 / 0	1.75 mg/L	
Dec 16 / 08	118 / 10	0 / 0	1.84 mg/L	
Dec 30 / 08	>200 / 36	0 / 0	1.68 mg/L	

**Appendix B; Headingley Reservoir Bacteriological results**

Date	Reservoir Inlet	Free Cl2 residual	Reservoir Outlet	Free Cl2 residual
Jan 3 / 08	0 / 0	1.20 mg/L	0 / 0	0.91 mg/L
Jan 16 / 08	0 / 0	1.07 mg/L	0 / 0	0.83 mg/L
Jan 30 / 08	0 / 0	1.32 mg/L	0 / 0	0.96 mg/L
Feb 12 / 08	0 / 0	1.08 mg/L	0 / 0	0.70 mg/L
Feb 27 / 08	0 / 0	1.33 mg/L	0 / 0	0.98 mg/L
Mar 12 / 08	0 / 0	1.22 mg/L	0 / 0	0.91 mg/L
Mar 25 / 08	0 / 0	1.27 mg/L	0 / 0	1.00 mg/L
Apr 8 / 08	0 / 0	0.76 mg/L	0 / 0	0.84 mg/L
Apr 22 / 08	0 / 0	1.34 mg/L	0 / 0	1.07 mg/L
May 6 / 08	0 / 0	1.47 mg/L	0 / 0	1.21 mg/L
May 20 / 08	0 / 0	1.39 mg/L	0 / 0	1.11 mg/L
Jun 3 / 08	0 / 0	1.21 mg/L	0 / 0	1.09 mg/L
Jun 16 / 08	0 / 0	1.34 mg/L	0 / 0	1.18 mg/L
Jul 3 / 08	0 / 0	1.36 mg/L	0 / 0	1.37 mg/L
Jul 15 / 08	0 / 0	1.27 mg/L	0 / 0	1.23 mg/L
Jul 28 / 08	0 / 0	1.33 mg/L	0 / 0	1.36 mg/L
Aug 12 / 08	0 / 0	0.94 mg/L	0 / 0	1.07 mg/L
Aug 26 / 08	0 / 0	1.18 mg/L	0 / 0	1.02 mg/L
Sep 9 / 08	0 / 0	0.95 mg/L	0 / 0	1.11 mg/L
Sep 30 / 08	0 / 0	1.48 mg/L	0 / 0	1.15 mg/L
Oct 7 / 08	0 / 0	1.19 mg/L	0 / 0	1.22 mg/L
Oct 22 / 08	0 / 0	1.17 mg/L	0 / 0	1.11 mg/L
Nov 6 / 08	0 / 0	1.27 mg/L	0 / 0	1.03 mg/L
Nov 19 / 08	0 / 0	1.33 mg/L	0 / 0	1.09 mg/L
Dec 3 / 08	0 / 0	1.27 mg/L	0 / 0	1.12 mg/L
Dec 16 / 08	0 / 0	1.03 mg/L	0 / 0	1.00 mg/L
Dec 30 / 08	0 / 0	1.50 mg/L	0 / 0	1.25 mg/L

**Appendix C; St Francois Xavier Reservoir Bacteriological results**

Date	Reservoir Inlet	Free Cl2 residual	Reservoir Outlet	Free Cl2 residual
Jan 3 / 08	0 / 0	1.41 mg/L	0 / 0	0.84 mg/L
Jan 16 / 08	0 / 0	1.16 mg/L	0 / 0	0.89 mg/L
Jan 30 / 08	0 / 0	1.34 mg/L	0 / 0	0.87 mg/L
Feb 12 / 08	0 / 0	1.22 mg/L	0 / 0	0.59 mg/L
Feb 27 / 08	0 / 0	1.34 mg/L	0 / 0	0.89 mg/L
Mar 12 / 08	0 / 0	1.24 mg/L	0 / 0	0.88 mg/L
Mar 25 / 08	0 / 0	1.06 mg/L	0 / 0	0.99 mg/L
Apr 8 / 08	0 / 0	0.81 mg/L	0 / 0	0.72 mg/L
Apr 22 / 08	0 / 0	1.37 mg/L	0 / 0	1.04 mg/L
May 6 / 08	0 / 0	1.64 mg/L	0 / 0	1.27 mg/L
May 20 / 08	0 / 0	1.30 mg/L	0 / 0	1.13 mg/L
Jun 3 / 08	0 / 0	1.26 mg/L	0 / 0	1.12 mg/L
Jun 16 / 08	0 / 0	1.38 mg/L	0 / 0	1.13 mg/L
Jul 3 / 08	0 / 0	1.63 mg/L	0 / 0	1.33 mg/L
Jul 15 / 08	0 / 0	1.49 mg/L	0 / 0	1.21 mg/L
Jul 28 / 08	0 / 0	0.94 mg/L	0 / 0	1.09 mg/L
Aug 12 / 08	0 / 0	1.19 mg/L	0 / 0	0.85 mg/L
Aug 26 / 08	0 / 0	1.70 mg/L	0 / 0	1.09 mg/L
Sep 9 / 08	0 / 0	0.94 mg/L	0 / 0	0.88 mg/L
Sep 30 / 08	0 / 0	1.98 mg/L	0 / 0	0.98 mg/L
Oct 7 / 08	0 / 0	1.28 mg/L	0 / 0	1.08 mg/L
Oct 22 / 08	0 / 0	1.23 mg/L	0 / 0	1.02 mg/L
Nov 6 / 08	0 / 0	1.42 mg/L	0 / 0	0.81 mg/L
Nov 19 / 08	0 / 0	1.75 mg/L	0 / 0	0.90 mg/L
Dec 3 / 08	0 / 0	1.53 mg/L	0 / 0	1.04 mg/L
Dec 16 / 08	0 / 0	1.15 mg/L	0 / 0	0.86 mg/L
Dec 30 / 08	0 / 0	1.46 mg/L	0 / 0	1.05 mg/L

## Appendix D; Cartier WTP Fluoridation results

Dates / sampling period	Composite Result; mg/L
Period # 21; Dec 22 / 07 - Jan 4 / 08	1.20
Period # 22; Jan 5 – 18 / 08	1.20
Period # 23; Jan 19 – Feb 1 / 08	1.10
Period # 24; Feb 2 – 15 / 08	1.10
Period # 25; Feb 16 – 29 / 08	1.00
Period # 26; Mar 1 – 14 / 08	0.90
Period # 1; Mar 15 – 28 / 08	1.00
Period # 2; Mar 29 – Apr 11 / 08	0.80
Period # 3; Apr 12 - 25 / 08	1.00
Period # 4; Apr 26 – May 9 / 08	1.00
Period # 5; May 10 - 23 / 08	0.90
Period # 6; May 24 – Jun 6 / 08	1.00
Period # 7; Jun 7 - 20 / 08	0.80
Period # 8; Jun 21 – Jul 4 / 08	1.00
Period # 9; Jul 5 - 18 / 08	1.00
Period # 10; Jul 19 – Aug 1 / 08	0.90
Period # 11; Aug 2 - 15 / 08	1.00
Period # 12; Aug 16 - 29 / 08	1.00
Period # 13; Aug 30 – Sep 12 / 08	1.10
Period # 14; Sep 13 - 26 / 08	1.10
Period # 15; Sep 27 – Oct 10 / 08	1.10
Period # 16; Oct 11 - 24 / 08	1.00
Period # 17; Oct 25 – Nov 7 / 08	1.10
Period # 18; Nov 8 - 21 / 08	1.00
Period # 19; Nov 22 – Dec 5 / 08	1.00
Period # 20; Dec 6 - 19 / 08	1.10



**Water Stewardship**

Office of Drinking Water  
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File: Cartier Regional – 36.00  
Headingley – 89.75  
St. F. Xavier – 211.75

5 March 2009

Director and Board  
Cartier Regional Water Co-op  
1 – 126 Bridge Rd.  
Headingley MB R4H 1G9

Dear Director and Board Members,

**RE: 2008 Annual Audit for Cartier Regional Water Co-op Public Water Systems**

This audit provides a summary of the Cartier Regional Water Co-op Public Water Systems' performance related to meeting provincial regulatory requirements associated with the provision of safe drinking water for year 2008. The Peony Reservoir system is not part of this report.

The criteria used to assess compliance are Health Canada's *Guidelines for Canadian Drinking Water Quality* (GCDWQ) and two regulations under the *Drinking Water Safety Act* (DWSA), the *Drinking Water Safety Regulation* (MR 40/2007) and the *Drinking Water Quality Standards Regulation* (MR 41/2007). Specific sections of MR 40/2007 and MR 41/2007 are identified throughout this document for your reference. A copy of the regulations is available at: <http://www.manitoba.ca/drinkingwater>.

The 2008 Annual Audit considered the requirement for operators to undertake corrective action reporting – a compliance process discussed in your 2007 audit. Pursuant to the *Operational Guidelines for Monitoring and Reporting Public and Semi-public Water Systems* (ODW Guideline 2007 – 01), operators are required to complete a Corrective Action Form whenever there is a routine variation from normal operations associated with the following items:

- Low disinfection residual entering the distribution system, 21(1) MR 40/2007
- Low disinfection residual in the distribution system, 22 MR 40/2007
- Filtered water turbidity exceeding the turbidity standards, 6(1) MR 41/2007
- Low positive total coliform (<10 CFU/100mL), 3 MR 41/2007

If there is a variance from the standards associated with the above items a water system will be considered in non-compliance, unless corrective actions are taken and a corrective action report form is submitted to the local Drinking Water Officer. By completing and submitting the form, the system will be deemed compliant for the instance in question.

The Corrective Action form(s) submitted were used to determine your water system's performance percentage. Performance percentages that have been augmented by submission of a Corrective Action form will be highlighted by an asterisk.

<b>1) Disinfection Monitoring and Reporting</b>	Regulatory Requirement	Your Performance
Free chlorine residual entering the distribution system Section 21(1) a – MR 40/2007	≥ 0.5 mg/L	100%
Free chlorine residual in the distribution system Section 22 a – MR 40/2007	≥ 0.1 mg/L	100%
Frequency of testing Schedule A – MR 40/2007	Daily/Bi-weekly	Compliance
Report submissions Section 25(2) – MR 40/2007	Monthly	Compliance
<u>Comments:</u>		

<b>2) Bacteriological Monitoring &amp; Reporting</b>	Regulatory Requirement	Your Performance
Number of raw/incoming water samples (all your systems) Schedule A – MR 40/2007	78	100%
Number of treated water samples (all your systems) Schedule A – MR 40/2007	78	100%
Number of distribution water samples (all your systems) Schedule A – MR 40/2007	n/a	n/a
Frequency of testing Schedule A – MR 40/2007	Bi-weekly	Compliance
Total coliform present in water samples Section 3(1) b – MR 41/2007	0 TC per 100mL	Compliance
E. coli present in water samples Section 3(1) a – MR 41/2007	0 EC per 100mL	Compliance
<u>Comments:</u>		

<b>3) Physical Monitoring and Reporting</b>	Regulatory Requirement	Your Performance
Chemically assisted, rapid gravity filtration process Section 6(1) a – MR 41/2007	Not to exceed 0.3 NTU for more than 12 continuous hours, where continuous measurements are taken	100%
<u>Comments:</u> This section applies only to Cartier Regional Water Treatment Plant		

<b>4) Disinfection By-products Monitoring and Reporting</b>	Regulatory Requirement	Your Performance
Trihalomethane sampling requirements Section 5(1) – MR 41/2007	4 times per year	Compliance

Total Trihalomethane Standard Schedule B – MR 41/2007	0.1 mg/L	0.071 mg/L
Bromodichloromethane sampling requirements Section 5(1) – MR 41/2007	4 times per year	Compliance
Bromodichloromethane Standard Schedule B – MR 41/2007	0.016 mg/L	0.03 mg/L
<p><u>Comments:</u> The annual average of quarterly THM samples was 0.071 mg/L and it met the standard value of 0.1 mg/L. You are in compliance with the total THM standard.</p> <p>Your maximum bromodichloromethane (BDCM) value for 2008 was 0.03 mg/L, which exceeds the BDCM standard of 0.016 mg/L. However, recent scientific research has caused Health Canada to question the health effects associated with the 0.016 mg/l guideline (Manitoba standard). Health Canada is now reviewing the guideline and it may be dropped entirely. As changes to the BDCM guideline are imminent, the Director advises that compliance with the standard is in abeyance until Health Canada completes its review. Therefore, no action is required to address BDCM exceedence at this time. Note that BDCM continues to be a component of total THMs. Accordingly, utilities must continue to make every effort to reduce THM concentrations (including BDCM) to as low a level as possible.</p>		

Similar to trihalomethanes, haloacetic acids (HAAs) are a chlorinated disinfection by-product found in drinking water. In 2008, Health Canada established a guideline of 0.08 mg/L for HAAs. This guideline has not been adopted as a standard within Manitoba to date but it is anticipated that it will become a standard in the near future at which point utilities will be required to initiate a monitoring and reporting routine. You will be notified in advance of this requirement. In anticipation of that eventuality the Office of Drinking Water has undertaken sampling at many utilities. Levels of HAAs found at your facility at the time of chemistry sampling were 0.032 mg/L.

## 5) Water Chemistry Analyses

The Office of Drinking Water submitted water samples from the Cartier Regional public water system for chemical analysis on July 22, 2008. A letter providing assessment, comments and recommendations on the test results was sent on October 1, 2008. The treated water met all the Guideline maximum acceptable concentrations (MAC) for health-based parameters with the exception of bromodichloromethane (BDCM), which was measured at 0.025 mg/L. This is higher than the guideline value of 0.016 mg/L.

The link to Health Canada's *Guidelines for Canadian Drinking Water Quality* website is:  
[http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index_e.html)

## 6) Non-Routine Events

A major main line break occurred in March 2008. The disruption of service to customers was only marginal. Once the repairs were completed, bacteriological samples confirmed the water safety.

## 7) Additional Operating License Requirements

Contained within your Operating Licence PWS-08-107 are non-routine reporting requirements such as Engineering Assessments, Compliance Plans, and Emergency Response Plans. The operating licence specifies a submission date for each report.

The Office of Drinking Water has granted an extension to the deadline date for the submission of the engineering assessment, as per your request. The new submission date is now December 31, 2009. Compliance Plan submission date will now be March 31, 2010. Emergency Response Plan submission date is February 1, 2010.

## 8) Water System Reports

Section 32(1) MR 40/2007 stipulates that public water systems serving 1,000 or more persons must prepare an Annual Report on the operation of their water system. The regulation states that the report must be submitted to the Office of Drinking Water by March 31 of each year, describing the operation of the water system for the preceding calendar year. A copy of the report must be made available to the public. The Office of Drinking Water has prepared a guideline and examples to aid in the completion of the report. The guideline and examples are available on the Office of Drinking Water web site: <http://www.manitoba.ca/drinkingwater>.

Your Water System Report has not been received to date. Please ensure that the 2008 report is submitted before March 31, 2009.

## 9) Emergency Reporting

This office must be notified immediately when emergencies occur that may result in an inability to supply safe drinking water. This includes instances where the community is unable to maintain adequate distribution system water pressures (i.e., during a pump failure).

An on-call Drinking Water Officer program was initiated in the spring of 2007. For after-hour emergencies please contact the 24-hour Environmental Emergency Line at (204) 944-4888 and ask to have the on-call Drinking Water Officer contact you.

## 10) Summary

The Cartier Regional Water Co-op has fulfilled its obligations in year 2008 by complying with Manitoba regulations that pertain to safe drinking water.

The above assessment is based on records submitted to this office. If your records indicate a conflict with the above assessment, or if you have any questions concerning this report, or any other drinking water related issues, please call me at (204) 945-8913.

Sincerely,



Gilbert Bushati  
Drinking Water Officer

Copy: J. O'Driskoll (by email)  
D. Pirt (by email)