



## Public Water System Annual Report 2024

Name of the Public Water System: **Cartier Regional Water Co-op (CRWC) – 3 Locations**  
**36.00 – Cartier Regional Water System**  
**89.40 – Headingley Regional Water System &**  
**162.75 – Peony Farm Reservoir Public Water System**

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Name of Operator: **Grant McGorman, Director of Operations for CRWC Inc.**

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**Headingley WTP-89.40: 204-832-2555**

Date prepared: March 28, 2025

  
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Danielle Vaillant  
*General Manager CRWC Inc.*

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## **Introduction**

The Cartier Regional Water Co-op (CRWC) owns and operates two main water treatment facilities, 10 rural reservoirs, two booster stations, seven truck fill stations, and approximately 270 km of water main transmission line. The owned reservoir at Peony Farm in Portage la Prairie is supplied with water produced at the City of Portage la Prairie water treatment facility. The CRWC-owned and operated water treatment facilities strive to provide high-quality drinking water in sufficient quantities to meet public demand. Our goal to do so safely and cost-effectively while remaining in compliance with the regulatory requirements governing the provision of drinking water.

We believe that the public has a right to easily access information related to the drinking water they consume and the system through which it is provided. To that end, the Cartier Regional Water Co-op has prepared the following report.

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

The Cartier Regional Water System provides potable drinking water to a population of approximately 15,289 users. Treated water produced from the Cartier Regional Water Co-op treatment facilities meets all health and aesthetic objectives as stated in the Guidelines for Canadian Drinking Water Quality.

#### **1.1. Water source supply**

Both the Cartier and Headingley Regional Water Treatment Facilities (WTP) receive surface water from the Assiniboine River. The Peony Farm Reservoir location receives its water source from the City of Portage La Prairie Water Treatment Facility. A link to the City of Portage La Prairie annual water system report can be found at:

[Water & Sewer - City of Portage la Prairie.](#)

#### **1.2. Intake structures and storage ponds:**

The Cartier WTP features a stainless-steel intake structure specifically designed to prevent fish injuries. It is located immediately north of the Baie St. Paul Bridge, where water flows through a 400 mm pipe into a concrete wet well on the east shore of the river. Two submersible pumps transfer raw water through a 300 mm pipe to the WTP. Raw water can be directed either to the aerated raw water storage ponds for pre-settling and algae control or directly to the WTP raw water chamber beneath the plant. The standard operational strategy is to pump water to the north storage pond, allowing it to flow into the south storage pond for additional pre-settling and treatment during the summer months. These ponds serve as a buffer when river water quality is suboptimal. Currently, the intake is flushed using gravity flow, which does not generate sufficient water flow to effectively clear silt buildup from the intake screens. When necessary, silt and debris removal from the intake screen is contracted out. The ponds share a common wet well, which helps monitor water levels in both storage ponds.

The Headingley WTP utilizes the existing Headingley Correctional Centre (HCC) River Intake Building, located on the HCC grounds. The CRWC has a memorandum of understanding (MOU) with Manitoba Transportation and Infrastructure (MTI) to own, operate, and maintain the intake channel, wet well, pumps, and gate valves. The concrete intake channel directs river water into the pump house, where it passes through bar screens before entering a pumping chamber. Both chambers are equipped with sluice gate valves, which remain open during normal operation. The wet well maintains a static water level, and two 60 hp pumps operate in a lead/lag configuration, activating when the raw water storage ponds require filling. As water is pumped from the wet well into the service line leading to the ponds, a low dose of algaeicide is added to control algae growth and reduce organic matter levels. The river water is transported through a 400 mm service line into two raw water storage ponds, which typically operate in parallel but can also function independently. One storage pond can be isolated for maintenance while still supplying raw water to the WTP. Both raw water storage ponds are equipped with aeration lines supplied by blowers housed in the Raw Water Pump House (RWPH), which is located next to the storage ponds. The RWPH also contains a wet well with level control that monitors pond levels and provides control signals to the RIPH pumps. Under normal river conditions, the ponds are filled regularly. However, during periods of high river flow and turbidity, water intake can be temporarily halted while maintaining sufficient stored water for plant operation until river conditions return to normal. The wet well also contains three 100 hp raw water pumps, which are activated when the WTP is producing treated water.

### **1.3. Water Treatment Process:**

#### **Cartier WTP:**

Raw water flows from the storage pond into the WTP raw water chamber by gravity. A control valve operates to maintain an ideal, stable level in the raw water chamber. The raw water is then pumped by two 20-HP pumps into the raw water process piping, leading to the three-stage flocculation basins. During this process, a pH suppressant (sulfuric acid) and a coagulant are injected into the water to initiate the advanced coagulation process. The coagulated water then passes through two inline static mixers and an inline magnetic flow meter before being deposited into the initial flocculation basin.

The three-stage flocculation basins provide additional mixing to enhance the coagulation process before the raw water enters the ultra-filtration (UF) system. Three break tanks further aid in mixing and coagulation before the water moves into the UF process. A pre-filter removes larger floc (debris) formed during the coagulation process before the water reaches the UF skids. The UF system, with a 0.04-micron filtration capability, effectively removes nearly all particulate matter before the reverse osmosis (RO) process.

The UF system is equipped with a common raw water turbidimeter, and individual permeate turbidimeters for each UF train. The permeate turbidimeters trigger an alarm at 0.1 NTU and initiate a shutdown at 0.29 NTU. Turbidity is continuously monitored, with data captured every five minutes and reported monthly.

UF permeate is directed to the UF/RO break tank chambers, where it serves as feed water for the RO membranes and as backwash water for the UF membranes. A low dose of chlorine is added to the UF permeate to prevent biological growth in the RO feed chambers. The RO

feed pumps supply permeate water to the RO membranes during operation. Sodium bisulfite (SBS) is added upstream of the RO trains to neutralize any remaining chlorine before the water enters the RO membranes.

RO-treated water is highly purified, so a bypass line introduces UF permeate to reintroduce essential minerals, ensuring the finished water meets the desired hardness and stabilizes water chemistry. During summer, when organic content in raw water is at its peak, the UF permeate blend ratio in the RO water is adjusted to reduce organic content in the finished water.

A sequestering agent is added downstream of the RO process before the water enters the clear well to help stabilize it before distribution. Turbidity, a key parameter in drinking water quality, is continuously monitored as required by operating licenses. The Cartier WTP employs 24-hour online monitoring of UF-treated water and final plant effluent entering the distribution system.

After the RO process, the water pH is adjusted using sodium hydroxide, and a small chlorine dosage is added for disinfection. The free chlorine residual in the treated water entering the distribution system is continuously monitored and recorded. Fluoride is added at a concentration of 0.70 mg/L for dental health benefits. See Figures 1 and 2 for the process flow diagram.

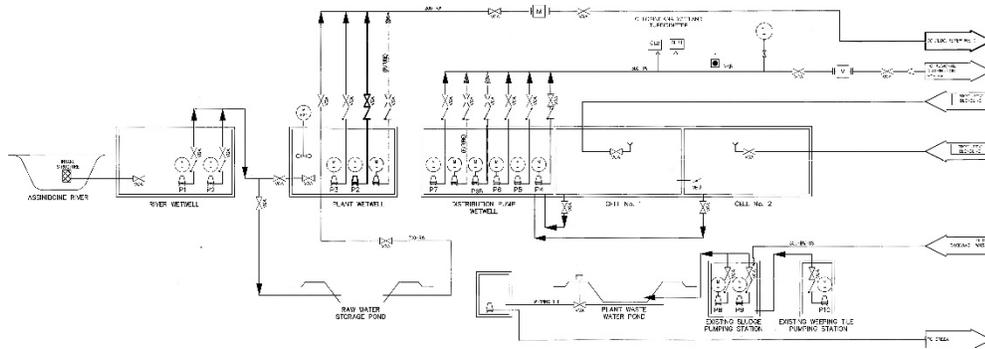


Figure 1 - Cartier WTP Process Flow Diagram 1 of 2

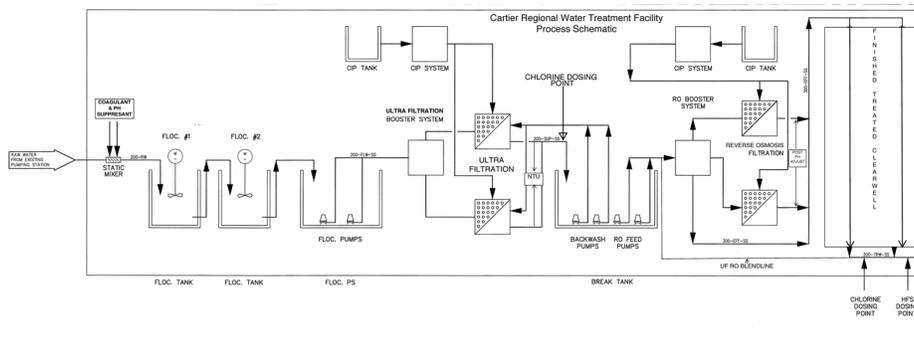


Figure 2 - Cartier WTP Flow Process Diagram 2 of 2

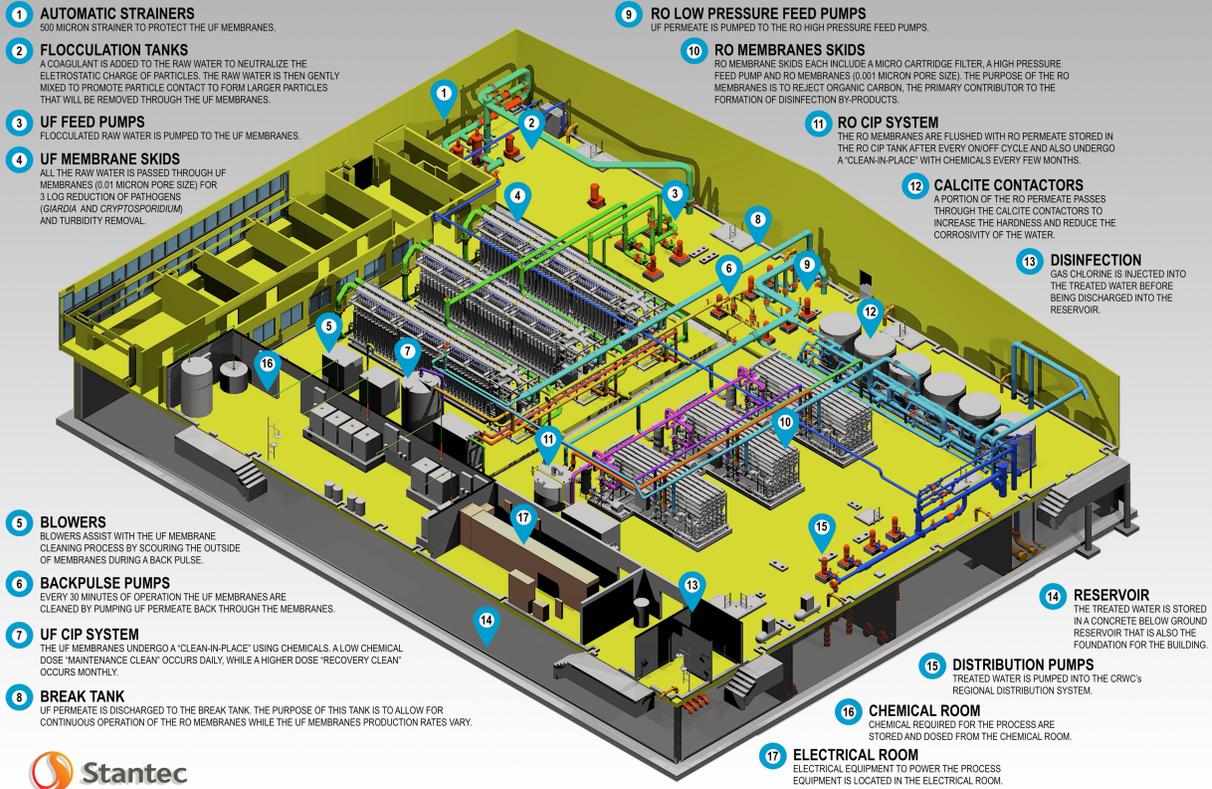
## **Headingley WTP:**

The Headingley WTP operates similarly to the Cartier WTP. Both facilities draw water from the same source and utilize membrane filtration for water treatment. At the Headingley WTP, raw water flows into the facility, passing through 500-micron filters and two static mixers, where it is pre-treated with a coagulant and pH is adjusted using carbon dioxide. The water then moves through two mixing chambers, where the coagulation process begins, allowing raw water particles to bind together and form a pin floc.

The pre-treated raw water then flows into the UF feed chamber, where UF feed pumps direct it to the UF membranes. The UF system, with a 0.04-micron filtration capability, removes all particulate matter before the water reaches the RO membranes. Each UF membrane skid is equipped with raw and permeate turbidimeters. The permeate turbidimeters trigger an alarm at 0.1 NTU and initiate a shutdown at 0.29 NTU. Turbidity is continuously monitored, with data captured every five minutes and reported monthly.

UF permeate is directed to the UF/RO break tank chambers, where it serves as feed water for the RO membranes and as backwash water for the UF membranes. A low dose of chlorine is added to the UF permeate to prevent biological growth in the RO feed chambers. The RO feed pumps supply the RO membranes during operation. Sodium bisulfite is added upstream of the RO membranes to neutralize any remaining chlorine.

The RO permeate is then blended with UF permeate water to achieve a final water hardness of 40-80 mg/L (CaCO<sub>3</sub>). The final treated water undergoes pH correction with sodium hydroxide, and a small dosage of chlorine gas is added to disinfect for pathogenic organisms (bacteria, viruses, etc.) before entering the clear well storage. The water flows through the clear well to allow sufficient contact time with chlorine for disinfection before reaching the pump chamber. The free chlorine residual in the treated water entering the distribution system is continuously monitored and recorded in a monthly report. See Figure 3 for a process overview.



**Figure 3 - Headingley WTP Treatment Process Overview**

## 1.4. Distribution System:

### Cartier WTP (36.00):

Treated water from the Reservoir is pumped throughout the Cartier Regional distribution system via 1-5 horsepower (HP) jockey pump, 2-25 HP duty pumps, 1-30 HP duty pump, & 1-50 HP stand-by pump. These pumps are controlled by variable frequency drives (VFDs). The CWTP distribution system is partially looped in areas to RM distribution systems and has an overall approximate pipe length of 108 kilometers. Piping is comprised of both high-density polyethylene (HDPE) & polyvinylchloride (PVC) pipe. The Cartier Regional Water System services the RM of Cartier, Portage and Grey. Figure 4 outlines the Cartier WTP service area.

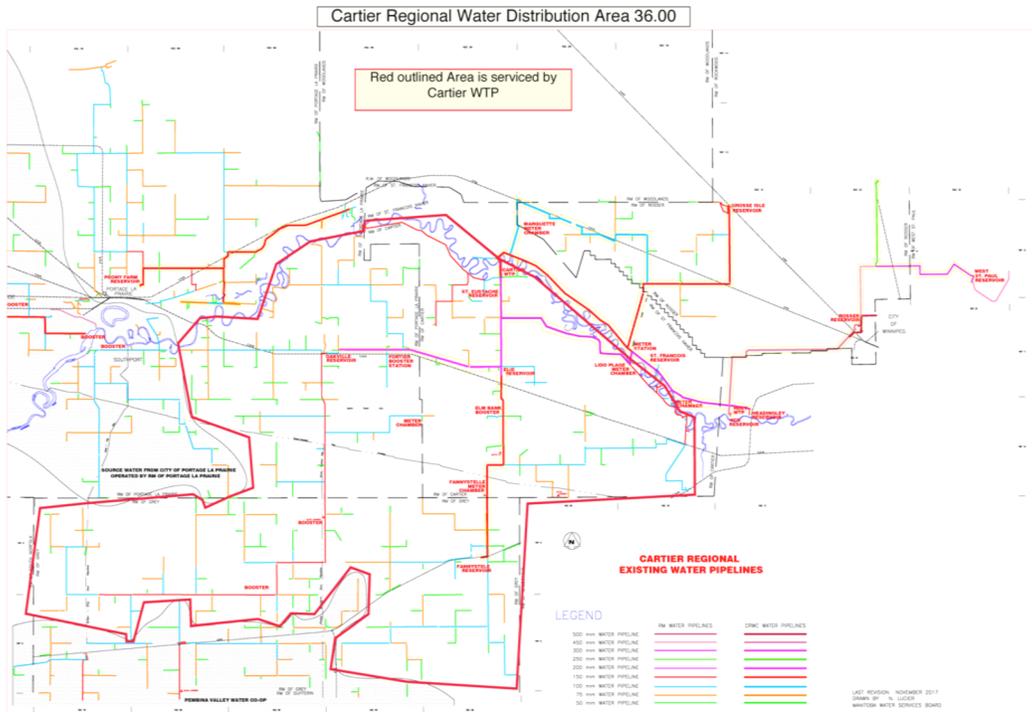


Figure 4 - 36.00 Cartier Regional Water Distribution System Map

## Headingley WTP (89.40):

There are (3) distribution pumps that service three main headers that leave the facility into the distribution system. The Centerport distribution line services the Rosser Reservoir for the RM of Rosser. From the Rosser Reservoir, treated water is pumped to the Stony Mountain Institute and to the West St. Paul Reservoir, which services the RM of WSP. The RM of Headingley line services the Headingley Reservoir, RM of Headingley, St. Francois Xavier Reservoir, RM of St. Francois Xavier, RM of Rosser and Grosse Isle Reservoir. The H.C.C./W.W.T.F. line services the Headingley Correctional Centre and the RM of Headingley Wastewater Treatment Facility. The HWTP distribution system is partially looped in areas to RM of Rosser distribution systems and has an overall approximate pipe length of 118 kilometers. Piping is comprised of both high-density polyethylene (HDPE) & polyvinylchloride (PVC) pipe.

Figure 5 outlines the Headingley WTP service area.

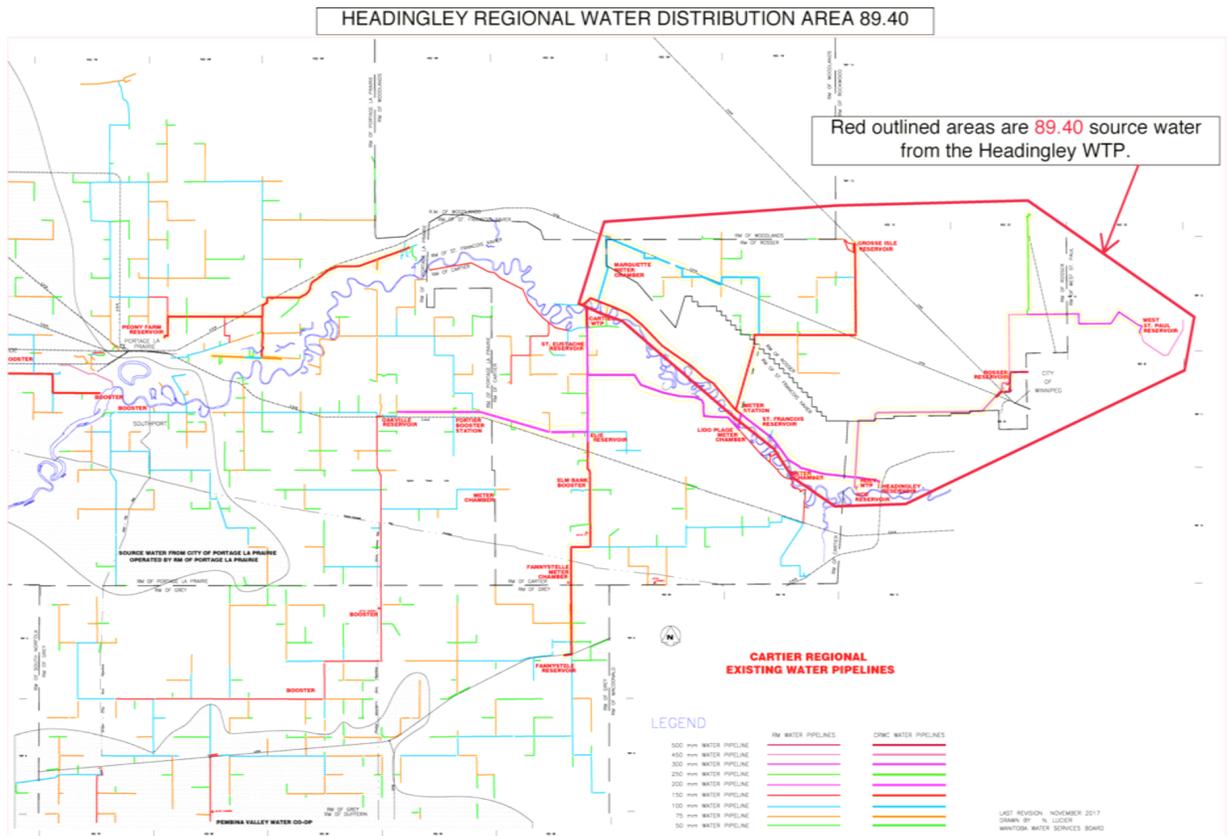
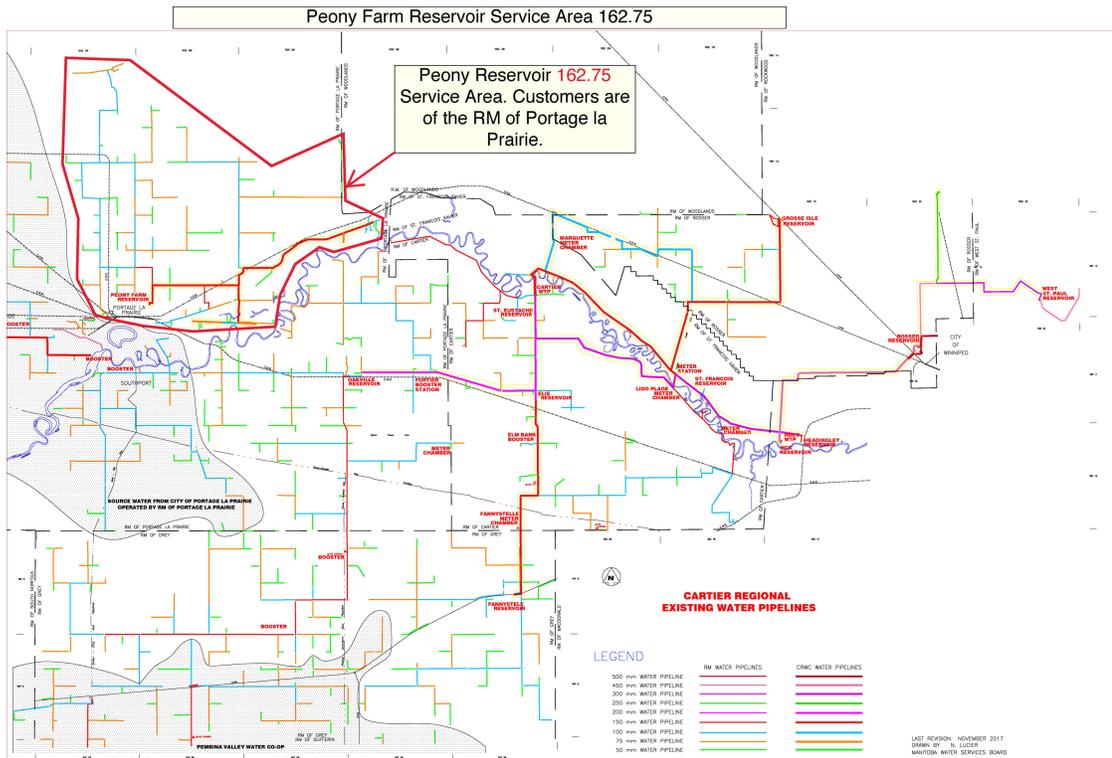


Figure 5 - 89.40 Headingley Regional Water Distribution System Map

**Peony Farm (162.75):**

The Cartier Regional Water Co-op owns and operates a facility located near the Peony Farm area in the RM of Portage la Prairie. The CRWC purchases treated water from the City of Portage la Prairie to fill the Peony Farm Reservoir. An incoming chlorine analyzer measures the amount of chlorine residual in the receiving water. If necessary, chlorine is added when the reservoir is filling. An outgoing chlorine analyzer measures the chlorine residual leaving the facility to ensure that all regulations are met. There is a standby Generator that runs the facility in the case of a power event. Figure 6 is a map of the service area for the Peony Farm Reservoir (162.75).



**Figure 6 – 162.75 Peony Farm Service Area Map**

The CRWC has an agreement for sampling the bacteriological samples for the RM of SFX under 211.50 and the RM of Headingley under 89.50. A summary of the results can be found in Appendix C and D. The sampling requirement for these were taken back over by the Municipalities in 2025.

### 1.5. Storage Reservoirs:

<u>Location</u>	<u>Storage Reservoir</u>	<u>Capacity</u>
Cartier Regional WTP	Raw Storage Reservoir	120,000 M <sup>3</sup>
Cartier Regional WTP	Treated Reservoir	3000 M <sup>3</sup>
Elie Reservoir		960 M <sup>3</sup>
St. Eustache Reservoir		76 M <sup>3</sup>
Oakville Reservoir		670 M <sup>3</sup>
Fannystelle Reservoir		150 M <sup>3</sup>
Peony Farm Reservoir	Treated Reservoir	230 M <sup>3</sup>
Headingley Regional WTP	Raw Storage Reservoir	135,107 M <sup>3</sup>
Headingley Regional WTP	Treated Reservoir	4400 M <sup>3</sup>
Headingley Reservoir		2400 M <sup>3</sup>
SFX Reservoir		400 M <sup>3</sup>
Grosse Isle Reservoir		400 M <sup>3</sup>
Rosser Reservoir		7600 M <sup>3</sup>
West St. Paul Reservoir		4809 M <sup>3</sup>

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

The Cartier Regional water distribution system is comprised of 5162 service connections (all metered) serving a population of greater than 14,556 people in 8 different rural municipalities; the RM of Cartier, RM of Portage la Prairie, RM of St. François Xavier, RM of Headingley, RM of Grey, R.M. of Rockwood, and the RM of Rosser and RM of West St. Paul.

**Table 1 - CRWC Population Served (as of 30 Jun 21)**

<b>All RMs combined</b>	
<b>BY METER SIZE</b>	
5/8"	4967
3/4"	84
1"	95
1.5"	34
2"	333
3"	4
8"	2
<b>TOTAL</b>	<b>5219</b>
<b>ESTIMATED PURPOSE</b>	
Residential	4753
Commercial	386
Industrial	11
Other	69
<b>TOTAL</b>	<b>5219</b>
<b>Over 500 M3/quarter</b>	<b>45</b>
<b>2 YEAR FORECAST</b>	
Residential	653
Commercial	52
Other	13
	<b>718</b>
<b>CONSUMPTION</b>	1922826 cubic meters
<b>ESTIMATED SERVED POP. *</b>	<b>15289</b>
<b>FARMS</b>	
Colonies	14
Crops	40
Cattle all forms	23
Hogs	2
Poultry	3
Market	3
Other	1

\* Also includes H.C.C. 549; S.M.I. 797 (per Wikipedia, rated population)

## 1.7 Classification and Certification:

Table 2 - Classification and Certification for CRWC Facilities and Operators

Cartier Water Treatment Facility	Water Treatment Water Distribution	Class 4 Class 2
Headingley Water Treatment Facility	Water Treatment Water Distribution	Class 3 Class 2
Danielle Vaillant <i>Manager</i> <i>Cartier Regional Water Co-op</i>	Water Treatment Water Distribution Wastewater Treatment Wastewater Collection	Class 4 Class 2 Class 2 Class 2
Grant McGorman <i>Lead Operator</i> <i>Cartier Regional Water Treatment Facility</i>	Water Treatment Water Distribution Wastewater Treatment Wastewater Collection	Class 4 Class 2 Class 2 Class 2
Jason Tanguay <i>Operator</i> <i>Cartier Regional Water Treatment Facility</i>	Water Treatment Water Distribution Wastewater Treatment Wastewater Collection	Class 3 Class 2 Class 1 Class 1
Parker Page <i>Operator</i> <i>Cartier Regional Water Treatment Facility</i>	Water Treatment Water Distribution Wastewater Treatment Wastewater Collection	Class 2 Class 2 Class 1 Class 1
Scott Caister <i>Operator</i> <i>Cartier Regional Water Treatment Facility</i>	Water Treatment Water Distribution Wastewater Treatment Wastewater Collection	Class 1 Class 1 Class 1 Class 1
Paige Jepsen <i>Operator</i> <i>Headingley Regional Water Treatment Facility</i>	Water Treatment Water Distribution	Class 3 Class 2
Travis Reinsch <i>Operator</i> <i>Headingley Regional Water Treatment Facility</i>	Water Treatment Water Distribution	Class 2 Class 2
Blake Van Massenhoven <i>Operator</i> <i>Headingley Regional Water Treatment Facility</i>	Water Treatment Water Distribution	OIT – Certificate Application Pending

\*Facility classification and Operator certification falls under The Environment Act's Water and Wastewater Facility Operators Regulation.

## **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 the water. As per the license issued under the *Drinking Water Safety Act*, the Cartier Regional Water Co-op must ensure that the water has a measurable amount of Free chlorine residual of at least:

- 0.5 mg/L in water entering the distribution system following a minimum contact time of 20 minutes
- 0.1 mg/L at all times at any point in the water distribution system

### **2.1. Type of disinfection system used:**

The Cartier and Headingley Regional Water Treatment Facilities disinfect by adding chlorine gas to the treated water via Regal brand gas chlorinator systems. Sodium Hypochlorite can also be added to all the reservoirs when required.

### **2.2. Equipment redundancy and monitoring requirements:**

As required by the *Drinking Water Safety Act*, the Cartier and Headingley Regional Water Treatment Facilities ensure that continuous disinfection is maintained at the facilities by keeping in stock all spare parts required for the chlorination systems. As an additional backup, a complete spare chlorinator is also kept at the facilities. At the Cartier WTP, two identical trains of UF and RO membranes are in place, each RO with a capacity of 30 liters per second. At the Headingley WTP, 3 trains of UF and RO membranes are in place, each RO with a capacity of 50 liters per second.

Disinfectant residuals are monitored continuously, capturing readings every 5 minutes at the Water Treatment facilities and at the Reservoirs. Residuals are also monitored on a regular basis when water samples are taken for bacterial analysis in the distribution system and recorded on the appropriate monitoring forms. Monthly chlorination report forms are sent into the regional Drinking Water Officer at the end of each month.

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

The Cartier Regional Water System has met all regulatory requirements in 2024 for monitoring and reporting disinfection residuals leaving the Water Treatment Facilities 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 health-based parameters express the maximum acceptable concentration. Concentration values in excess constitute a health-related issue and require corrective actions. The 2024 results for the Cartier and Headingley Regional Water Systems are summarized in the following tables:

**Table 3 - Cartier WTP (36.00) Chemistry Results 2024**

<b>Parameter</b>	<b>Standard</b>	<b>Frequency</b>	<b>Test Results</b>
Bacterial; TC & EC **	0 TC, 0 EC	Weekly	100 % passed
Disinfectant Residual	WTP (> 0.5 mg/L)	Continuously	100 % compliance
“	Distribution (> 0.1 mg/L)	Continuously	100 % compliance
Turbidity	0.10 NTU *	Continuously	100 % compliance
Lead	0.005 mg/L	Annually	See appendix G
Fluoride	1.5 mg/L	“	“
Aluminum	0.1 mg/L	“	“
Arsenic	0.01 mg/L	“	“
Antimony	0.006 mg/L	“	“
Barium	2 mg/L	“	“
Boron	5 mg/L	“	“
Cadmium	0.005 mg/L	“	“
Chromium	0.05 mg/L	“	“
Copper	1 mg/L	“	“
Iron	0.30 mg/L	Regularly	“
Manganese	0.02 mg/L	“	“
Nitrate	As Nitrogen; 10 mg/L	“	“
Selenium	0.05 mg/L	“	“
Uranium	0.02 mg/L	“	“
Trihalomethane (THM) ***	0.100 mg/L	Quarterly	See appendix F
Haloacetic Acids (HAA's) ****	0.08 mg/L	Quarterly	See appendix F

\* NTU (Nephelometric turbidity unit)

\*\* Bacterial testing: The raw water (untreated surface water), the treated water (leaving the water treatment facility) and the water in the distribution system is tested 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. Please see Appendix A, B, C, D, & E for a summary of the results.

\*\*\* 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 0.100 mg/L. The THM standard is based on an average of four samples per year. THM levels in four locations in the distribution system are tested on a quarterly basis every year. Please see Appendix F for a summary of the results.

\*\*\*\*HAA: Haloacetic Acids are formed when chlorine reacts with naturally occurring organic matter in the water. Studies have shown a link between high levels of HAA's and Cancer. For that reason, the province has set a health-based standard for HAA's of 0.08 mg/L. The HAA standard is based on an average of four samples per year. HAA levels in four locations in the distribution system are tested on a quarterly basis every year. Please see Appendix F for a summary of the results.

A copy of the annual lab results can be found on our website at [CWTP Chemistry Results](#)

Table 4 – Headingley WTP (89.40) Chemistry Results 2024

<b>Parameter</b>	<b>Standard</b>	<b>Frequency</b>	<b>Test Results</b>
Bacterial; TC & EC **	0 TC, 0 EC	Biweekly	100 % passed
Disinfectant Residual	WTP (> 0.5 mg/L)	Continuously	100 % compliance
“	Distribution (> 0.1mg/L)	Continuously	100 % compliance
Turbidity	0.10 NTU *	Continuously	100 % compliance
Lead	0.005 mg/L	Annually	See appendix H
Fluoride	1.5 mg/L	“	“
Aluminum	0.1 mg/L	“	“
Arsenic	0.01 mg/L	“	“
Antimony	0.006 mg/L	“	“
Barium	2 mg/L	“	“
Boron	5 mg/L	“	“
Cadmium	0.005 mg/L	“	“
Chromium	0.05 mg/L	“	“
Copper	1 mg/L	“	“
Iron	0.30 mg/L	Regularly	“
Manganese	0.02 mg/L	“	“
Nitrate	As Nitrogen; 10 mg/L	“	“
Selenium	0.05 mg/L	“	“
Uranium	0.02 mg/L	“	“
Trihalomethane (THM) ***	0.100 mg/L	Quarterly	See appendix F
Haloacetic Acids (HAA's) ****	0.08 mg/L	Quarterly	See appendix F

\* NTU (Nephelometric turbidity unit)

\*\* Bacterial testing: The raw water (untreated surface water), the treated water (leaving the water treatment facility) and the water in the distribution system is tested 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. Please see Appendix A, B, C, D, & E for a summary of the results.

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\*\*\*\*HAA: Haloacetic Acids are formed when chlorine reacts with naturally occurring organic matter in the water. Studies have shown a link between high levels of HAA's and Cancer. For that reason, the province has set a health-based standard for HAA's of 0.08 mg/L. The HAA standard is based on an average of four samples per year. HAA levels in four locations in the distribution system are tested on a quarterly basis every year. Please see Appendix F for a summary of the results.

**A copy of the annual lab results can be found on our website at [HWTP Chemistry Results](#)**

**Table 5 – Water Quality and Treatment Standards – Peony Farm Reservoir (PWS 162.75)**

<b>Parameter</b>	<b>Quality Standard</b>
Total Coliform	Less than one total coliform bacteria detectable per 100 mL in all distributed water
E. coli	Less than one E. coli bacteria detectable per 100 mL in all distributed water
Chlorine residual	A free chlorine residual of at least 0.10 mg/L at all times at any point in the distribution system
Total trihalomethanes (THMs)	Less than or equal to 0.10 mg/L as locational annual average of quarterly samples – Sampled Every 2 Years
Total Haloacetic acids (HAAs)	Less than or equal to 0.08 mg/L as locational annual average of quarterly samples – Sampled Every 2 Years
Total Metals and Manganese (Distribution System)	One sample every two years at a mid-point in the distribution system
Lead	Less than or equal to 0.005 mg/L in the water distribution system – Sampling done upon direction of the DWO

**A summary of the analysis for each of these parameters can be found on the annual water system report for the city of Portage la Prairie. A link to the City of Portage La Prairie annual water system report can be found at [Water & Sewer - City of Portage la Prairie](#)**

### **3.1 Result improvement**

The Cartier Regional Water Co-op has been monitoring Trihalomethanes (THM) for the past several years and has met the Provincial and Federal guidelines. The THM standard of 0.1 mg/L is based on a running average of quarterly samples and the health risks associated with elevated THM’s are based on lifetime exposure. The average THM result for 2024 was below the 0.100 mg/L regulations with exception of the Peony Farms system (162.75) average result of 0.11283 mg/L.

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

There were no major water system incidents in 2024. Corrective actions were taken and reported as required for normal minor variations during the course of routine operations.

## **5. Additional Records Required**

As part of Manitoba Health’s fluoridation program, which is funded by the Manitoba Health, Seniors and Active Living, the Cartier WTP (36.00) collects water samples daily from the treated water reservoir and is tested on-site. Daily fluoride results are recorded, and a 14-day composite sample is submitted bi-weekly for analysis. The recommended level of fluoride in drinking water is 0.70 mg/L and the operating range set by Manitoba Health is 0.50-0.90 mg/L.

## **6. *Emergencies, Compliance Issues and Operational Issues***

In 2024 no Emergencies or Operational Issues occurred for the Cartier (36.00) or Headingley Regional Water System (89.40). The annual inspection letter identified a few required actions. Headingley Regional Water System (89.40) needed to implement secondary chemical containment in case of emergency. The inspection also found that the Table of Organization was outdated, this was then updated and resubmitted to ODW.

The Peony Farm (162.75) service area was non-compliance with treatment standards for THM due to no treatment barrier. The 2024 average THM result was 0.11283 mg/L, exceeding the regulatory limit of 0.100 mg/L. The only tool we have to control THM's in the distribution system is to flush the distribution system seasonally. We have no control over the treatment process of the water that receives into the Peony Farm Reservoir.

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

In 2024, no Drinking Water Safety Orders were issued for the Cartier or Headingley Regional Water Systems.

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

In 2024, no Boil Water Advisories were issued for the Cartier or Headingley Regional Water System.

## **9. *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 and Headingley Regional Water System in 2024.

## **10. *Major Expenses Incurred***

### **Upgrades and Repairs**

#### **GENERAL:**

- SCADA Upgrade - \$155,131.54

#### **Cartier WTP:**

- Peony Reservoir water break and repair – \$6779.50
- Fannystelle Reservoir DP1 Replacement - \$4,775.41
- CWTP New Air Compressor - \$ 19,705.12
- VFD and Pump Pressure Controller Program - \$6,074.82

#### **Headingley WTP**

- UF Membranes – \$345,000
- UF Membranes – \$200,000

- Chlorination Equipment - \$13,633.00
- UF Equipment Header Replacement - \$26,800.00
- Rosser Reservoir Genset Transfer Switch Controller - \$7450.00
- HWTP RO#2 Pump Repair - \$8381.02
- HWTP Main UPS Batteries - \$7944.75

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

- A new lunchroom and office facilities for Cartier WTP are scheduled to be constructed in 2025.
- An upsized and new water main line will be installed west of HWY 248 running along HWY 26. This line will be owned and operated by CRWC and is the first phase of running a main line all the way to the Peony Reservoir location
- A new service line to the town of St. Eustache from the Cartier WTP to satisfy fire flow requirements.
- Funding was approved for a groundwater source water study for a future expansion.

The bulk Truck-fill water rate will increase from \$4.30 per cubic meter in 2024 to \$4.52 per cubic meter as of April 1, 2025.

## Appendix A: Cartier WTP 36.00 2024 Bacteriological Results

Date Sampled	Sample Identification	TC	EC	Free Cl2	Total Cl2	Turbidity
2-Jan-24	CARTIER REGIONAL 1 - RAW	9	0	-	-	3.40
2-Jan-24	CARTIER REGIONAL 2 - TREATED	0	0	1.54	1.98	0.03
2-Jan-24	CARTIER REGIONAL 3 - DIST @ OAKVILLE RESERVOIR IN	0	0	1.26	1.45	0.07
2-Jan-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.33	1.46	0.07
2-Jan-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.03	1.16	0.09
2-Jan-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.25	1.48	0.07
2-Jan-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.38	1.49	0.07
16-Jan-24	CARTIER REGIONAL 1 - RAW	3	0	-	-	3.59
16-Jan-24	CARTIER REGIONAL 2 - TREATED	0	0	1.46	1.87	0.07
16-Jan-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE RES IN	0	0	1.10	1.26	0.06
16-Jan-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.39	1.65	0.06
16-Jan-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	0.97	1.15	0.09
16-Jan-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.36	1.54	0.06
16-Jan-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.25	1.45	0.07
30-Jan-24	CARTIER REGIONAL 1 - RAW	3	0	-	-	3.41
30-Jan-24	CARTIER REGIONAL 2 - TREATED	0	0	1.35	1.57	0.04
30-Jan-24	CARTIER REGIONAL 3 - DIST - ELIE RES IN	0	0	1.37	1.54	0.04
30-Jan-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.18	1.43	0.08
30-Jan-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.12	1.12	0.08
30-Jan-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.05	1.26	0.09
30-Jan-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.19	1.25	0.07
13-Feb-24	CARTIER REGIONAL 1 - RAW	16	0	-	-	5.88
13-Feb-24	CARTIER REGIONAL 2 - TREATED	0	0	1.37	1.61	0.04
13-Feb-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE IN	0	0	1.42	1.74	0.06
13-Feb-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.17	1.35	0.07
13-Feb-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.13	1.13	0.06
13-Feb-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.24	1.53	0.08
13-Feb-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.32	1.55	0.09
27-Feb-24	CARTIER REGIONAL 1 - RAW	0	0	-	-	7.60
27-Feb-24	CARTIER REGIONAL 2 - TREATED	0	0	1.35	1.59	0.05
27-Feb-24	CARTIER REGIONAL 3- DIST @ -----> FORTIER BOOSTER	0	0	1.39	1.61	0.07
27-Feb-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.30	1.39	0.09
27-Feb-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.22	1.37	0.05
27-Feb-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.29	1.53	0.08
27-Feb-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.37	1.52	0.04
12-Mar-24	CARTIER REGIONAL 1 - RAW	4	0	-	-	8.47
12-Mar-24	CARTIER REGIONAL 2 - TREATED	0	0	1.59	1.98	0.08

12-Mar-24	CARTIER REGIONAL 3 - DIST @ OAKVILLE RESERVOIR IN	0	0	1.80	1.96	0.06
12-Mar-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.50	1.67	0.05
12-Mar-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.33	1.56	0.04
12-Mar-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.68	1.96	0.08
12-Mar-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.57	1.79	0.06
26-Mar-24	CARTIER REGIONAL 1 - RAW	6	0	-	-	8.08
26-Mar-24	CARTIER REGIONAL 2 - TREATED	0	0	1.71	2.00	0.05
26-Mar-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE RES IN	0	0	1.49	1.65	0.11
26-Mar-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.55	1.80	0.08
26-Mar-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.39	1.50	0.10
26-Mar-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.54	1.74	0.09
26-Mar-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.62	1.87	0.09
9-Apr-24	CARTIER REGIONAL 1 - RAW	3	0	-	-	9.58
9-Apr-24	CARTIER REGIONAL 2 - TREATED	0	0	1.49	1.74	0.04
9-Apr-24	CARTIER REGIONAL 3 - DIST - ELIE RES IN	0	0	1.55	1.64	0.10
9-Apr-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.48	1.65	0.06
9-Apr-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.49	1.74	0.08
9-Apr-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.48	1.64	0.08
9-Apr-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.57	1.71	0.10
23-Apr-24	CARTIER REGIONAL 1 - RAW	6	0	-	-	12.30
23-Apr-24	CARTIER REGIONAL 2 - TREATED	0	0	1.70	1.90	0.05
23-Apr-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE IN	0	0	1.50	1.65	0.08
23-Apr-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.62	1.76	0.08
23-Apr-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.39	1.53	0.07
23-Apr-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.37	1.58	0.08
23-Apr-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.58	1.71	0.07
7-May-24	CARTIER REGIONAL 1 - RAW	37	3	-	-	14.60
7-May-24	CARTIER REGIONAL 2 - TREATED	0	0	1.51	1.71	0.04
7-May-24	CARTIER REGIONAL 3- DIST @ -----> ELM BANK BOOSTER	0	0	1.30	1.51	0.06
7-May-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.34	1.48	0.04
7-May-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.38	1.51	0.08
7-May-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.32	1.52	0.07
7-May-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.43	1.60	0.06
21-May-24	CARTIER REGIONAL 1 - RAW	64	1	-	-	15.40
21-May-24	CARTIER REGIONAL 2 - TREATED	0	0	1.38	1.55	0.04
21-May-24	CARTIER REGIONAL 3 - DIST @ OAKVILLE RESERVOIR IN	0	0	1.22	1.40	0.09
21-May-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.17	1.36	0.08
21-May-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.09	1.27	0.07
21-May-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.14	1.33	0.09
21-May-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.15	1.81	0.09
4-Jun-24	CARTIER REGIONAL 1 - RAW	119	0	-	-	14.50
4-Jun-24	CARTIER REGIONAL 2 - TREATED	0	0	1.59	1.77	0.04

4-Jun-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE RES IN	0	0	1.43	1.51	0.07
4-Jun-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.36	1.49	0.08
4-Jun-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.38	1.54	0.05
4-Jun-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.50	1.72	0.06
4-Jun-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.43	1.61	0.06
18-Jun-24	CARTIER REGIONAL 1 - RAW	387	14	-	-	
18-Jun-24	CARTIER REGIONAL 2 - TREATED	0	0	1.45	1.65	0.05
18-Jun-24	CARTIER REGIONAL 3 - DIST - ELIE RES IN	0	0	1.41	1.60	0.09
18-Jun-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.36	1.56	0.09
18-Jun-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.49	1.63	0.10
18-Jun-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.30	1.48	0.09
18-Jun-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.49	1.62	0.09
2-Jul-24	CARTIER REGIONAL 1 - RAW	816	6	-	-	19.10
2-Jul-24	CARTIER REGIONAL 2 - TREATED	0	0	1.40	1.58	0.05
2-Jul-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE IN	0	0	1.48	1.64	0.08
2-Jul-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.36	1.48	0.08
2-Jul-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.24	1.42	0.09
2-Jul-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.31	1.48	0.09
2-Jul-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.36	1.53	0.09
16-Jul-24	CARTIER REGIONAL 1 - RAW	921	22	-	-	29.60
16-Jul-24	CARTIER REGIONAL 2 - TREATED	0	0	1.34	1.50	0.04
16-Jul-24	CARTIER REGIONAL 3- DIST @ -----> FORTIER BOOSTER	0	0	1.18	1.39	0.04
16-Jul-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.18	1.30	0.04
16-Jul-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.15	1.31	0.06
16-Jul-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.29	1.63	0.06
16-Jul-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.32	1.43	0.08
30-Jul-24	CARTIER REGIONAL 1 - RAW	687	4	-	-	
30-Jul-24	CARTIER REGIONAL 2 - TREATED	0	0	1.39	1.57	0.07
30-Jul-24	CARTIER REGIONAL 3 - DIST @ OAKVILLE RESERVOIR IN	0	0	1.16	1.34	0.08
30-Jul-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.01	1.15	0.07
30-Jul-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.01	1.13	0.08
30-Jul-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.14	1.28	0.08
30-Jul-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.21	1.33	0.09
13-Aug-24	CARTIER REGIONAL 1 - RAW	>2420	2	-	-	10.80
13-Aug-24	CARTIER REGIONAL 2 - TREATED	0	0	1.44	1.63	0.05
13-Aug-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE RES IN	0	0	1.26	1.38	0.07
13-Aug-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.19	1.32	0.05
13-Aug-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.22	1.34	0.05
13-Aug-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.22	1.35	0.05
13-Aug-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.32	1.47	0.05
27-Aug-24	CARTIER REGIONAL 1 - RAW	387	6	-	-	8.81
27-Aug-24	CARTIER REGIONAL 2 - TREATED	0	0	1.62	1.77	0.04
27-Aug-24	CARTIER REGIONAL 3 - DIST - ELIE RES IN	0	0	1.41	1.59	0.06

27-Aug-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.24	1.40	0.06
27-Aug-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.26	1.42	0.06
27-Aug-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.23	1.41	0.05
27-Aug-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.33	1.48	0.08
10-Sep-24	CARTIER REGIONAL 1 - RAW	178	12	-	-	4.89
10-Sep-24	CARTIER REGIONAL 2 - TREATED	0	0	1.56	1.73	0.04
10-Sep-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE IN	0	0	1.67	1.82	0.10
10-Sep-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.50	1.64	0.08
10-Sep-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.35	1.52	0.09
10-Sep-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.41	1.63	0.09
10-Sep-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.59	1.78	0.08
24-Sep-24	CARTIER REGIONAL 1 - RAW	548	91	-	-	2.18
24-Sep-24	CARTIER REGIONAL 2 - TREATED	0	0	1.75	1.91	0.04
24-Sep-24	CARTIER REGIONAL 3- DIST @ -----> ELM BANK BOOSTER	0	0	1.25	1.40	0.07
24-Sep-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.31	1.47	0.09
24-Sep-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.03	1.16	0.07
24-Sep-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.32	1.42	0.10
24-Sep-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.48	1.63	0.10
8-Oct-24	CARTIER REGIONAL 1 - RAW	115	8	-	-	6.50
8-Oct-24	CARTIER REGIONAL 2 - TREATED	0	0	1.86	2.20	0.02
8-Oct-24	CARTIER REGIONAL 3 - DIST @ OAKVILLE RESERVOIR IN	0	0	1.67	1.85	0.05
8-Oct-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.70	1.83	0.06
8-Oct-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.51	1.67	0.05
8-Oct-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.63	1.81	0.05
8-Oct-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.73	1.90	0.09
22-Oct-24	CARTIER REGIONAL 1 - RAW	64	9	-	-	2.61
22-Oct-24	CARTIER REGIONAL 2 - TREATED	0	0	1.65	1.88	0.04
22-Oct-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE RES IN	0	0	1.51	1.66	0.05
22-Oct-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.46	1.64	0.07
22-Oct-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.46	1.60	0.07
22-Oct-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.46	1.63	0.06
22-Oct-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.55	1.64	0.05
5-Nov-24	CARTIER REGIONAL 1 - RAW	56	10	-	-	2.23
5-Nov-24	CARTIER REGIONAL 2 - TREATED	0	0	1.64	1.88	0.05
5-Nov-24	CARTIER REGIONAL 3 - DIST - ELIE RES IN	0	0	1.53	1.69	0.05
5-Nov-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.39	1.55	0.06
5-Nov-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.36	1.55	0.19
5-Nov-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.44	1.62	0.04
5-Nov-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.52	1.66	0.04
19-Nov-24	CARTIER REGIONAL 1 - RAW	45	1	-	-	3.40
19-Nov-24	CARTIER REGIONAL 2 - TREATED	0	0	1.52	1.67	0.04
19-Nov-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE IN	0	0	1.56	1.71	0.18
19-Nov-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.23	1.54	0.15

19-Nov-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.24	1.36	0.12
19-Nov-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.40	1.62	0.12
19-Nov-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.31	1.52	0.16
3-Dec-24	CARTIER REGIONAL 1 - RAW	3	0	-	-	3.03
3-Dec-24	CARTIER REGIONAL 2 - TREATED	0	0	1.74	1.94	0.04
3-Dec-24	CARTIER REGIONAL 3- DIST @ -----> FORTIER BOOSTER	0	0	1.59	1.80	0.05
3-Dec-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.52	1.72	0.04
3-Dec-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.26	1.38	0.07
3-Dec-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.44	1.58	0.04
3-Dec-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.56	1.72	0.05
17-Dec-24	CARTIER REGIONAL 1 - RAW	2	0	-	-	3.02
17-Dec-24	CARTIER REGIONAL 2 - TREATED	0	0	1.78	2.20+	0.07
17-Dec-24	CARTIER REGIONAL 3 - DIST @ OAKVILLE RESERVOIR IN	0	0	1.56	1.77	0.10
17-Dec-24	CARTIER REGIONAL 3 - DIST - ELIE OUT	0	0	1.60	1.81	0.10
17-Dec-24	CARTIER REGIONAL 3 - DIST - FANNYSTELLE OUT	0	0	1.20	1.39	0.07
17-Dec-24	CARTIER REGIONAL 3 - DIST - OAKVILLE OUT	0	0	1.47	1.76	0.11
17-Dec-24	CARTIER REGIONAL 3 - DIST - ST. EUSTACHE OUT	0	0	1.74	1.87	0.14

### Appendix B: Headingley WTP 89.40 2024 Bacteriological Result

Date Sampled	Sample Identification	TC	EC	Free Cl2	Total Cl2	Turbidity
9-Jan-24	HEADINGLEY REGIONAL 1 - RAW	7	0	-	-	7.79
9-Jan-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.22	1.30	0.07
9-Jan-24	HEADINGLEY REGIONAL 3 - DIST @ -----> H.C.C. IN	0	0	1.37	1.46	0.07
9-Jan-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.85	0.96	0.07
9-Jan-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.38	1.45	0.07
8-Jan-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.23	1.32	0.07
9-Jan-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.50	1.54	0.06
9-Jan-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.22	1.32	0.08
23-Jan-24	HEADINGLEY REGIONAL 1 - RAW	7	1	-	-	6.51
23-Jan-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.77	1.92	0.07
23-Jan-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HDLY W.W.T.P.	0	0	1.63	1.79	0.07
23-Jan-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.68	0.80	0.07
23-Jan-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.74	1.85	0.08
22-Jan-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.55	1.66	0.05
22-Jan-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.90	1.97	0.06
23-Jan-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.54	1.61	0.08
6-Feb-24	HEADINGLEY REGIONAL 1 - RAW	12	4	-	-	5.93

6-Feb-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.68	1.76	0.06
6-Feb-24	HEADINGLEY REGIONAL 3 - DIST @ -----> AIR FAB	0	0	1.66	1.77	0.07
6-Feb-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.62	0.75	0.09
6-Feb-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.75	1.82	0.07
5-Feb-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.32	1.58	0.11
5-Feb-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.73	1.88	0.07
6-Feb-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.69	1.76	0.07
20-Feb-24	HEADINGLEY REGIONAL 1 - RAW	10	0	-	-	6.70
20-Feb-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.42	1.55	0.04
19-Feb-24	HEADINGLEY REGIONAL 3 - DIST @ -----> W.S.P. RES. IN	0	0	1.67	1.76	0.06
19-Feb-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.66	0.77	0.07
19-Feb-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.54	1.67	0.07
20-Feb-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.30	1.42	0.07
20-Feb-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.42	1.55	0.06
19-Feb-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.72	1.81	0.08
5-Mar-24	HEADINGLEY REGIONAL 1 - RAW	2	0	-	-	5.53
5-Mar-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.48	1.68	0.05
4-Mar-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HDLY RES IN	0	0	1.73	1.86	0.05
5-Mar-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.86	0.89	0.08
5-Mar-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.24	1.40	0.07
4-Mar-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.15	1.29	0.04
4-Mar-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.64	1.77	0.05
5-Mar-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.33	1.40	0.07
19-Mar-24	HEADINGLEY REGIONAL 1 - RAW	9	1	-	-	5.28
19-Mar-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.51	1.68	0.04
19-Mar-24	HEADINGLEY REGIONAL 3 - DIST @ -----> ROSSER RES IN	0	0	1.46	1.62	0.07
19-Mar-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.76	0.90	0.06
19-Mar-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.35	1.46	0.06
18-Mar-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.33	1.49	0.06
18-Mar-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.41	1.64	0.04
19-Mar-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.20	1.34	0.08
2-Apr-24	HEADINGLEY REGIONAL 1 - RAW	17	1	-	-	11.40
2-Apr-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.36	1.56	0.05
2-Apr-24	HEADINGLEY REGIONAL 3 - DIST @ -----> SFX RES IN	0	0	1.36	1.51	0.06
1-Apr-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.91	1.06	0.06
1-Apr-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.21	1.38	0.11
2-Apr-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.32	1.44	0.04
2-Apr-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.41	1.56	0.05
1-Apr-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.03	1.23	0.06
16-Apr-24	HEADINGLEY REGIONAL 1 - RAW	43	25	-	-	13.70

16-Apr-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.28	1.44	0.04
16-Apr-24	HEADINGLEY REGIONAL 3 - DIST @ -----> G.I. RES IN	0	0	1.25	1.40	0.05
16-Apr-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.92	1.10	0.05
16-Apr-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	0.99	1.16	0.06
15-Apr-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.16	1.28	0.08
15-Apr-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.37	1.53	0.06
16-Apr-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	0.95	1.09	0.09
30-Apr-24	HEADINGLEY REGIONAL 1 - RAW	148	0	-	-	49.50
30-Apr-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.44	1.62	0.05
30-Apr-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HCC IN	0	0	1.49	1.70	0.08
30-Apr-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.96	1.11	0.08
30-Apr-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	0.97	1.19	0.07
29-Apr-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.23	1.36	0.05
29-Apr-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.13	1.35	0.05
30-Apr-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	0.84	1.02	0.07
13-May-24	HEADINGLEY REGIONAL 1 - RAW	13	2	-	-	15.50
13-May-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.56	1.69	0.06
13-May-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HDLY W.W.T.P	0	0	1.39	1.53	0.07
12-May-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	1.01	1.13	0.06
12-May-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.17	1.33	0.08
13-May-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.22	1.35	0.06
13-May-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.46	1.61	0.07
12-May-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	0.88	1.00	0.07
28-May-24	HEADINGLEY REGIONAL 1 - RAW	39	14	-	-	11.20
28-May-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.72	1.89	0.15
28-May-24	HEADINGLEY REGIONAL 3 - DIST @ -----> AIRFAB	0	0	1.75	1.88	0.16
28-May-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.85	1.03	0.06
28-May-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.08	1.26	0.19
27-May-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.15	1.28	0.14
27-May-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.37	1.50	0.20
28-May-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.04	1.16	0.14
11-Jun-24	HEADINGLEY REGIONAL 1 - RAW	115	15	-	-	13.30
11-Jun-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.66	1.79	0.16
11-Jun-24	HEADINGLEY REGIONAL 3 - DIST @ -----> W.S.P. RES IN	0	0	1.50	1.60	0.19
11-Jun-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.85	0.98	0.09
11-Jun-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.48	1.63	0.17
10-Jun-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.53	1.66	0.13
10-Jun-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.65	1.80	0.14
11-Jun-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.32	1.42	0.19
25-Jun-24	HEADINGLEY REGIONAL 1 - RAW	222	3	-	-	13.90

25-Jun-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.68	1.79	0.13
24-Jun-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HDLY RES IN	0	0	1.61	1.73	0.15
25-Jun-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.98	1.05	0.10
25-Jun-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.13	1.24	0.14
24-Jun-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.33	1.90	0.16
24-Jun-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.68	1.77	0.14
25-Jun-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.27	1.39	0.17
9-Jul-24	HEADINGLEY REGIONAL 1 - RAW	411	7	-	-	20.50
9-Jul-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.51	1.65	0.10
9-Jul-24	HEADINGLEY REGIONAL 3 - DIST @ -----> ROSSER RES IN	0	0	1.73	1.89	0.13
9-Jul-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.94	1.08	0.11
9-Jul-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.49	1.59	0.18
8-Jul-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.49	1.65	0.14
8-Jul-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.62	1.73	0.14
9-Jul-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.15	1.31	0.13
23-Jul-24	HEADINGLEY REGIONAL 1 - RAW	722	8	-	-	23.10
23-Jul-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.51	1.66	0.06
22-Jul-24	HEADINGLEY REGIONAL 3 - DIST @ -----> SFX RES IN	0	0	1.46	1.60	0.05
23-Jul-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.81	0.90	0.12
23-Jul-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.14	1.29	0.09
22-Jul-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.37	1.47	0.09
22-Jul-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.39	1.52	0.06
23-Jul-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.15	1.22	0.12
6-Aug-24	HEADINGLEY REGIONAL 1 - RAW	461	7	-	-	24.90
6-Aug-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.81	1.91	0.08
5-Aug-24	HEADINGLEY REGIONAL 3 - DIST @ -----> G.I. RES IN	0	0	0.98	1.12	0.09
5-Aug-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.78	0.86	0.12
5-Aug-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.37	1.43	0.09
6-Aug-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.43	1.55	0.08
6-Aug-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.65	1.78	0.08
5-Aug-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.10	1.16	0.08
20-Aug-24	HEADINGLEY REGIONAL 1 - RAW	548	225	-	-	22.20
20-Aug-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.43	1.59	0.08
20-Aug-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HCC IN	0	0	1.57	1.74	0.18
20-Aug-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.64	0.75	0.09
20-Aug-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.34	1.46	0.08
19-Aug-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.36	1.45	0.09
19-Aug-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.51	1.64	0.10
20-Aug-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.23	1.36	0.09
4-Sep-24	HEADINGLEY REGIONAL 1 - RAW	921	345	-	-	16.20

4-Sep-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.68	1.78	0.06
4-Sep-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HDLY W.W.T.P.	0	0	1.33	1.43	0.07
3-Sep-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.64	0.74	0.09
3-Sep-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.18	1.28	0.10
3-Sep-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.25	1.35	0.09
4-Sep-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.68	1.81	0.09
3-Sep-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.16	1.27	0.08
16-Sep-24	HEADINGLEY REGIONAL 1 - RAW	649	345	-	-	14.60
16-Sep-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.55	1.69	0.09
16-Sep-24	HEADINGLEY REGIONAL 3 - DIST @ -----> Bayer Crop Science	0	0	1.48	1.59	0.10
15-Sep-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.74	0.83	0.13
15-Sep-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.33	1.46	0.21
16-Sep-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.34	1.47	0.09
16-Sep-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.64	1.77	0.11
15-Sep-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.23	1.31	0.12
1-Oct-24	HEADINGLEY REGIONAL 1 - RAW	>242 0	112 0	-	-	18.40
1-Oct-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.45	1.59	0.09
30-Sep-24	HEADINGLEY REGIONAL 3 - DIST @ -----> W.S.P. RES IN	0	0	1.06	1.14	0.10
30-Sep-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.67	0.77	0.10
30-Sep-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.03	1.15	0.09
1-Oct-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.17	1.31	0.08
1-Oct-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.36	1.53	0.09
30-Sep-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.13	1.22	0.17
15-Oct-24	HEADINGLEY REGIONAL 1 - RAW	276	127	-	-	6.37
15-Oct-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.87	2.00	0.12
15-Oct-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HDLY RES IN	0	0	1.85	2.12	0.13
14-Oct-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.67	0.77	0.09
14-Oct-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.19	1.33	0.14
15-Oct-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.39	1.53	0.10
15-Oct-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.76	1.89	0.17
14-Oct-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	0.96	1.08	0.15
29-Oct-24	HEADINGLEY REGIONAL 1 - RAW	52	23	-	-	6.53
29-Oct-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.86	2.00	0.09
29-Oct-24	HEADINGLEY REGIONAL 3 - DIST @ -----> ROSSER RES IN	0	0	1.57	1.81	0.21
29-Oct-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.63	0.75	0.09
29-Oct-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.31	1.48	0.17
28-Oct-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.38	1.54	0.11
28-Oct-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.76	1.91	0.09

29-Oct-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.22	1.30	0.14
12-Nov-24	HEADINGLEY REGIONAL 1 - RAW	93	39	-	-	8.68
12-Nov-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.85	2.00	0.07
12-Nov-24	HEADINGLEY REGIONAL 3 - DIST @ -----> SFX RES IN	0	0	1.24	1.40	0.14
11-Nov-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.85	0.93	0.09
11-Nov-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.50	1.68	0.10
12-Nov-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.42	1.56	0.09
12-Nov-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.88	2.02	0.21
11-Nov-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.33	1.43	0.15
26-Nov-24	HEADINGLEY REGIONAL 1 - RAW	47	10	-	-	8.89
26-Nov-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.70	1.86	0.04
26-Nov-24	HEADINGLEY REGIONAL 3 - DIST @ -----> G.I. RES IN	0	0	0.99	1.13	0.08
26-Nov-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.93	1.03	0.06
26-Nov-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.71	1.85	0.07
25-Nov-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.33	1.45	0.08
25-Nov-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.93	2.07	0.07
26-Nov-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.52	1.66	0.08
10-Dec-24	HEADINGLEY REGIONAL 1 - RAW	5	0	-	-	7.08
10-Dec-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.89	2.00	0.06
10-Dec-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HCC IN	0	0	1.78	2.06	0.06
10-Dec-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.84	0.95	0.22
10-Dec-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.54	1.71	0.05
9-Dec-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.34	1.48	0.06
9-Dec-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.83	1.98	0.06
10-Dec-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.53	1.64	0.06
23-Dec-24	HEADINGLEY REGIONAL 1 - RAW	15	0	-	-	6.86
23-Dec-24	HEADINGLEY REGIONAL 2 - TREATED	0	0	1.43	1.59	0.05
23-Dec-24	HEADINGLEY REGIONAL 3 - DIST @ -----> HDLY W.W.T.P.	0	0	1.34	1.47	0.04
22-Dec-24	HEADINGLEY REGIONAL 3 - DIST - GI OUT	0	0	0.73	0.83	0.06
22-Dec-24	HEADINGLEY REGIONAL 3 - DIST - ROSSER OUT	0	0	1.53	1.67	0.05
23-Dec-24	HEADINGLEY REGIONAL 3 - DIST - ST. FX OUT	0	0	1.39	1.52	0.04
23-Dec-24	HEADINGLEY REGIONAL 3 - DIST - HDLY OUT	0	0	1.65	1.91	0.09
22-Dec-24	HEADINGLEY REGIONAL 3 - DIST - WSP OUT	0	0	1.53	1.57	0.05

## Appendix C: RM of Headingley 89.50 2024 Bacteriological Results

Date Sampled	Sample Identification	TC	EC	Free Cl2	Total Cl2
9-Jan-24	HEADINGLEY 3 - DIST @ --> Phoenix School	0	0	1.55	1.61
22-Jan-24	HEADINGLEY 3 - DIST @ --> Columbia Insurance	0	0	1.67	1.81
6-Feb-24	HEADINGLEY 3 - DIST @ --> Motel 6	0	0	1.60	1.74
20-Feb-24	HEADINGLEY 3 - DIST @ --> Matix Lumber	0	0	1.39	1.55
4-Mar-24	HEADINGLEY 3 - DIST @ --> Headingley Sport Shop	0	0	1.51	1.65
18-Mar-24	HEADINGLEY 3 - DIST @ --> Headingley Library	0	0	1.42	1.60
2-Apr-24	HEADINGLEY 3 - DIST @ --> Flying J	0	0	0.86	0.98
15-Apr-24	HEADINGLEY 3 - DIST @ --> Phoenix School	0	0	0.97	1.08
29-Apr-24	HEADINGLEY 3 - DIST @ --> Columbia Insurance	0	0	1.09	1.42
13-May-24	HEADINGLEY 3 - DIST @ --> Motel 6	0	0	1.34	1.68
27-May-24	HEADINGLEY 3 - DIST @ --> Matix Lumber	0	0	1.35	1.47
10-Jun-24	HEADINGLEY 3 - DIST @ --> Headingley Sport Shop	0	0	1.65	1.76
23-Jun-24	HEADINGLEY 3 - DIST @ --> Flying J	0	0	1.74	1.85
8-Jul-24	HEADINGLEY 3 - DIST @ --> Library	0	0	1.52	1.66
22-Jul-24	HEADINGLEY 3 - DIST @ --> Motel 6	0	0	1.39	1.53
6-Aug-24	HEADINGLEY 3 - DIST @ --> Columbia Insurance	0	0	1.51	1.63
19-Aug-24	HEADINGLEY 3 - DIST @ --> Taillieu Construction	0	0	1.04	1.14
4-Sep-24	HEADINGLEY 3 - DIST @ --> Matix Lumber	0	0	1.53	1.68
16-Sep-24	HEADINGLEY 3 - DIST @ --> Phoenix School	0	0	1.39	1.47
1-Oct-24	HEADINGLEY 3 - DIST @ --> Headingley Sport Shop	0	0	1.41	1.55
15-Oct-24	HEADINGLEY 3 - DIST @ --> Flying J	0	0	1.41	1.55
28-Oct-24	HEADINGLEY 3 - DIST @ --> Headingley Library	0	0	1.73	1.80
12-Nov-24	HEADINGLEY 3 - DIST @ --> Headingley Library	0	0	1.81	2.16
25-Nov-24	HEADINGLEY 3 - DIST @ --> Motel 6	0	0	1.91	1.98
9-Dec-24	HEADINGLEY 3 - DIST @ --> Flying J	0	0	1.55	1.67
23-Dec-24	HEADINGLEY 3 - DIST @ --> Columbia Insurance	0	0	1.66	1.93

## Appendix D: RM of St. Francois Xavier 211.50 2024 Bacteriological Results

Date Sampled	Sample Identification	TC	EC	Free Cl2	Total Cl2
8-Jan-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> COUNTRY KIDS LEARNING CENTER	0	0	1.29	1.36
22-Jan-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> RM OFFICE	0	0	1.53	1.73
5-Feb-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> COUNTRY STORE	0	0	1.56	1.61
20-Feb-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> VET CLINIC	0	0	1.36	1.45
4-Mar-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> ESSO	0	0	1.09	1.24
18-Mar-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> SFX ELEMENTARY SCHOOL	0	0	1.32	1.37
2-Apr-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> RM OFFICE	0	0	1.17	1.32
15-Apr-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> COUNTRY STORE	0	0	0.95	1.10
29-Apr-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> VET CLINIC	0	0	1.28	1.58
13-May-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> ESSO	0	0	1.26	1.43
27-May-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> SFX ELEMENTARY SCHOOL	0	0	0.94	1.07
10-Jun-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> RM OFFICE	0	0	1.62	1.68
23-Jun-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> ESSO	0	0	1.24	1.34
8-Jul-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> COUNTRY STORE	0	0	1.18	1.27
22-Jul-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> VET CLINIC	0	0	1.32	1.44
6-Aug-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> RM OFFICE	0	0	1.48	1.83
19-Aug-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> ESSO	0	0	1.34	1.46
3-Sep-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> COUNTRY STORE	0	0	0.67	0.75
16-Sep-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> SFX ELEMENTARY SCHOOL	0	0	1.09	1.20
1-Oct-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> VET CLINIC	0	0	0.95	1.07
15-Oct-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> RM OFFICE	0	0	1.31	1.48
28-Oct-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> ESSO	0	0	1.30	1.46
12-Nov-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> COUNTRY STORE	0	0	1.18	1.24
25-Nov-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> SFX ELEMENTARY SCHOOL	0	0	1.39	1.63
11-Dec-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> RM OFFICE	0	0	1.37	1.48
23-Dec-24	ST. FRANCOIS XAVIER 3 - DIST @ ---> ESSO	0	0	1.27	1.44

**Appendix E: Peony Farm Reservoir 162.75 2024 Bacteriological Results**

<b>Date Sampled</b>	<b>Sample Identification</b>	<b>TC</b>	<b>EC</b>	<b>Free Cl2</b>	<b>Total Cl2</b>
8-Jan-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.72	2.19
8-Jan-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.26	0.48
22-Jan-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.79	2.11
22-Jan-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.23	0.48
5-Feb-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.99	2.19
5-Feb-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.12	0.34
20-Feb-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.23	2.12
20-Feb-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.20	0.38
5-Mar-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.75	2.13
5-Mar-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.76	1.26
19-Mar-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.36	1.82
19-Mar-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.57	0.84
2-Apr-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.76	2.09
2-Apr-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.59	0.92
16-Apr-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.56	1.79
16-Apr-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.45	0.70
29-Apr-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.64	1.98
29-Apr-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.68	0.87
13-May-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.45	1.78
13-May-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.48	0.69
27-May-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.60	1.83
27-May-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.85	1.08
10-Jun-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.54	1.85
10-Jun-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.89	1.03
24-Jun-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.39	1.66
24-Jun-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.53	0.91
8-Jul-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.83	2.09
8-Jul-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.76	1.08
22-Jul-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.57	1.84
22-Jul-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.61	0.94
5-Aug-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.37	1.74
5-Aug-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.35	0.75
19-Aug-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.48	1.84
19-Aug-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.53	0.70
3-Sep-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.76	2.14
3-Sep-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.70	0.99
16-Sep-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.52	1.94
16-Sep-24	PEONY FARM 3 - DIST - PP @ RINK	0	0	0.76	0.90
1-Oct-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.69	2.01
1-Oct-24	PEONY FARM 3 - DIST - PP @ HIGH BLUFF HALL	0	0	1.24	1.52

16-Oct-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	2.20	2.20
16-Oct-24	PEONY FARM 3 - DIST - PP @ HIGH BLUFF HALL	0	0	0.99	1.42
22-Oct-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.44	1.82
22-Oct-24	PEONY FARM 3 - DIST - PP @ Community Centre	0	0	0.29	0.64
5-Nov-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.42	1.78
5-Nov-24	PEONY FARM 3 - DIST - PP @ HIGH BLUFF HALL	0	0	0.99	1.34
19-Nov-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.54	1.98
19-Nov-24	PEONY FARM 3 - DIST - PP @ Community Centre	0	0	0.38	0.93
3-Dec-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.38	1.86
3-Dec-24	PEONY FARM 3 - DIST - PP @ HIGH BLUFF HALL	0	0	0.87	1.25
17-Dec-24	PEONY FARM 3 - DIST - PF OUTGOING	0	0	1.51	1.91
17-Dec-24	PEONY FARM 3 - DIST - PP @ HIGH BLUFF HALL	0	0	0.93	1.29

## Appendix F: Cartier and Headingley Regional Water System THM and HAA Results

### Disinfection By-product Report - THMs and HAAs

Water System Name: **Cartier Regional Water Co-op**      Water System Code: **36.00**

Year: **2024**      Operator -in-charge (Print): **Danielle Vaillant/Grant McGorman**

<b>Total Trihalomethanes (THMs) [mg/L]</b>	
Quality Standard: Less than or equal to 0.10 mg/L as locational running annual average of quarterly samples	
Sampling Location #1: <b>Oakville In</b>	
1st Quarter	0.0309
2nd Quarter	0.0405
3rd Quarter	0.1100
4th Quarter	0.0520
<b>Yearly Average (mg/L)</b>	<b>0.05835</b>
Yearly Average (ug/L)	58.35
Sampling Location #2: <b>Fannystelle In</b>	
1st Quarter	0.0387
2nd Quarter	0.0405
3rd Quarter	0.1100
4th Quarter	0.0502
<b>Yearly Average (mg/L)</b>	<b>0.06435</b>
Yearly Average (ug/L)	64.35

<b>Total Halo Acetic Acids (HAAs) [mg/L]</b>	
Quality Standard: Less than or equal to 0.08 mg/L as locational running annual average of quarterly samples	
Sampling Location #1: <b>Fortier Booster</b>	
1st Quarter	0.0158
2nd Quarter	0.0286
3rd Quarter	0.0337
4th Quarter	0.0221
<b>Yearly Average (mg/L)</b>	<b>0.02505</b>
Yearly Average (ug/L)	25.05
Sampling Location #2: <b>Elm Bank Booster</b>	
1st Quarter	0.0198
2nd Quarter	0.0392
3rd Quarter	0.0371
4th Quarter	0.0292
<b>Yearly Average (mg/L)</b>	<b>0.0371</b>
Yearly Average (ug/L)	37.10

### Disinfection By-product Report - THMs and HAAs

Water System Name: **Peony Farm**

Water System Code: **162.75**

Year: **2024**

Operator -in-charge (Print): **Danielle Vaillant/Grant McGorman**

**Total Trihalomethanes (THMs) [mg/L]**

Quality Standard: Less than or equal to 0.10 mg/L as locational running average of quarterly samples

**Sampling Location #1: Poplar Point Flushout**

1st Quarter	0.1090
2nd Quarter	0.0883
3rd Quarter	0.1510
4th Quarter	0.1020
<b>Yearly Average (mg/L)</b>	<b>0.11283</b>
Yearly Average (ug/L)	112.83

**Total Halo Acetic Acids (HAAs) [mg/L]**

Quality Standard: Less than or equal to 0.08 mg/L as locational running average of quarterly samples

**Sampling Location #1: High Bluff Community Hall**

1st Quarter	0.0429
2nd Quarter	0.0392
3rd Quarter	0.0371
4th Quarter	0.0292
<b>Yearly Average (mg/L)</b>	<b>0.03710</b>
Yearly Average (ug/L)	<b>37.10</b>

**Disinfection By-product Report - THMs and HAAs**

Water System Name: **Headingley Regional Water System** Water System Code: **89.40**

Year: **2024**

Operator -in-charge (Print): **Danielle Vaillant**

**Total Trihalomethanes (THMs) [mg/L]**

Quality Standard: Less than or equal to 0.1 mg/L as locational running average of quarterly samples

**Sampling Location #1: GROSSE ISLE IN**

1st Quarter	0.0458
2nd Quarter	0.0539
3rd Quarter	0.1060
4th Quarter	0.0708
<b>Yearly Average (mg/L)</b>	<b>0.0691</b>
Yearly Average (ug/L)	69.10

**Sampling Location #2: WEST ST. PAUL IN**

1st Quarter	0.0104
2nd Quarter	0.1030
3rd Quarter	0.1200
4th Quarter	0.0434
<b>Yearly Average (mg/L)</b>	<b>0.0692</b>
Yearly Average (ug/L)	69.20

**Total Halo Acetic Acids (HAAs) [mg/L]**

Quality Standard: Less than or equal to 0.08 mg/L as locational running average of quarterly samples

**Sampling Location #1: SFX IN**

1st Quarter	0.0249
2nd Quarter	0.0458
3rd Quarter	0.0317
4th Quarter	0.0308
<b>Yearly Average (mg/L)</b>	<b>0.0333</b>
Yearly Average (ug/L)	33.30

**Sampling Location #2: ROSSER IN**

1st Quarter	0.0112
2nd Quarter	0.0238
3rd Quarter	0.0264
4th Quarter	0.0130
<b>Yearly Average (mg/L)</b>	<b>0.0186</b>
Yearly Average (ug/L)	18.60

## Appendix G: Cartier Water Treatment Facility Annual Lab Results

### Results Summary WP2421707

<b>Project</b>	CARTIER REGIONAL - PWS 36.00
<b>Report To</b>	Amanda Fewings, Manitoba Conservation & Climate
<b>Date Received</b>	10-Sep-2024 15:27
<b>Issue Date</b>	07-Oct-2024 13:42
<b>Amendment</b>	0

			Cartier Regional 1 - Raw	Cartier Regional 2 - Treated	Cartier Regional 3 - Distribution Fannystelle In
Client Sample ID					
Date Sampled			10-Sep-2024	10-Sep-2024	10-Sep-2024
Time Sampled			08:15	08:30	07:00
ALS Sample ID			WP2421707- 001	WP2421707-002	WP2421707- 003
Analyte	Lowest Detection Limit	Units	Sub-Matrix: Water	Sub-Matrix: Water	Sub-Matrix: Water

#### Physical Tests (Matrix: Water)

Conductivity	2.0	µS/cm	856	241	
Absorbance, UV (@ 254nm)	0.0050	AU/cm	0.290	0.0340	
Alkalinity, bicarbonate (as CaCO3)	1.0	mg/L	236	72.1	
Alkalinity, carbonate (as CaCO3)	1.0	mg/L	21.2	<1.0	
Alkalinity, hydroxide (as CaCO3)	1.0	mg/L	<1.0	<1.0	
Alkalinity, total (as CaCO3)	1.0	mg/L	257	72.1	
Colour, true	5.0	CU	19.6	<5.0	
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L	355	49.9	
Langelier index (@ 4°C)	0.010		1.07	-0.861	
Solids, total dissolved [TDS]	3.0	mg/L	590	136	
Turbidity	0.10	NTU	4.62	<0.10	
pH	0.10	pH units	8.55	7.88	
Transmittance, UV (@ 254nm)	1.0	% T/cm	51.3	92.5	
Langelier index (@ 60°C)	0.010		1.81	-0.090	

#### Anions and Nutrients (Matrix: Water)

Ammonia, total (as N)	0.0050	mg/L	0.0510	<0.0050	
Bromide	0.050	mg/L	<0.100	<0.050	
Chloride	0.10	mg/L	20.8	9.14	
Fluoride	0.020	mg/L	0.154	0.323	
Nitrate (as N)	0.0050	mg/L	0.194	0.126	
Nitrite (as N)	0.0010	mg/L	0.0026	<0.0010	
Sulfate (as SO4)	0.30	mg/L	191	31.8	

**Organic / Inorganic Carbon (Matrix: Water)**

Carbon, dissolved organic [DOC]	0.50	mg/L	9.43	1.49
Carbon, total organic [TOC]	0.50	mg/L	11.1	1.40

**Ion Balance (Matrix: Water)**

Anion sum	0.10	meq/L	9.72	2.39
Cation sum (total)	0.10	meq/L	9.62	2.22
Ion balance (cations/anions)	0.01	%	99.0	92.9
Ion balance (APHA)	0.010	%	-0.517	-3.69

**Total Metals (Matrix: Water)**

Aluminum, total	3.0	µg/L	187	4.0	9.1
Antimony, total	0.10	µg/L	0.34	<0.10	<0.10
Arsenic, total	0.10	µg/L	7.87	1.04	1.05
Barium, total	0.10	µg/L	65.1	9.42	9.88
Beryllium, total	0.020	µg/L	<0.020	<0.020	<0.020
Bismuth, total	0.050	µg/L	<0.050	<0.050	<0.050
Boron, total	10	µg/L	103	85	85
Cadmium, total	0.0050	µg/L	0.0089	<0.0050	<0.0050
Calcium, total	50	µg/L	72700	10400	10800
Cesium, total	0.010	µg/L	0.028	<0.010	<0.010
Chromium, total	0.50	µg/L	<0.50	<0.50	<0.50
Cobalt, total	0.10	µg/L	0.21	<0.10	<0.10
Copper, total	0.50	µg/L	29.4	33.2	24.7
Iron, total	10	µg/L	171	<10	<10
Lead, total	0.050	µg/L	0.090	<0.050	0.084
Lithium, total	1.0	µg/L	50.9	14.1	14.4
Magnesium, total	5.0	µg/L	42100	5820	5950
Manganese, total	0.10	µg/L	46.2	3.22	3.26
Molybdenum, total	0.050	µg/L	3.19	0.426	0.402
Nickel, total	0.50	µg/L	2.78	0.52	<0.50
Phosphorus, total	50	µg/L	257	56	54
Potassium, total	50	µg/L	12100	3420	3450
Rubidium, total	0.20	µg/L	2.93	0.78	0.89
Selenium, total	0.050	µg/L	0.517	0.088	0.095
Silicon, total	100	µg/L	10400	3410	3590
Silver, total	0.010	µg/L	<0.010	<0.010	<0.010
Sodium, total	50	µg/L	50200	26100	26400
Strontium, total	0.20	µg/L	327	47.8	48.2
Sulfur, total	500	µg/L	67300	10500	10700
Tellurium, total	0.20	µg/L	<0.20	<0.20	<0.20
Thallium, total	0.010	µg/L	0.014	<0.010	<0.010
Thorium, total	0.10	µg/L	<0.10	<0.10	<0.10
Tin, total	0.10	µg/L	<0.10	<0.10	0.16

Titanium, total	0.30	µg/L	6.24	<0.30	<0.30
Tungsten, total	0.10	µg/L	<0.10	<0.10	<0.10
Uranium, total	0.010	µg/L	2.90	0.348	0.367
Vanadium, total	0.50	µg/L	4.24	0.63	0.65
Zinc, total	3.0	µg/L	<3.0	4.0	3.1
Zirconium, total	0.20	µg/L	0.32	<0.20	<0.20

**Qualifier Legend**

DLM Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

## Results Summary WP2421320

**Project** CARTIER REGIONAL - PWS 36.00  
**Report To** Amanda Fewings, Manitoba Conservation & Climate  
**Date Received** 05-Sep-2024 11:46  
**Issue Date** 17-Dec-2024 09:05  
**Amendment** 0

Client Sample ID Cartier Regional 1 - Raw  
Date Sampled 05-Sep-2024  
Time Sampled 00:00  
ALS Sample ID WP2421320-001  
Analyte Lowest Detection Limit Units Sub-Matrix: Water

**Organic Parameters (Matrix: Water)**

Microcystin 0.20 µg/L <0.20

## Appendix H: Headingley Water Treatment Facility Annual Lab Results

### Results Summary WP2413487

**Project** Headingley Regional - PWS 89.40  
**Report To** Amrith Kumar, Manitoba Conservation & Climate  
**Date Received** 28-May-2024 16:07  
**Issue Date** 04-Jun-2024 13:14  
**Amendment** 0

	HEADINGLEY REGIONAL 1 - RAW	HEADINGLEY REGIONAL 2 - TREATED	HEADINGLEY REGIONAL 3 - DIST @ GI RES. INCOMING
Client Sample ID			
Date Sampled	28-May-2024	28-May-2024	28-May-2024

Time Sampled			10:20	09:30	11:35
ALS Sample ID			WP2413487-001	WP2413487-002	WP2413487-003
Analyte	Lowest Detection Limit	Units	Sub-Matrix: Drinking Water	Sub-Matrix: Drinking Water	Sub-Matrix: Drinking Water

**Physical Tests (Matrix: Water)**

Conductivity	2.0	µS/cm	752	115	
Absorbance, UV (@ 254nm)	0.0050	AU/cm	0.292	0.0230	
Alkalinity, bicarbonate (as CaCO3)	1.0	mg/L	222	35.7	
Alkalinity, carbonate (as CaCO3)	1.0	mg/L	11.0	<1.0	
Alkalinity, hydroxide (as CaCO3)	1.0	mg/L	<1.0	<1.0	
Alkalinity, total (as CaCO3)	1.0	mg/L	233	35.7	
Colour, true	5.0	CU	28.8	5.3	
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L	336	27.6	
Langelier index (@ 4°C)	0.010		0.858	-1.69	
Solids, total dissolved [TDS]	3.0	mg/L	485	66.3	
Turbidity	0.10	NTU	64.5	0.11	
pH	0.10	pH units	8.36	7.57	
Transmittance, UV (@ 254nm)	1.0	% T/cm	51.0	94.8	
Langelier index (@ 60°C)	0.010		1.61	-0.918	

**Anions and Nutrients (Matrix: Water)**

Ammonia, total (as N)	0.0050	mg/L	0.0668	0.0575	
Bromide	0.010	mg/L	0.028	<0.010	
Chloride	0.10	mg/L	18.3	5.08	
Fluoride	0.020	mg/L	0.139	<0.020	
Nitrate (as N)	0.0050	mg/L	0.467	0.0806	
Nitrite (as N)	0.0010	mg/L	0.0074	<0.0010	
Sulfate (as SO4)	0.30	mg/L	168	13.5	

**Organic / Inorganic Carbon (Matrix: Water)**

Carbon, dissolved organic [DOC]	0.50	mg/L	12.6	2.14	
Carbon, total organic [TOC]	0.50	mg/L	12.8	1.31	

**Ion Balance (Matrix: Water)**

Anion sum	0.10	meq/L	8.71	1.14	
Cation sum (total)	0.10	meq/L	8.96	1.15	
Ion balance (cations/anions)	0.01	%	103	101	
Ion balance (APHA)	0.010	%	1.41	0.437	

**Total Metals (Matrix: Water)**

Aluminum, total	3.0	µg/L	778	3.2	<3.0
Antimony, total	0.10	µg/L	0.22	<0.10	<0.10
Arsenic, total	0.10	µg/L	4.98	0.32	0.46
Barium, total	0.10	µg/L	73.8	4.88	8.10
Beryllium, total	0.020	µg/L	0.064	<0.020	<0.020

Bismuth, total	0.050	µg/L	<0.050	<0.050	<0.050
Boron, total	10	µg/L	89	71	82
Cadmium, total	0.0050	µg/L	0.0492	<0.0050	0.0098
Calcium, total	50	µg/L	71100	5730	8950
Cesium, total	0.010	µg/L	0.146	<0.010	<0.010
Chromium, total	0.50	µg/L	1.52	<0.50	<0.50
Cobalt, total	0.10	µg/L	0.99	<0.10	<0.10
Copper, total	0.50	µg/L	4.02	13.8	13.0
Iron, total	10	µg/L	1670	<10	<10
Lead, total	0.050	µg/L	1.20	<0.050	0.111
Lithium, total	1.0	µg/L	49.6	7.9	12.8
Magnesium, total	5.0	µg/L	38500	3230	5670
Manganese, total	0.10	µg/L	134	10.6	5.26
Molybdenum, total	0.050	µg/L	2.26	0.204	0.355
Nickel, total	0.50	µg/L	5.13	<0.50	0.51
Phosphorus, total	50	µg/L	196	<50	368
Potassium, total	50	µg/L	10900	1890	3280
Rubidium, total	0.20	µg/L	3.55	0.38	0.51
Selenium, total	0.050	µg/L	0.698	<0.050	0.116
Silicon, total	100	µg/L	8150	1110	1390
Silver, total	0.010	µg/L	<0.010	<0.010	<0.010
Sodium, total	50	µg/L	41600	12600	24800
Strontium, total	0.20	µg/L	277	23.3	41.1
Sulfur, total	500	µg/L	59100	4870	10500
Tellurium, total	0.20	µg/L	<0.20	<0.20	<0.20
Thallium, total	0.010	µg/L	0.031	<0.010	<0.010
Thorium, total	0.10	µg/L	0.27	<0.10	<0.10
Tin, total	0.10	µg/L	0.60	<0.10	0.11
Titanium, total	0.30	µg/L	20.0	<0.30	<0.30
Tungsten, total	0.10	µg/L	<0.10	<0.10	<0.10
Uranium, total	0.010	µg/L	3.56	0.241	0.278
Vanadium, total	0.50	µg/L	4.81	<0.50	<0.50
Zinc, total	3.0	µg/L	8.1	<3.0	39.3
Zirconium, total	0.20	µg/L	1.27	<0.20	<0.20

## Results Summary WP2420144

**Project** Headingley Regional - PWS 89.40  
**Report To** Amrith Kumar, Manitoba Conservation & Climate  
**Date Received** 20-Aug-2024 15:00  
**Issue Date** 30-Aug-2024 14:16  
**Amendment** 0

Client Sample ID  
 Date Sampled

Headingley Regional  
 1-Raw  
 20-Aug-2024

Time Sampled			09:40
ALS Sample ID			WP2420144-001
Analyte	Lowest Detection Limit	Units	Sub-Matrix: Water
<b>Organic Parameters (Matrix: Water)</b>			
Microcystin	0.20	µg/L	<0.20

## Appendix I: Cartier Regional Water Audits 2024

In 2024 the Office of Drinking discontinued providing system Audit reports to facilities.

For all previous year CRWC DWO Audits please follow this link: [Annual ODW Audits](#)

### Who can we call with questions or concerns regarding our drinking water?

For general questions during regular business hours, contact the:

**Cartier Water Treatment Facility** (204-353-4055) or email [cartierwtp@crwc.ca](mailto:cartierwtp@crwc.ca)

**Headingley Water Treatment Facility** (204-832-2555) or email [headingleywtp@crwc.ca](mailto:headingleywtp@crwc.ca)