Public Water System Annual Report

2019

Name of the Public Water System:	**St. Malo Public Water System**
Name of Legal Owner:	**The Rural Municipality of De Salaberry**
Contact Person:	**Denise Parent, Chief Administrative Officer**
Phone:	**(204) 433-7406**
Email:	**cao@rmdesalaberry.mb.ca**
Website:	**www.rmdesalaberry.ca**
Water System's Emergency Number:	**(204) 746-0407**
Name of Operators:	**Todd Gregoire & Al Gauthier**
Phone during business hours:	(**204) 433-7406**
Emergency number:	**(204) 746-0407**

Date Prepared: Friday, January 31, 2020
Accepted by Council:
Reference: Resolution No.

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Denise Parent,
Chief Administrative Officer
The Rural Municipality of De Salaberry

Table of Contents

1. Introduction

The 2019 Annual Report for the St. Malo Water and Sewer Utility summarizes the current Public Water System (PWS).

1.1 Description of the St. Malo Water System

The St. Malo PWS is a year round water system that served approximately 1,240 people in 2019. St. Malo is located in the Rural Municipality of De Salaberry, approximately 75 km south of Winnipeg, Manitoba.

Originally, the community of St. Malo had a water distribution system of small piping and several individual wells. The system did not meet Manitoba Conservation guidelines on several accounts. Residents did not receive treated nor disinfected water and there was always a lack of pressure.

In 1990, with financial assistance from Manitoba Water Services Board, a water distribution system was installed throughout most of the community. There were a few locations at the extremities of the distribution system where the existing small diameter polyethylene pipes were reutilized and where some 50 mm extensions have since been installed. A test well was drilled, followed by a production well. A water treatment plant (WTP) was built in 1991; filtered and disinfected water was distributed to the community.

Two major upgrades have since occurred to the water system. In February 2010, construction was completed on a steel building expansion for the water plant. This added an additional 255 m^2 to the existing water plant building. In January 2012, construction was completed on the installation of a backup diesel generator for the water plant.

1.2 General System Characteristics

The community is serviced by a single WTP, supplied by a main production well and a secondary well used for supplementary or backup situations. The system draws raw water from two wells on site.

Well #1 is the main well on the northeast of the water plant building with 200 mm casing and 137 m depth; the pump is at 55 m. A 3-Phase - 20 horsepower (HP) submersible pump draws from a screened sandstone aquifer well with a maximum capacity of 1,365 litres per minute (L/min). Well #2, on the south side of the water plant building, serves as a standby supply. This well's pump has maximum capacity 410 L/min; the pump is exercised about every two months.

Raw water is transferred from Well #1 to the buried oxidation storage reservoir prior to filtration. An appropriate dosage is Sodium Hypochlorite (12%) is added to the oxidation storage reservoir to oxidize iron in the water, at a concentration to facilitate regeneration of the filter media prior to filtration. Oxidized water is transferred with a 2-Stage, 5 HP submersible pump from the raw water chamber to two greensand pressure filters (purpose of greensand: is to remove iron). Following filtration for iron removal, the water is transferred to the first of five cells of the treated water storage reservoirs.

The distribution system consists of generally mixed small diameter piping.

1.3 Water Supply Wells

The production well is fitted with a 20 HP, 208V 3-Phase Grundfos submersible pump. The driller's well log rates this well at 1,140 L/min, while the pumping rate used is reported to be 720 L/min.

The backup well is fitted with 5 HP, 208V 3-Phase Grundfos submersible pump. The driller's well log rates this well at 409 L/min, while the pumping rate used is reported to be 340 L/min.

1.4 Water Treatment System

A four-float switch, three-wire system governs the operation of the well supply pump. The four float switches control high level alarm, stop pump, start pump and low-level alarm.

Groundwater is conveyed into a 37.2 m^3 raw water contact chamber and treated with 12% sodium hypochlorite for the oxidation and subsequent precipitation of iron, regeneration of the manganese greensand filters and primary disinfection. This drip chlorination is estimated at a concentration of approximately 15 mg/L and fed neat from delivery drums.

Retention time within the raw water contact chamber varies, depending on demand, and is a function of the influent/effluent flow rates. Operators adjust the dosage rates based on free chlorine residual measurements taken post filters, ensuring that sufficient free chlorine residual is present prior to discharge to the reservoir.

The treated water from the contact chamber is then transferred to two manganese greensand pressure filters via a 5 HP Grundfos submersible pump. These pressure filters are reported to be 1.52 m and 1.37 m in diameter, capable of processing 900 L/min and 700 L/min, respectively, of water. Manganese greensand filters are intended for the reduction of iron and manganese in the raw water.

1.5 Treated Water Storage

Two reservoirs are in use at the WTP; both are concrete. The first reservoir, originally constructed with the WTP in 1990 provides a treated water storage capacity of 262,000 litres. A second larger reservoir, with 660,250 litres of capacity, was constructed in 2008, underneath an adjacent building intended for WTP process upgrades. There would be maximum three days of water storage, depending on water usage.

Utility Operations storage cell numbering system is shown in Table 1-1:

Table 1-1: Utility Operations Storage Cell Number Scheme

DESCRIPTION	CELL NUMBER
Raw Water	Cell #1
New Storage Reservoir	Cell #2, Cell #3, Cell #4
Original Plant Storage Reservoir	Cell #5 (west), Cell #6 (east)

Both in ground reservoirs operate in unison at the same elevation.

1.6 Distribution Network

The distribution network provides water to 431 residential and commercial connections via ~12.5 km of water main lines. These main lines, according to the initial 2010 assessment report, are primarily PVC 1120 SDR 26 Series 160 Potable Water, bell and spigot pipe. The exception to the PVC pipe is ~3,700 m of 50 mm polyethylene water main pipe, generally found on the outer perimeter of the utility service area and in newer developments. The remainder of the pipe lengths reported in the 2010 PWSA report are 5,725 m of 100 mm diameter line, 2,710 m of 150 mm line and 350 m of 200 mm water line.

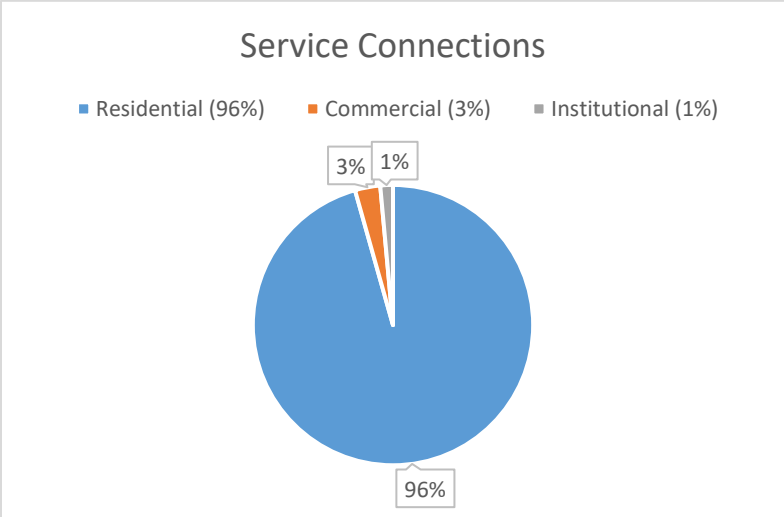
The distribution pumps include:

- Pump 1: 7.5 HP Grundfos pump Model 150 75-3, rated for 8.52 L/second at 36.58 m.
- Pump 2: 7.5 HP Grundfos pump Model 150S75-4, rated for 11.04 L/second at 36.58 m.
- Pump 3: 2 HP Grundfos pump Model A-1189007 9932, rated for 3.03 L/second at 36.58 m.

1.7 Number of Connections, Population Served and Types of Water Users

The St. Malo Public Water Distribution system is comprised of 445 service connections. All service connections are metered; 425 are residential, 14 are commercial and 6 are institutional. (See Figure 1). The system serves a population of ~1,200.

Figure 1



1.8 Classification and Certification

The St. Malo water treatment plant is classified as a Class 1 Water Treatment Facility. Utility operator certification as per Manitoba Conservation's Water and Wastewater Facility Operators Regulation under *The Environment Act* are noted below:

→ Todd Gregoire - Class 1 Water Treatment and Distribution
→ Al Gauthier - Class 1 Water Treatment and Class 2 Water Distribution

2 Disinfection System in Use

The final step in the treatment of safe drinking water is disinfection. Disinfection is the selective destruction or inactivation of potential disease causing organisms in water.

The Drinking Water Safety Act requires 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.

The St. Malo PWS achieves the required 0.5 mg of free chlorine per litre of water and 20 minute contact time in its underground water storage reservoir as per the Office of Drinking Water and *The Drinking Water Safety Act.* The required 0.1 mg of free chlorine per litre of water is detectable at all times at any point in the PWS distribution network.

2.1 Equipment Redundancy and Monitoring Requirements

As required by *The Drinking Water Safety Act,* the St. Malo PWS ensures continuous disinfection is maintained at the plant by keeping all spare parts in stock required for the chemical dosage pump. A complete spare chemical dosage pump is also kept at the WTP.

Utility operators visit the WTP every morning to undertake testing and general operation of the plant is maintained. Regular tasks include free chlorine residual monitoring (at the WTP and throughout the distribution network), chlorine pump adjustment and bulk chemical supply replacement, filter backwashing, recording various pump hour and meter reading, documenting and logging of activities, etc. Chlorination report forms are completed and submitted to the regional Drinking Water Officer at the end of each month.

2.2 Disinfectant Residual Overall Performance/Results

In compliance with Sections 21 and 22 of Manitoba Regulation 40/2007 Drinking Water Safety Regulation, the PWS has met 100% of its regulatory requirements in 2019 of monitoring and reporting disinfection residuals leaving the WTP and in the distribution system - refer to Appendices A and B.

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 express the maximum acceptable concentration for a groundwater supply source. Concentration values in excess of acceptable levels, constitute a health-related issue and require corrective actions.

The 2019 results for the sampling taken from the St. Malo PWS on December 20, 2019 are summarized in the following table and detailed in the January 6, 2020 Certificate of Analysis report – refer to Appendix D:

Source	Parameter	Standard	Frequency	Test Results (Treated)	Test Results (Raw)
Groundwater	TC & EC* (Total coliforms & E. coli)	No TC or EC	Bi-weekly	100% Compliance	
	Disinfectant	WTP (0.5 mg/L)	Daily	100% Compliance	
		Distribution (0.1 mg/L)	Bi-Weekly	100% Compliance	
	Lead	0.01 mg/L	**Lead** → Frequency for lead testing is as per the direction of the Drinking Water Officer **Arsenic, Selenium, Fluoride, Chromium, Sodium & Uranium** → Every three years.	0.000050mg/L	0.000195mg/L
	Arsenic	0.01 mg/L		<0.00012mg/L	0.00093mg/L
	Selenium	0.01 mg/L		<0.000065mg/L	<0.000050mg/L
	Fluoride	1.5 mg/L		1.04mg/L	01.03mg/L
	Chromium	0.05 mg/L		<0.00010mg/L	<0.00010mg/L
	Sodium	200 mg/L		238mg/L	230mg/L
	Uranium	0.02 mg/L		0.000681mg/L	0.000682mg/L
	Benzene	0.005mg/L	Every three years	-	0.00050mg/L
	Trichloroethene	0.005mg/L	Every three years	-	0.00050mg/L
	Tetrachloroethene	0.01mg/L	Every three years	-	<0.00050mg/L
	Nitrate	10mg/L	Every three years	0.026mg/L	0.010mg/L
	Total Dissolved Solids (TDS)	500 mg/l	Every three years	974 mg/L	955 mg/L

Highlighted in yellow: AO (aesthetic objectives) → Level of substances or characteristics of water that can affect it's acceptance by consumers, cause problems with water distribution systems and

fixtures, or interfere with practices for supplying good quality water. They are not health related guidelines but are related to aesthetic aspects of the water.

3.1 Water Chemical Analysis Report (Appendix D for full Chemical Analysis Report)

*<u>*Bacterial testing:*</u> The raw water (untreated well water), the disinfected water (leaving the water storage reservoir) and the water in the distribution system is tested every two weeks 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. See Appendix B for collection dates and testing summary.

<u>*Ammonia Testing*</u>: The PWS Operating Licence has been modified to include weekly monitoring of free ammonia of treated water entering the distribution system. There is no health-based guideline for ammonia in drinking water. While there seems to be little direct health risk from ammonia in drinking water at the levels normally encountered, the presence of elevated ammonia poses a concern as it causes the interference with the normal chlorination process.

Chlorine demand is increased and reaching break-point and the development of a free chlorine residual consistently above 0.5mg/L becomes difficult. The ammonia concentration in the raw water was 1.33mg/L which could interfere with the chlorination process. The Office of Drinking Water has implemented a weekly monitoring requirement for free ammonia for systems that have ammonia concentrations greater than 0.5mg/L in their raw water.

Concentrations of the weekly reported ammonia in 2020 consistently indicated that break-point was being reached and that the ammonia should not be interfering with the disinfection process.

Break-Point: Break-point coordination is a point where chlorine levels exceed the oxidant demand, and the water begins to build a residual of free available chlorine.

3.2 Operating Licence

In accordance with section 8(1) of *The Drinking Water Safety Act*, the St. Malo PWS maintains an Operating Licence.

The Operating Licence, attached as Appendix C, identifies the terms and conditions under which the water system must be operated to remain in compliance with *The Drinking Water Safety Act* and its supporting regulations.

4 Water System Incidents and Corrective Actions

Each year the province provides an annual compliance audit for each licensed public water system. The report reminds owners of the PWS of their obligations to maintain their licence, including required engineering assessments and annual reporting.

St. Malo PWS had no non-compliance incidents or issues in 2019- refer to Appendix A.

5 Boil Water Advisories and Actions Taken in Response

September 3, 2019

Scheduled maintenance to the water system will lead to the loss of water pressure in a portion of St. Malo public water system distribution system east of Highway 59. Distribution depressurization can compromise the safety of the water supply; therefore, a boil water advisory had been issued starting at 9:00 a.m. on September 3, 2019 to ensure the protection of public health.

Once the St. Malo public water system had met all conditions for rescinding the boil water advisory, and that bacteriological testing results met regulatory standards, the boil advisory was then rescinded.

December 27, 2019

A line break on December 27, 2019 has led to the loss of water pressure in the distribution system. Distribution depressurization can compromise the safety of the water supply; therefore, a boil water advisory had been issued starting at 9:00 a.m. on December 27, 2019 to ensure the protection of public health.

Once the St. Malo public water system had met all conditions for rescinding the boil water advisory, and that bacteriological testing results met regulatory standards, the boil advisory was then rescinded.

- **Warnings Issued/Charges Laid on the System in Accordance with *The Drinking Water Safety Act***

There were no warnings issued or charges laid on or in relation to the St. Malo PWS in 2018.

6 Major Expenses Incurred

Water Plant – Maintenance/Repair Materials……..$19,779.22
Water Plant - Chemicals..... $13,540.27
Water Plant – Other..... $0.00
Water Mains – Upgrade of Existing Mains $51,102.85
Water Mains – Repairing of Water Breaks $36,699.67
Engineer Services $0.00

7 Water Rates

Water rates are assessed as per Public Utilities Board Order 83-12. Under *the Public Utilities Board Act* the board has jurisdiction and authority over certain municipal and other utility matters, including the setting of rates.

8 Appendices

Manitoba
Conservation and Climate
Office of Drinking Water
Unit B – 284 Reimer Avenue
Steinbach, Manitoba, R5G 0R5
T 204-371-7421 **F** 204-326-2472
http://www.manitoba.ca/drinkingwater

Sent via electronic mail: no hard copy to follow

January 21, 2020

Denise Parent
CAO, RM of De Salaberry
Box 40
St. Pierre Jolys, MB, R0Z 1V0
cao@rmdesalaberry.mb.ca

2019 Annual Compliance Audit

Dear Ms. Parent:

Please find enclosed the 2019 Annual Compliance Audit for the St. Malo public water system (PWS). The report compares water system compliance to The Drinking Water Safety Act and its supporting regulations, and the terms and conditions of the water system's current operating licence (PWS-10-415-01).

Where non-compliance items are identified, the issues do not necessarily translate into increased public health risk. The Office of Drinking Water uses processes, including boil water advisories, to notify water users of a public health risk.

Please review the following terms and conditions of your operating licence to ensure ongoing compliance:

- Water quality sampling frequencies identified in *Table 2*.
- Water System Re-assessment (due date: March 1, 2024)
- 2019 Public Water System Annual Report (due date: March 31, 2020)

Facility Classification and Operator Certification
In 2020, Conservation and Climate will be enforcing on the Water and Wastewater Facility Operators Regulation MR. 77/2003 beginning with Public Water Systems classified at Level 3 and Level 4 Water Treatment Facilities and Water Distribution. The focus will be on operator certification and submission of an up-to-date Table of Organization.

Operational Guidelines
Water suppliers that own and operate a portion of their water supply on a seasonal basis, such as a campground or park, are reminded they are required to follow Seasonal Water System Start-up/Shutdown procedures. Your operating licence may be amended in the future to reflect this requirement; however, in the interim, the protocol must be followed.

Water suppliers are reminded to immediately notify the Office of Drinking Water of any condition(s) that may affect the ability of the water system to produce or deliver safe drinking water. These conditions include:

- treatment upsets, bypass conditions, operation outside of licence conditions
- contamination of source or treated water
- a disinfection, filtration, or distribution system failure

Operational Guidelines to assist operators in meeting regulatory obligations for monitoring and reporting under The Drinking Water Safety Act, including Seasonal System and Emergency Reporting requirements, can be found on our website at: www.gov.mb.ca/drinkingwater.

Additional Information

Health Canada has updated National Guidelines, including algae (cyanobacteria toxins) manganese and lead. Owners and operators are encouraged to review Health Canada's guidelines and related chemistry results to determine what impact they may have on your water supply. You will receive notification of any changes to Health Canada's Guidelines for Canadian Drinking Water Quality and Manitoba Standards should they affect your water supply.

The Operating Licence issued to the St. Malo Public Water System will expire on November 30, 2020. As the owner of the water system, you are required to apply for renewal of this Licence at least 60 days prior to the expiry date listed above. Please complete the attached the renewal application form which may be submitted to me either by e-mail (scanned), fax, or mail.

The 2019 Annual Compliance Audit is based on information submitted to this office. If you have questions regarding non-compliance items identified in this audit, please review your records prior to contacting this office. If your records conflict with the audit information, please call me at (204) 371-7421.

Sincerely,

Colin Nakata
Regional Drinking Water Officer

Enclosures

copy: Todd Gregoire, operator

Manitoba

2019 Annual Compliance Audit

Water System: ST. MALO - PWS

Code: 217.50

Water System Owner: Rural Municipality of De Salaberry

Water System Operating Licence: PWS-10-415-01 Expiry Date: November 30, 2020

1) This report documents the St. Malo Public Water System compliance for the period from January 1 to December 31, 2019.

2) Addendum A to this report provides specific information on the non-compliance incidents identified in the summary below.

3) Other than the information provided in attached Addendum A, the water supplier has complied with *The Drinking Water Safety Act,* its supporting regulations, and the terms and conditions of the water system's current operating licence

4) This report is based on information submitted by the water supplier, agents of the water supplier, and / or the Province of Manitoba.

Summary of Non-Compliance Incidents:

Manitoba

Addendum A: Record of Non-Compliance
Water System: ST. MALO - PWS
Report period: January 1, 2019 to December 31, 2019.

Disinfection Requirements

Date	Incident	Outcome
	None reported	

Bacteriological Requirements

Date	Incident	Outcome
	None reported	

Microbial Requirements

Date	Incident	Outcome
	None reported	

Turbidity Requirements

Date	Incident	Outcome
	None reported	

Chemical Requirements

Date	Incident	Outcome
	None reported	

Operational Requirements

Date	Incident	Outcome
	None reported	

Appendix "B" – 2019 Biweekly Testing Coliform & E. Coli

Collection Date	Sample Identification	Sample Number	TC	EC
08-Jan-19	ST. MALO 1 - RAW	L2217997-1	0	0
08-Jan-19	ST. MALO 3 - DISTRIBUTION @ FIRE HALL	L2217997-3	0	0
08-Jan-19	ST. MALO 2- TREATED	L2217997-2	0	0
21-Jan-19	ST. MALO 1 - RAW	L2223197-1	0	0
21-Jan-19	ST. MALO 2- TREATED	L2223197-2	0	0
21-Jan-19	ST. MALO 3 - DISTRIBUTION @ SOUTH SHOP	L2223197-3	0	0
07-Feb-19	ST. MALO 3 - DISTRIBUTION @ 1151 B	L2230028-3	0	0
07-Feb-19	ST. MALO 1 - RAW	L2230028-1	0	0
07-Feb-19	ST. MALO 2- TREATED	L2230028-2	0	0
19-Feb-19	ST. MALO 3 - DISTRIBUTION @ SOUTH SHOP	L2234334-3	0	0
19-Feb-19	ST. MALO 1 - RAW	L2234334-1	0	0
19-Feb-19	ST. MALO 2- TREATED	L2234334-2	0	0
05-Mar-19	ST. MALO 1 - RAW	L2240436-1	0	0
05-Mar-19	ST. MALO 2- TREATED	L2240436-2	0	0
05-Mar-19	ST. MALO 3 - DISTRIBUTION @	L2240436-3	0	0
18-Mar-19	ST. MALO 3 - DISTRIBUTION @ FIRE HALL	L2245629-3	0	0
18-Mar-19	ST. MALO 1 - RAW	L2245629-1	0	0
18-Mar-19	ST. MALO 2- TREATED	L2245629-2	0	0
01-Apr-19	ST. MALO 3 - DISTRIBUTION @ 19 RUE DE L'EGLISE	L2252188-3	0	0
01-Apr-19	ST. MALO 1 - RAW	L2252188-1	0	0
01-Apr-19	ST. MALO 2- TREATED	L2252188-2	0	0
16-Apr-19	ST. MALO 3 - DISTRIBUTION @ ST. MALO ARENA	L2259313-3	0	0
16-Apr-19	ST. MALO 1 - RAW	L2259313-1	0	0
16-Apr-19	ST. MALO 2- TREATED	L2259313-2	0	0
29-Apr-19	ST. MALO 3 - DISTRIBUTION @ 174 ST-MALO ST	L2264834-3	0	0
29-Apr-19	ST. MALO 1 - RAW	L2264834-1	0	0
29-Apr-19	ST. MALO 2- TREATED	L2264834-2	0	0
13-May-19	ST. MALO 3 - DISTRIBUTION @	L2272445-3	0	0
13-May-19	ST. MALO 1 - RAW	L2272445-1	0	0
13-May-19	ST. MALO 2- TREATED	L2272445-2	0	0
27-May-19	ST. MALO 3 - DISTRIBUTION @ 164 ST. MALO STREET	L2280365-3	0	0
27-May-19	ST. MALO 1 - RAW	L2280365-1	0	0
27-May-19	ST. MALO 2- TREATED	L2280365-2	0	0
11-Jun-19	ST. MALO 3 - DISTRIBUTION @ FIRE HALL	L2289028-3	0	0
11-Jun-19	ST. MALO 1 - RAW	L2289028-1	0	0
11-Jun-19	ST. MALO 2- TREATED	L2289028-2	0	0
24-Jun-19	ST. MALO 3 - DISTRIBUTION @ 17 BIRCH TRAIL	L2298078-3	0	0
24-Jun-19	ST. MALO 1 - RAW	L2298078-1	0	0
24-Jun-19	ST. MALO 2- TREATED	L2298078-2	0	0
04-Jul-19	ST. MALO 1 - RAW WELL #2	L2303948-1	0	0
08-Jul-19	ST. MALO 1 - RAW	L2306044-1	0	0
08-Jul-19	ST. MALO 2- TREATED	L2306044-2	0	0
08-Jul-19	ST. MALO 3 - DISTRIBUTION @ SOUTH SHOP	L2306044-3	0	0
23-Jul-19	ST. MALO 3 - DISTRIBUTION @ ARENA	L2315077-3	0	0
23-Jul-19	ST. MALO 1 - RAW	L2315077-1	20	0
23-Jul-19	ST. MALO 2- TREATED	L2315077-2	0	0

Appendix "B" – 2019 Biweekly Testing Coliform & E. Coli

Collection Date	Sample Identification	Sample Number	TC	EC
26-Jul-19	ST. MALO 1 - RAW	L2317507-1	36	0
29-Jul-19	ST. MALO 1 - RAW	L2318602-1	83	0
31-Jul-19	ST. MALO 1 - RAW	L2320235-1	2	0
06-Aug-19	ST. MALO 3 - DISTRIBUTION @ SOUTH SHOP	L2323018-3	0	0
06-Aug-19	ST. MALO 1 - RAW	L2323018-1	0	0
06-Aug-19	ST. MALO 2- TREATED	L2323018-2	0	0
19-Aug-19	ST. MALO 3 - DISTRIBUTION @ FIRE HALL	L2332010-3	0	0
19-Aug-19	ST. MALO 1 - RAW	L2332010-1	1	0
19-Aug-19	ST. MALO 2- TREATED	L2332010-2	0	0
03-Sep-19	ST. MALO 3 - DISTRIBUTION @ PTH 59 21151B	L2340200-3	0	0
03-Sep-19	ST. MALO 1 - RAW	L2340200-1	0	0
03-Sep-19	ST. MALO 2- TREATED	L2340200-2	0	0
04-Sep-19	ST. MALO 3 - DISTRIBUTION @ 21 MORIN AVE	L2341231-3	0	0
05-Sep-19	ST. MALO 3 - DISTRIBUTION @ PTH 59 21151B	L2342217-3	0	0
06-Sep-19	ST. MALO 3 - DISTRIBUTION @ PTH 59 21151 B	L2342763-3	0	0
16-Sep-19	ST. MALO 3 - DISTRIBUTION @ SOUTH SHOP	L2348447-3	0	0
16-Sep-19	ST. MALO 1 - RAW	L2348447-1	0	0
16-Sep-19	ST. MALO 2- TREATED	L2348447-2	0	0
01-Oct-19	ST. MALO 3 - DISTRIBUTION @ FIRE HALL	L2358031-3	0	0
01-Oct-19	ST. MALO 1 - RAW	L2358031-1	0	0
01-Oct-19	ST. MALO 2- TREATED	L2358031-2	0	0
15-Oct-19	ST. MALO 3 - DISTRIBUTION @ SHOP	L2365071-3	0	0
15-Oct-19	ST. MALO 1 - RAW	L2365071-1	0	0
15-Oct-19	ST. MALO 2- TREATED	L2365071-2	0	0
28-Oct-19	ST. MALO 3 - DISTRIBUTION @ #10 CHOINARD AVE	L2373289-3	0	0
28-Oct-19	ST. MALO 1 - RAW	L2373289-1	0	0
28-Oct-19	ST. MALO 2- TREATED	L2373289-2	0	0
12-Nov-19	ST. MALO 3 - DISTRIBUTION @ 107 ST. MALO ST	L2381030-3	0	0
12-Nov-19	ST. MALO 1 - RAW	L2381030-1	0	0
12-Nov-19	ST. MALO 2- TREATED	L2381030-2	0	0
25-Nov-19	ST. MALO 3 - DISTRIBUTION @ 174 ST. MALO STREET	L2387560-3	0	0
25-Nov-19	ST. MALO 1 - RAW	L2387560-1	0	0
25-Nov-19	ST. MALO 2- TREATED	L2387560-2	0	0
09-Dec-19	ST. MALO 3 - DISTRIBUTION @ FIRE HALL	L2394039-3	0	0
09-Dec-19	ST. MALO 1 - RAW	L2394039-1	0	0
09-Dec-19	ST. MALO 2- TREATED	L2394039-2	0	0
23-Dec-19	ST. MALO 3 - DISTRIBUTION @ SOUTH SHOP	L2399927-3	0	0
23-Dec-19	ST. MALO 1 - RAW	L2399927-1	0	0
23-Dec-19	ST. MALO 2- TREATED	L2399927-2	0	0
27-Dec-19	ST. MALO 3 - DISTRIBUTION @ 14 ST HILAIRE	L2400565-3	0	0
28-Dec-19	ST. MALO 3 - DISTRIBUTION @ 14 ST. HILAIRE	L2400732-3	0	0

Appendix "C" - Operating Licence

Manitoba
Conservation and Water Stewardship

Office of Drinking Water
Steinbach, Manitoba, Canada R5G 0R5
T 204-371-7421 F 204-326-2472
colin.nakata@gov.mb.ca
http://www.manitoba.ca/drinkingwater

May 20, 2015

File: 217.50

Larissa Love
CAO, Rural Municipality of De Salaberry
Box 40
St-Pierre-Jolys, MB R0A 1V0

Dear Ms. Love,

RE: Issuance of the Operating Licence for your Public Water System

In accordance with section 8(1) of *The Drinking Water Safety Act*, please find enclosed the Operating Licence for the St. Malo Public Water System. An additional ceremonial copy of the licence's cover page is enclosed for display at the water treatment plant.

The Operating Licence identifies the terms and conditions under which the water system must be operated to remain in compliance with *The Drinking Water Safety Act* and its supporting regulations. As such, the licence should be carefully reviewed by the owner and operator of the water system, so that they are familiar with their responsibilities with regard to meeting the terms and conditions of the licence. Please note the following:

- Subsection 2.4 contains the submission dates for the engineering re-assessment.
- Section 3 – Operation – Emergencies has been added.
- *Table 2: Monitoring Schedule* of your operating licence has been modified to include weekly monitoring of free ammonia in treated water entering the distribution system.
- Subsection 6.10, 6.11 and 6.12 describe the annual reporting requirements for water systems servicing over 1000 individuals.

As the owner of the system you are required to apply for a renewal of the licence at least 60 days prior to the November 30, 2020 expiry date. A reminder letter will be sent to you in this regard.

You may contact me, should you have any questions or concerns.

Sincerely,

Colin Nakata
Regional Drinking Water Officer

RECEIVED
MAY 25 2015

Appendix "C" - Operating Licence

Manitoba
Conservation and Water Stewardship
Office of Drinking Water
1007 Century Street, Winnipeg, Manitoba R3H 0W4

OPERATING LICENCE FOR A PUBLIC WATER SYSTEM

LICENCE NUMBER: PWS-10-415-01

THE DRINKING WATER SAFETY ACT CHAPTER D101, C.C.S.M.

WATER SYSTEM CODE:	**217.50**
OPERATION ID:	**21231**
EFFECTIVE DATE:	**FEBRUARY 1, 2015**
EXPIRY DATE:	**NOVEMBER 30, 2020**

IN ACCORDANCE WITH *THE DRINKING WATER SAFETY ACT*, THIS OPERATING LICENCE IS ISSUED PURSUANT TO SUBSECTION 8(1) TO:

RURAL MUNICIPALITY OF DESALABERRY: "THE LICENSEE"

FOR THE OPERATION OF THE **ST. MALO PUBLIC WATER SYSTEM**, WHICH INCLUDES SECURE WELL, TREATMENT FACILITIES, WATER STORAGE RESERVOIRS, AND DISTRIBUTION LINES, SUBJECT TO THE ATTACHED TERMS AND CONDITIONS.

THIS LICENCE DOES NOT AFFECT THE LICENSEE'S OBLIGATIONS WITH RESPECT TO COMPLIANCE WITH ALL APPLICABLE MUNICIPAL, PROVINCIAL, AND FEDERAL LEGISLATION. THIS LICENCE SUPERSEDES ALL PREVIOUS LICENSES FOR THIS PUBLIC WATER SYSTEM.

DATE: March 20, 2015

Kim Philip, P.Eng.
Director

Page 1 of 6

Appendix "C" - Operating Licence

TERMS AND CONDITIONS

1. GENERAL

1.1. The Licensee shall operate the public water system in accordance with all applicable requirements of *The Drinking Water Safety Act* and its regulations, and the requirements of this Licence. In the event that specific terms and conditions of this Licence imposed under the authority of subsection 8(3) of the Act exceed the general requirements of the Act and regulations, the specific requirements of this Licence shall apply.

1.2. The Licensee shall obtain approval from the Office of Drinking Water prior to making any significant alterations to the water source, the water treatment process, the water storage facilities, or the water distribution system.

1.3. This Licence may be amended by the Director where, in the opinion of the Director, an amendment is necessary and the amendment will not negatively impact the safety of water obtained from the water system, or effective environmental management.

1.4. The Licensee may request an amendment to this licence by submitting an amendment application to the Office of Drinking Water.

1.5. This Licence may be suspended or cancelled by the Director for any of the reasons identified in Section 11 of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation* or due to a failure to comply with any term or condition of this Licence.

1.6. The Licensee shall provide written notice to the Office of Drinking Water of any change in title/ownership of the water system within seven days of the transfer of title/ownership.

1.7. The Licensee shall provide written notice to the Office of Drinking Water of any changes in the operational status of the water system, such as a permanent cessation of service, or changing the length of service from year-round to seasonal or the opposite.

1.8. The Director of the Office of Drinking Water, Medical Officer of Health or Drinking Water Officer may enter any water system facility as necessary to carry out the provisions of *The Drinking Water Safety Act* and its regulations.

1.9. The Licensee shall post the ceremonial framed Licence at the water treatment facility.

1.10. The Licensee shall keep a copy of this Licence in its entirety at a location established by the Drinking Water Officer and ensure all operators are familiar with its terms and conditions.

1.11. The Licensee shall apply for renewal of this Licence at least 60 days prior to its expiry.

2. OPERATION - GENERAL

2.1. The Licensee shall operate all water system facilities, control systems and equipment as efficiently as possible, inspect them on a regular basis, maintain them in good working order, and ensure that the water system is protected from the risks associated with cross-contamination.

2.2. The Licensee shall ensure that all chemicals and components that may come into contact with potable water are certified safe for potable water use through AWWA Standards, ANSI/NSF Standard 60 or 61, Health Canada, or other standards acceptable to the Director.

2.3. No alternate water source shall be brought into service without the consent of the Drinking Water Officer and the maintenance of adequate cross connection control between the alternate source and the primary source.

2.4. The Licensee shall have a re-assessment of the water system infrastructure and water supply sources completed and submitted by a qualified professional engineer, who is not an employee of the water system, in a form satisfactory to the Director by March 1, 2016 and every five years thereafter.

3. OPERATION – EMERGENCIES

3.1. The Licensee shall ensure that disinfection is undertaken following construction, repair or maintenance activities on the water system, in accordance with applicable AWWA standards, or Manitoba Water Services Board specifications, or any other standards approved by the Director. A copy of all associated test results must be kept available for review by the Office of Drinking Water for a minimum of 24 months.

3.2. The Licensee shall ensure that all equipment used for disinfection is maintained in effective working order and keep available for immediate use all spare parts and chemical supplies as may be necessary to ensure continuous disinfection, including a spare disinfection unit, if necessary.

3.3. The Licensee shall immediately notify the Office of Drinking Water of any condition that may affect the ability of the water system to produce or deliver safe drinking water including but not limited to treatment upsets or bypass conditions, contamination of the source water or treated water, a disinfection system failure, or a distribution system failure.

3.4. If a Medical Officer of Health, the Director of the Office of Drinking Water, or a Drinking Water Officer issues a water advisory on the water system, the Licensee shall provide notice of the advisory to all water users by a method acceptable to the issuer.

Appendix "C" - Operating Licence

4. WATER QUALITY/TREATMENT STANDARDS

4.1. The Licensee shall operate the water system in a manner that achieves the water quality/treatment standards specified in Table 1, as determined through the monitoring requirements specified in Table 2:

Table 1: Water Quality/Treatment Standards

Parameter	Quality Standard
Total coliform	Less than one total coliform bacteria detectable per 100 mL in all treated and distributed water
E. coli	Less than one *E. coli* bacteria detectable per 100 mL in all treated and distributed water
Chlorine residual	A free chlorine residual of at least 0.5 mg/L in water entering the distribution system following a minimum contact time of 20 minutes A free chlorine residual of at least 0.1 mg/L at all times at any point in the water distribution system
Arsenic	Less than or equal to 0.01 mg/L
Benzene	Less than or equal to 0.005 mg/L
Fluoride	Less than or equal to 1.5 mg/L
Lead	Less than or equal to 0.01 mg/L in the water distribution system
Nitrate	Less than or equal to 45 mg/L measured as nitrate (10 mg/L measured as nitrogen)
Trichloroethylene	Less than or equal to 0.005 mg/L
Tetrachloroethylene	Less than or equal to 0.03 mg/L
Uranium	Less than or equal to 0.02 mg/L

4.2. If a bacteriological standard is not met, the Licensee shall immediately undertake the applicable corrective actions as listed in "Schedule A" of Manitoba Regulation 41/2007, *Drinking Water Quality Standards Regulation.*

4.3. If a microbial, chemical, radiological, or physical standard is not met, the Licensee shall immediately undertake the applicable corrective actions specified in "Schedule C" of Manitoba Regulation 41/2007, the *Drinking Water Quality Standards Regulation.*

4.4. Where corrective actions are required for minor exceedances as directed by the regional Drinking Water Officer, a Corrective Actions Form must be completed and submitted to the regional Drinking Water Officer.

4.5. The Licensee shall maintain in effective working order chlorination and treated water storage equipment and controls designed to achieve a minimum of 20 minutes of chlorine contact time prior to water entering the distribution system.

Appendix "C" - Operating Licence

5. WATER QUALITY MONITORING

5.1. The Licensee shall ensure monitoring is completed as set out in Table 2.

Table 2. Monitoring Schedule

Parameter	Monitoring Requirement
Bacteriological (total coliform and *E. coli*)	Bi-weekly sampling program with each set of samples consisting of one raw, one treated, and a minimum of one distribution sample Consecutive sample sets to be separated by at least 12 days
Free chlorine (treated water)	One sample per day of water entering the distribution system following at least 20 minutes of contact time
Free chlorine (distribution system)	At the same time and location(s) as bacteriological distribution system sampling
Total chlorine (treated water)	One sample per day of water entering the distribution system following at least 20 minutes of contact time
Total chlorine (distribution system)	At the same times and location(s) as bacteriological distribution system sampling
Free ammonia (treated water)	One sample per week of water entering the distribution system
General chemistry (parameter list provided by Office of Drinking Water)	One raw and one treated water sample once every three years
Lead	As per the instructions of the Drinking Water Officer

5.2. The Licensee shall ensure that an accredited laboratory, as specified in section 35 of Manitoba Regulation 40/2007 the *Drinking Water Safety Regulation*, undertake the following analysis required in Table 2:

a) bacteriological (total coliform and *E. coli*)
b) general chemistry
c) any other parameter required by the Drinking Water Officer

and that all samples are collected, handled, and submitted in a manner that is satisfactory to the accredited laboratory.

5.3. The Licensee shall ensure that parameters listed in Table 2 but not specified in clause 5.2 are measured utilizing water quality monitoring equipment and methods approved by the U.S. Environmental Protection Agency (EPA).

5.4. The Licensee shall ensure that raw water samples are taken on an alternating basis in instances where more than one water supply source is used.

5.5. The Licensee shall ensure that all water quality monitoring equipment is properly maintained and calibrated by a qualified person according to manufacturer recommendations and that records are maintained to that effect.

5.6. The Licensee shall ensure that sampling within the distribution system takes place at varied locations acceptable to the Drinking Water Officer.

Appendix "C" - Operating Licence

6. Record-Keeping and Reporting

6.1. The Licensee shall maintain in a secure location all construction drawings for the life of the water system components.

6.2. The Licensee shall retain in chronological order for a minimum of 24 months all information specified in subsection 34(2) of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation.*

6.3. The Licensee shall ensure the information identified in clause 6.2 is available for inspection by any member of the public during normal business hours at the office of the water supplier or at a location convenient to the users of the system.

6.4. The Licensee shall record disinfectant residual measurements on the monthly disinfection report or other forms satisfactory to the Director.

6.5. The Licensee shall record other measurements as specified in Table 2: Monitoring Schedule on the monthly report forms or other forms satisfactory to the Director.

6.6. The Licensee shall keep one copy of all monthly report forms required in Clauses 6.4 and 6.5, and forward the original copy to the Drinking Water Officer within seven days after the end of each calendar month.

6.7. The Licensee shall record all distribution system measurements specified in *Table 2: Monitoring Schedule* on the chain of custody form (laboratory submission form) which accompanies the bacteriological sample bottles to the laboratory.

6.8. The Licensee shall ensure that water metering devices at the water treatment plant or storage reservoir are maintained in good working order and that meter readings are recorded at least on a weekly basis and such records are made available for inspection by a Drinking Water Officer.

6.9. The Licensee shall record corrective actions for minor exceedances as discussed in clause 4.4 of this Licence and complete a Corrective Actions Report form. The Licensee shall keep one copy for records and forward the original copy to the Drinking Water Officer along with the monthly report forms.

6.10. The Licensee shall submit an annual report to the Director by March 31st of each year on the operation of the water system in the immediately preceding calendar year. The report shall include the information as set out in subsection 32(2) of Manitoba Regulation 40/2007, Drinking Water Safety Regulation.

6.11. The Licensee shall inform the public, in a form satisfactory to the Director, when an annual report has been prepared and identify how a free copy can be obtained.

6.12. The Licensee shall make a copy of each annual report available to the public at no charge on an internet website within two weeks of the issuance of the report, unless otherwise approved by the Director. The annual report shall remain available to the public for at least one year.

RM of De Salaberry - St. Malo - PWS
ATTN: TODD GREGOIRE
St. Malo - PWS
BOX 40
St. Malo MB R0A 1T0

Date Received: 21-DEC-19
Report Date: 06-JAN-20 08:56 (MT)
Version: FINAL

Client Phone: 204-433-7406

Certificate of Analysis

Lab Work Order #: L2399770
Project P.O. #: CONTRACT 5700-2018/19
Job Reference: ST. MALO 217.50
C of C Numbers:
Legal Site Desc: 21231

Hua Wo
Chemistry Laboratory Manager

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ST. MALO 217.50

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2399770-1 ST. MALO 1 - RAW							
Sampled By: CLIENT on 20-DEC-19 @ 10:15							
Matrix: DRINKING WATER - RAW							
MB Chemistry for PWS							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	381		1.2	mg/L		02-JAN-20	
Alkalinity, Carbonate							
Carbonate (CO3)	11.5		0.60	mg/L		02-JAN-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		02-JAN-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	332		1.0	mg/L		28-DEC-19	R4958250
Ammonia by colour							
Ammonia, Total (as N)	1.33		0.10	mg/L		27-DEC-19	R4957226
Bromide in Water by IC (Low Level)							
Bromide (Br)	0.291		0.020	mg/L		21-DEC-19	R4955150
Chloride in Water by IC (Low Level)							
Chloride (Cl)	169		0.20	mg/L		21-DEC-19	R4955150
Colour, True							
Colour, True	<5.0		5.0	CU		21-DEC-19	R4952866
Conductivity							
Conductivity	1540		1.0	umhos/cm		28-DEC-19	R4958250
Dissolved Organic Carbon by Combustion							
Dissolved Organic Carbon	2.53		0.50	mg/L		03-JAN-20	R4959311
Fluoride in Water by IC							
Fluoride (F)	1.03		0.040	mg/L		21-DEC-19	R4955150
Hardness Calculated							
Hardness (as CaCO3)	285	HTC	0.20	mg/L		06-JAN-20	
Langelier Index 4C							
Langelier Index (4 C)	1.1					06-JAN-20	
Langelier Index 60C							
Langelier Index (60 C)	1.8					06-JAN-20	
Nitrate in Water by IC (Low Level)							
Nitrate (as N)	<0.010	DLM	0.010	mg/L		21-DEC-19	R4955150
Nitrite in Water by IC (Low Level)							
Nitrite (as N)	<0.0020	DLM	0.0020	mg/L		21-DEC-19	R4955150
Sulfate in Water by IC							
Sulfate (SO4)	266		0.60	mg/L		21-DEC-19	R4955150
Total Dissolved Solids (TDS)							
Total Dissolved Solids	955		20	mg/L		27-DEC-19	R4958723
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	03-JAN-20	03-JAN-20	R4959349
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Arsenic (As)-Total	0.00093		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Barium (Ba)-Total	0.00830		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Boron (B)-Total	0.787		0.010	mg/L	03-JAN-20	03-JAN-20	R4959349
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Calcium (Ca)-Total	67.5		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Cesium (Cs)-Total	0.000051		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Cobalt (Co)-Total	0.00016		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Copper (Cu)-Total	0.00219		0.00050	mg/L	03-JAN-20	03-JAN-20	R4959349
Iron (Fe)-Total	1.19		0.010	mg/L	03-JAN-20	03-JAN-20	R4959349
Lead (Pb)-Total	0.000195		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2399770-1 ST. MALO 1 - RAW							
Sampled By: CLIENT on 20-DEC-19 @ 10:15							
Matrix: DRINKING WATER - RAW							
Total Metals in Water by CRC ICPMS							
Lithium (Li)-Total	0.0856		0.0010	mg/L	03-JAN-20	03-JAN-20	R4959349
Magnesium (Mg)-Total	28.3		0.0050	mg/L	03-JAN-20	03-JAN-20	R4959349
Manganese (Mn)-Total	0.00675		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Molybdenum (Mo)-Total	0.00360		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Nickel (Ni)-Total	0.00068		0.00050	mg/L	03-JAN-20	03-JAN-20	R4959349
Potassium (K)-Total	14.4		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Phosphorus (P)-Total	<0.050		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Rubidium (Rb)-Total	0.0111		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Selenium (Se)-Total	<0.000050		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Silicon (Si)-Total	3.89		0.10	mg/L	03-JAN-20	03-JAN-20	R4959349
Silver (Ag)-Total	<0.000010		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Sodium (Na)-Total	230		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Strontium (Sr)-Total	1.48		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Tin (Sn)-Total	0.00011		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	03-JAN-20	03-JAN-20	R4959349
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Uranium (U)-Total	0.000682		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Vanadium (V)-Total	<0.00050		0.00050	mg/L	03-JAN-20	03-JAN-20	R4959349
Zinc (Zn)-Total	0.0146		0.0030	mg/L	03-JAN-20	03-JAN-20	R4959349
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Total Organic Carbon by Combustion							
Total Organic Carbon	2.43		0.50	mg/L		03-JAN-20	R4959310
Turbidity							
Turbidity	17.8		0.10	NTU		23-DEC-19	R4955363
UV Transmittance (Calculated)							
Transmittance, UV (254 nm)	87.5		1.0	%T/cm		23-DEC-19	R4953648
pH							
pH	8.50		0.10	pH units		28-DEC-19	R4958250
MB VOC PWS							
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		03-JAN-20	
VOC plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
1,1-dichloroethene	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
Dichloromethane	<0.0050		0.0050	mg/L		31-DEC-19	R4958822
Ethylbenzene	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
MTBE	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
Tetrachloroethene	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
Toluene	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
Trichloroethene	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
M+P-Xylenes	<0.00040		0.00040	mg/L		31-DEC-19	R4958822
o-Xylene	<0.00050		0.00050	mg/L		31-DEC-19	R4958822
Surrogate: 4-Bromofluorobenzene (SS)	86.7		70-130	%		31-DEC-19	R4958822
Surrogate: 1,4-Difluorobenzene (SS)	99.8		70-130	%		31-DEC-19	R4958822
L2399770-2 ST. MALO 2- TREATED							
Sampled By: CLIENT on 20-DEC-19 @ 10:15							
Matrix: DRINKING WATER - TREATED							
MB Chemistry for PWS							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ST. MALO 217.50

L2399770 CONTD....
PAGE 4 of 8
Version: FINAL

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2399770-2 ST. MALO 2- TREATED Sampled By: CLIENT on 20-DEC-19 @ 10:15 Matrix: DRINKING WATER - TREATED							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	397		1.2	mg/L		02-JAN-20	
Alkalinity, Carbonate							
Carbonate (CO3)	10.8		0.60	mg/L		02-JAN-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		02-JAN-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	343		1.0	mg/L		28-DEC-19	R4958250
Ammonia by colour							
Ammonia, Total (as N)	<0.010		0.010	mg/L		27-DEC-19	R4957226
Bromide in Water by IC (Low Level)							
Bromide (Br)	0.133		0.020	mg/L		21-DEC-19	R4955150
Chloride in Water by IC (Low Level)							
Chloride (Cl)	187		0.20	mg/L		21-DEC-19	R4955150
Colour, True							
Colour, True	<5.0		5.0	CU		21-DEC-19	R4952866
Conductivity							
Conductivity	1580		1.0	umhos/cm		28-DEC-19	R4958250
Dissolved Organic Carbon by Combustion							
Dissolved Organic Carbon	2.40		0.50	mg/L		03-JAN-20	R4959311
Fluoride in Water by IC							
Fluoride (F)	1.04		0.040	mg/L		21-DEC-19	R4955150
Hardness Calculated							
Hardness (as CaCO3)	286	HTC	0.20	mg/L		06-JAN-20	
Langelier Index 4C							
Langelier Index (4 C)	1.1					06-JAN-20	
Langelier Index 60C							
Langelier Index (60 C)	1.8					06-JAN-20	
Nitrate in Water by IC (Low Level)							
Nitrate (as N)	0.026		0.010	mg/L		21-DEC-19	R4955150
Nitrite in Water by IC (Low Level)							
Nitrite (as N)	<0.0020	DLM	0.0020	mg/L		21-DEC-19	R4955150
Sulfate in Water by IC							
Sulfate (SO4)	266		0.60	mg/L		21-DEC-19	R4955150
Total Dissolved Solids (TDS)							
Total Dissolved Solids	974		20	mg/L		27-DEC-19	R4958723
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L	03-JAN-20	03-JAN-20	R4959349
Antimony (Sb)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Arsenic (As)-Total	0.00012		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Barium (Ba)-Total	0.00790		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Boron (B)-Total	0.813		0.010	mg/L	03-JAN-20	03-JAN-20	R4959349
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Calcium (Ca)-Total	68.2		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Cesium (Cs)-Total	0.000053		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Copper (Cu)-Total	0.00406		0.00050	mg/L	03-JAN-20	03-JAN-20	R4959349
Iron (Fe)-Total	<0.010		0.010	mg/L	03-JAN-20	03-JAN-20	R4959349
Lead (Pb)-Total	<0.000050		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Lithium (Li)-Total	0.0835		0.0010	mg/L	03-JAN-20	03-JAN-20	R4959349

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2399770-2 ST. MALO 2- TREATED							
Sampled By: CLIENT on 20-DEC-19 @ 10:15							
Matrix: DRINKING WATER - TREATED							
Total Metals in Water by CRC ICPMS							
Magnesium (Mg)-Total	28.1		0.0050	mg/L	03-JAN-20	03-JAN-20	R4959349
Manganese (Mn)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Molybdenum (Mo)-Total	0.00360		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	03-JAN-20	03-JAN-20	R4959349
Potassium (K)-Total	14.2		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Phosphorus (P)-Total	<0.050		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Rubidium (Rb)-Total	0.0112		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Selenium (Se)-Total	0.000065		0.000050	mg/L	03-JAN-20	03-JAN-20	R4959349
Silicon (Si)-Total	3.86		0.10	mg/L	03-JAN-20	03-JAN-20	R4959349
Silver (Ag)-Total	<0.000010		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Sodium (Na)-Total	238		0.050	mg/L	03-JAN-20	03-JAN-20	R4959349
Strontium (Sr)-Total	1.50		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Tin (Sn)-Total	0.00038		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Titanium (Ti)-Total	<0.00030		0.00030	mg/L	03-JAN-20	03-JAN-20	R4959349
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-JAN-20	03-JAN-20	R4959349
Uranium (U)-Total	0.000681		0.000010	mg/L	03-JAN-20	03-JAN-20	R4959349
Vanadium (V)-Total	<0.00050		0.00050	mg/L	03-JAN-20	03-JAN-20	R4959349
Zinc (Zn)-Total	0.0052		0.0030	mg/L	03-JAN-20	03-JAN-20	R4959349
Zirconium (Zr)-Total	<0.00020		0.00020	mg/L	03-JAN-20	03-JAN-20	R4959349
Total Organic Carbon by Combustion							
Total Organic Carbon	2.16		0.50	mg/L		03-JAN-20	R4959310
Turbidity							
Turbidity	<0.10		0.10	NTU		23-DEC-19	R4955363
UV Transmittance (Calculated)							
Transmittance, UV (254 nm)	91.4		1.0	%T/cm		23-DEC-19	R4953648
pH							
pH	8.49		0.10	pH units		28-DEC-19	R4958250

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BR-L-IC-N-WP	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)-LR
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
C-DOC-HTC-WP	Water	Dissolved Organic Carbon by Combustion	APHA 5310 B-WP
Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP
Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-L-IC-N-WP	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-WP	Water	Colour, True	APHA 2120C
True Colour is measured spectrophotometrically by comparison to platinum-cobalt standards using the single wavelength method (450 - 465 nm) after filtration of sample through a 0.45 um filter. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.			
EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
ETL-LANGELIER-4-WP	Water	Langelier Index 4C	Calculated
ETL-LANGELIER-60-WP	Water	Langelier Index 60C	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
		Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.	
IONBALANCE-CALC-WP	Water	Ion Balance Calculation	APHA 1030E
		Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero. Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as: Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]	
MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)
		Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.	
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
		Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.	
NO2-L-IC-N-WP	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
		Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	
NO3-L-IC-N-WP	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
		Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	
PH-WP	Water	pH	APHA 4500H
		The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.	
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
		Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
		A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.	
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
		Turbidity in aqueous matrices is determined by the nephelometric method.	
UV-%TRANS-WP	Water	UV Transmittance (Calculated)	APHA 5910B
		Test method is adapted from APHA Method 5910B. A sample is filtered through a 0.45 um polyethersulfone (PES) filter and its UV Absorbance is measured in a quartz cell at 254 nm. UV Transmittance is calculated from the UV Absorbance result and reported as UV Transmittance per cm. The analysis is carried out without pH adjustment.	
VOC+F1-HSMS-WP	Water	VOC plus F1 by GCMS	EPA 8260C / EPA 5021A
		In this method samples are analyzed using a headspace autosampler interfaced to a dual column gas chromatograph with MS and Flame Ionization detectors.	
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
		Total xylenes represents the sum of o-xylene and m&p-xylene.	

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA		

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental

Quality Control Report

Workorder: L2399770 Report Date: 06-JAN-20 Page 1 of 8

Client: RM of De Salaberry - St. Malo - PWS
St. Malo - PWS BOX 40
St. Malo MB R0A 1T0

Contact: TODD GREGOIRE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	Water							
Batch R4958250								
WG3251695-5 DUP		**L2399770-1**						
Alkalinity, Total (as CaCO3)		332	323		mg/L	2.6	20	28-DEC-19
WG3251695-4 LCS								
Alkalinity, Total (as CaCO3)			100.5		%		85-115	28-DEC-19
WG3251695-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	28-DEC-19
BR-L-IC-N-WP	Water							
Batch R4955150								
WG3247926-7 LCS								
Bromide (Br)			99.8		%		85-115	21-DEC-19
WG3247926-6 MB								
Bromide (Br)			<0.010		mg/L		0.01	21-DEC-19
C-DOC-HTC-WP	Water							
Batch R4959311								
WG3253005-2 LCS								
Dissolved Organic Carbon			99.0		%		80-120	03-JAN-20
WG3253005-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	03-JAN-20
C-TOC-HTC-WP	Water							
Batch R4959310								
WG3253006-2 LCS								
Total Organic Carbon			97.8		%		80-120	03-JAN-20
WG3253006-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	03-JAN-20
CL-L-IC-N-WP	Water							
Batch R4955150								
WG3247926-7 LCS								
Chloride (Cl)			100.3		%		90-110	21-DEC-19
WG3247926-6 MB								
Chloride (Cl)			<0.10		mg/L		0.1	21-DEC-19
COLOUR-TRUE-WP	Water							
Batch R4952866								
WG3247580-2 LCS								
Colour, True			96.4		%		85-115	20-DEC-19
WG3247580-1 MB								
Colour, True			<5.0		CU		5	20-DEC-19
EC-WP	Water							

ALS Environmental

Quality Control Report

Workorder: L2399770 Report Date: 06-JAN-20 Page 2 of 8

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WP	Water							
Batch R4958250								
WG3251695-5 DUP		**L2399770-1**						
Conductivity		1540	1540		umhos/cm	0.3	10	28-DEC-19
WG3251695-3 LCS								
Conductivity			97.7		%		90-110	28-DEC-19
WG3251695-1 MB								
Conductivity			<1.0		umhos/cm		1	28-DEC-19
F-IC-N-WP	Water							
Batch R4955150								
WG3247926-7 LCS								
Fluoride (F)			104.2		%		90-110	21-DEC-19
WG3247926-6 MB								
Fluoride (F)			<0.020		mg/L		0.02	21-DEC-19
MET-T-CCMS-WP	Water							
Batch R4959349								
WG3252081-2 LCS								
Aluminum (Al)-Total			93.8		%		80-120	03-JAN-20
Antimony (Sb)-Total			99.1		%		80-120	03-JAN-20
Arsenic (As)-Total			95.4		%		80-120	03-JAN-20
Barium (Ba)-Total			96.8		%		80-120	03-JAN-20
Beryllium (Be)-Total			96.1		%		80-120	03-JAN-20
Bismuth (Bi)-Total			92.7		%		80-120	03-JAN-20
Boron (B)-Total			87.2		%		80-120	03-JAN-20
Cadmium (Cd)-Total			96.8		%		80-120	03-JAN-20
Calcium (Ca)-Total			96.1		%		80-120	03-JAN-20
Cesium (Cs)-Total			104.8		%		80-120	03-JAN-20
Chromium (Cr)-Total			96.5		%		80-120	03-JAN-20
Cobalt (Co)-Total			95.1		%		80-120	03-JAN-20
Copper (Cu)-Total			96.0		%		80-120	03-JAN-20
Iron (Fe)-Total			94.7		%		80-120	03-JAN-20
Lead (Pb)-Total			94.8		%		80-120	03-JAN-20
Lithium (Li)-Total			96.7		%		80-120	03-JAN-20
Magnesium (Mg)-Total			104.2		%		80-120	03-JAN-20
Manganese (Mn)-Total			96.6		%		80-120	03-JAN-20
Molybdenum (Mo)-Total			97.1		%		80-120	03-JAN-20
Nickel (Ni)-Total			95.2		%		80-120	03-JAN-20
Potassium (K)-Total			92.5		%		80-120	03-JAN-20

ALS Environmental

Quality Control Report

Workorder: L2399770 Report Date: 06-JAN-20 Page 3 of 8

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4959349								
WG3252081-2 LCS								
Phosphorus (P)-Total			99.1		%		80-120	03-JAN-20
Rubidium (Rb)-Total			94.9		%		80-120	03-JAN-20
Selenium (Se)-Total			101.6		%		80-120	03-JAN-20
Silicon (Si)-Total			97.3		%		80-120	03-JAN-20
Silver (Ag)-Total			94.8		%		80-120	03-JAN-20
Sodium (Na)-Total			95.5		%		80-120	03-JAN-20
Strontium (Sr)-Total			104.6		%		80-120	03-JAN-20
Tellurium (Te)-Total			94.0		%		80-120	03-JAN-20
Thallium (Tl)-Total			91.7		%		80-120	03-JAN-20
Thorium (Th)-Total			99.2		%		80-120	03-JAN-20
Tin (Sn)-Total			97.6		%		80-120	03-JAN-20
Titanium (Ti)-Total			93.1		%		80-120	03-JAN-20
Tungsten (W)-Total			94.5		%		80-120	03-JAN-20
Uranium (U)-Total			101.2		%		80-120	03-JAN-20
Vanadium (V)-Total			96.6		%		80-120	03-JAN-20
Zinc (Zn)-Total			94.9		%		80-120	03-JAN-20
Zirconium (Zr)-Total			95.6		%		80-120	03-JAN-20
WG3252081-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	03-JAN-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	03-JAN-20
Boron (B)-Total			<0.010		mg/L		0.01	03-JAN-20
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	03-JAN-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	03-JAN-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	03-JAN-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	03-JAN-20
Iron (Fe)-Total			<0.010		mg/L		0.01	03-JAN-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	03-JAN-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	03-JAN-20

ALS Environmental

Quality Control Report

Workorder: L2399770 Report Date: 06-JAN-20 Page 4 of 8

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4959349								
WG3252081-1 MB								
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	03-JAN-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	03-JAN-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	03-JAN-20
Potassium (K)-Total			<0.050		mg/L		0.05	03-JAN-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	03-JAN-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	03-JAN-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	03-JAN-20
Silicon (Si)-Total			<0.10		mg/L		0.1	03-JAN-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	03-JAN-20
Sodium (Na)-Total			<0.050		mg/L		0.05	03-JAN-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	03-JAN-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	03-JAN-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	03-JAN-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	03-JAN-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	03-JAN-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	03-JAN-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	03-JAN-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	03-JAN-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	03-JAN-20
NH3-COL-WP	Water							
Batch R4957226								
WG3250728-10 LCS								
Ammonia, Total (as N)			101.2		%		85-115	27-DEC-19
WG3250728-9 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	27-DEC-19
NO2-L-IC-N-WP	Water							
Batch R4955150								
WG3247926-7 LCS								
Nitrite (as N)			102.4		%		90-110	21-DEC-19
WG3247926-6 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	21-DEC-19
NO3-L-IC-N-WP	Water							

ALS Environmental

Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-L-IC-N-WP	Water							
Batch R4955150								
WG3247926-7 LCS								
Nitrate (as N)			101.5		%		90-110	21-DEC-19
WG3247926-6 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	21-DEC-19
PH-WP	Water							
Batch R4958250								
WG3251695-5 DUP		**L2399770-1**						
pH		8.50	8.45	J	pH units	0.05	0.2	28-DEC-19
WG3251695-2 LCS								
pH			7.38		pH units		7.3-7.5	28-DEC-19
SO4-IC-N-WP	Water							
Batch R4955150								
WG3247926-7 LCS								
Sulfate (SO4)			102.5		%		90-110	21-DEC-19
WG3247926-6 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	21-DEC-19
TDS-WP	Water							
Batch R4958723								
WG3249804-2 LCS								
Total Dissolved Solids			101.3		%		85-115	27-DEC-19
WG3249804-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	27-DEC-19
TURBIDITY-WP	Water							
Batch R4955363								
WG3250039-2 LCS								
Turbidity			101.5		%		85-115	23-DEC-19
WG3250039-1 MB								
Turbidity			<0.10		NTU		0.1	23-DEC-19
UV-%TRANS-WP	Water							
Batch R4953648								
WG3248819-3 DUP		**L2399770-1**						
Transmittance, UV (254 nm)		87.5	88.5		%T/cm	1.2	20	23-DEC-19
WG3248819-1 IRM		**BLANK**						
Transmittance, UV (254 nm)			100.0		%		99.5-100.5	23-DEC-19
WG3248819-2 LCS								
Transmittance, UV (254 nm)			98.4		%		85-115	23-DEC-19
VOC+F1-HSMS-WP	Water							

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Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	Water							
Batch R4958822								
WG3250785-2 LCS								
Benzene			96.9		%		70-130	02-JAN-20
1,1-dichloroethene			106.6		%		70-130	02-JAN-20
Dichloromethane			105.0		%		70-130	02-JAN-20
Ethylbenzene			112.5		%		70-130	02-JAN-20
MTBE			110.5		%		70-130	02-JAN-20
Tetrachloroethene			106.0		%		70-130	02-JAN-20
Toluene			99.96		%		70-130	02-JAN-20
Trichloroethene			119.7		%		70-130	02-JAN-20
M+P-Xylenes			102.4		%		70-130	02-JAN-20
o-Xylene			110.4		%		70-130	02-JAN-20
WG3250785-1 MB								
Benzene			<0.00050		mg/L		0.0005	30-DEC-19
1,1-dichloroethene			<0.00050		mg/L		0.0005	30-DEC-19
Dichloromethane			<0.0050		mg/L		0.005	30-DEC-19
Ethylbenzene			<0.00050		mg/L		0.0005	30-DEC-19
MTBE			<0.00050		mg/L		0.0005	30-DEC-19
Tetrachloroethene			<0.00050		mg/L		0.0005	30-DEC-19
Toluene			<0.00050		mg/L		0.0005	30-DEC-19
Trichloroethene			<0.00050		mg/L		0.0005	30-DEC-19
M+P-Xylenes			<0.00040		mg/L		0.0004	30-DEC-19
o-Xylene			<0.00050		mg/L		0.0005	30-DEC-19
Surrogate: 4-Bromofluorobenzene (SS)			88.9		%		70-130	30-DEC-19
Surrogate: 1,4-Difluorobenzene (SS)			99.5		%		70-130	30-DEC-19

Quality Control Report

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.

Quality Control Report

Workorder: L2399770 Report Date: 06-JAN-20

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	20-DEC-19 10:15	28-DEC-19 12:00	0.25	194	hours	EHTR-FM
	2	20-DEC-19 10:15	28-DEC-19 12:00	0.25	194	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2399770 were received on 21-DEC-19 07:10.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

L2399770-COFC

1239770

Manitoba Sustainable Development
Office of Drinking Water
1007 Century Street, Winnipeg, Manitoba,
Canada R3H 0W4

Manitoba Drinking Water Systems

ONLY FOR: Regulatory General Chemistry & VOC Samples

Report to Operator (email pdf):		**Owner billing (Email):**		**Regular Service (default):**	**Regular Service (is 5-7 Days):**
Contact:	Todd Gregoire	Contact:	Denise Parent		
Address:	Box 40, St. Malo, MB, R0A 1T0	Address:	Box 40, St. Malo, MB, R0A 1T0	**Unless otherwise requested:**	**1 Day, rush / priority**
Phone:	(204) 433-7406	Phone:	(204) 433-7406		**2 Day, rush / priority**
Email:	stmalopw@rmdesalaberry.mb.ca	Email:	cao@rmdesalaberry.mb.ca		**3 Day, rush / priority**
Operator contact update (If different then above):		**Owner contact update (if different then above):**		**Email pdf copy to:**	
Contact:		Contact:		DWO:	Colin Nakata
Address:		Address:		DWO Address:	Unit B-284 Reimer Ave,Steinbach,MB,R5G 0R5
Phone:		Phone:		DWO Phone:	(204)-371-7421
Email:		Email:		DWO Email:	colin.nakata@gov.mb.ca

Account:		ODW Report type:	EMS (Lab-MWS)	**Client / Project Information:**	
Agency Code:	382	Project:	DWQ-C	Operation Name:	ST. Malo
Lab:		Lab Work Order # / Job # (lab use only)		Operation Code (com code):	217.50
				Operation Id:	21231
				Sampled by:	Todd Gregoire

Lab Sample # (lab use only)	Sample Number (YYMMII9999)	Station Number (MB99XXD999) / (MB99XXY999)	Sample Identification	Date dd-mmm-yyyy	Time hh:mm	Sample Matrix	Sample Type	Analysis Request: MB-CH-PWS-V2013	MB-VOC-PWS-V2013	Number of Containers
	1912CN0001	MB05OED041	St. Malo 1 - Raw	20/12/19	10:15 Am	6	1	X	X	7
	1912CN0002	MB05OED042	St. Malo 2 - Treated	20/12/19	10:15 Am	10	1	X		4

Sample Matrix:	Sample Type:
6-Raw Water, 10-Treated Water	1-Grab Sample

Failure to complete all portions of this form may delay analysis.

Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified by the Laboratory. Free=1.14 Total=1.43

For ALL other testing, please use Laboratory specific forms.

DO NOT COPY or RE-USE this form. Sample Numbers are unique to the Office of Drinking Water and provided by DWO.

Relinquished By:	Date & Time:		Received By: (lab use only)		Date & Time: (lab use only)		Sample Condition (lab use only)	
Todd Gregoire	10:15 Am		Jno		Dec. 2/19 7:10		Temperature	Samples Received in Good Condition? Y / N (if no provide details)
Relinquished By:	Date & Time:		Received By: (lab use only)		Date & Time: (lab use only)		7.6°C	

Operator mandatory Operator optional Operator to fill, if information above has changed Opr to fill, Lab specific pre-filled by DWO