Town of Niverville
Public Water System Operation Report
2024

The Town of Niverville strives to provide the highest quality drinking water in sufficient quantity to meet the needs of the residents. It is our goal to provide this water in a safe, cost-effective manner while remaining in compliance with all regulatory requirements governing the provision of potable water.

It is our belief that the public has a right to access information related to the potable water they consume. To that end the following report has been prepared for the Town of Niverville public water system.

Why do we treat our water?

We treat our water to ensure that safe and aesthetically pleasing potable water is supplied to our community. The Town of Niverville is committed to meeting and/or exceeding the water quality standards set by the province.

Where do we get our water from?

The raw water is currently obtained from two supply wells located one mile west of New Bothwell. The wells draw ground water from secured aquifers in the fractured limestone. Both wells were installed in 2017 and are both 200 mm in diameter. The first well has a total depth of 91.4m with a 300 mm welded black steel casing installed to a depth of 27.1 m. The second well has a total depth of 96.6 m with a 300 mm welded black steel casing installed to a depth of 27.4 m. The wells were tested by Friesen Drillers Ltd. to each have an estimated discharge rate of 500 Imperial Gallons Per Minute (IGPM). The raw water from these two wells is pumped via 50Hp submersible pumps that travel 10.5 km to the water treatment plant via a 350 mm High-density polyethylene (HDPE) pipeline.

What is our treatment process?

Raw water is pumped from the fractured limestone aquifer to the water treatment plant. The raw water enters the building where an online turbidimeter monitors the turbidity (clarity) of the water before the water is split between the two treatment processes. The flow is split 50/50 with half of the water being directed to two sets of dual train reverse osmosis (RO) skids, while the other half is diverted to three biofilters.

Biofilter Treatment Process

The raw water that flows to the biofilters have online instrumentation (probes) which monitors pH, ORP, temperature, and dissolved oxygen of the water. After these probes, an air sparger is installed in the pipe. The air sparger is used to inject air into the water to increase the dissolved oxygen levels going to the biofilters. This air is important to ensure the good bacteria in each of the biofilters can survive and thrive. These bacteria are what treats the water. There are two large air compressors installed in the building, which feed compressed air to the air sparger. After the air sparger, the flow is directed to three biofilters which run in parallel. When the water plant calls to make water based on the treatment mode, automated valves open to allow the flow of water through the biofilters. Inside each biofilter are layers of different sized gravel and a filtralite material. The bottom third of each filter is layered with different sizes of gravel between 1” inch diameter down to 1/8” inch diameter. The larger sized gravel naturally sits on the bottom of the tank. After the gravel layer is the filtralite material. The filtralite is installed on top of the gravel to about two thirds high in the tank. The water makes up the remaining third of the filter. There are a couple different pipes installed in this gravel layer. One set of pipes is for the underdrain, while the other is for the air scour. The air scour piping is used during the biofilter backwash cycle. Air is injected through the air scour piping to mix up the material inside the filter. The underdrain piping collects the treated water which flows through the biofilter and is then directed to the treatment header. During the biofilter treatment, water is forced into the biofilter and down through the filtralite material which mainly removes iron and manganese from the water. This water is then collected into the underdrain pipe installed in the gravel layer. This treated water, which is now called filtrate, flows from the bottom of the filter to the treatment header. The filtrate coming out of each biofilter is again being monitored for pH, ORP, dissolved oxygen, and turbidity by online instrumentation.

Reverse Osmosis (RO) Treatment Process

The raw water is directed to one of the two reverse osmosis multi train units (RO MTU). The flow direction is dependant on which mode of treatment is being used. Raw water is dosed with an anti-scalant prior to entering the skid. Online instrumentation (probes) monitors conductivity, ORP, and temperature of the incoming water. The raw water then flows through a set of 1-micron prefilters which remove larger debris and particles (sand, silt etc.) from the water to help minimize debris from plugging the membrane filters. A booster pump then takes that water and increases the pressure to force the water through the reverse osmosis membranes. These membranes remove any particles and minerals from the water. The water that makes it through the membranes is now treated and is called permeate water. The water, metals, and minerals that do not make it through the membranes, that solution is called concentrate. The RO units have a typical recovery rate of about 80%. This means that 80% of the water being pushed through the membrane will come out as permeate while the remaining 20% will be concentrate. The permeate water has online instrumentation monitoring pH, conductivity, and turbidity before heading to the treatment header.

Treatment Header

The treatment header is where the biofilter filtrate, and the reverse osmosis permeate water meets before entering the reservoir. The RO permeate water is dosed with sodium hydroxide (caustic soda) to bring the pH level back up to about 7.40. The permeate water then goes through an internal static mixer, which mixes the chemical that was just added. The permeate water and filtrate water then combine, where an online probe monitors the pH level of the treated water that is mixing. This treated water is then injected with aqua mag blended phosphate which is a corrosion inhibitor to limit corrosion on various metal piping. It is then dosed with sodium hypochlorite (chlorine) for the final disinfection before entering the reservoir. Each of the chemical pumps dose a set amount of chemical based on flow. This means that the more water being produced, the higher the chemical will be injected. This is so the pumps can be used for each different mode of treatment. Each chemical is equipped with two chemical pumps which run in a Duty / Standby configuration. This means that if one of the two pumps breaks down, the other pump will take over.

Reservoirs

The Niverville water treatment plant has three, below grade reservoirs with a combined capacity of 3,500 m3 (3,500,000 litres). The size of storage allows the chlorine proper contact time with the water (minimum 20 minutes) to confirm proper disinfection is taken place. Each reservoir is split into two different cells. This gives the operators the ability to isolate specific cells to allow them to be taken offline for cleaning. Interconnection piping between each cell and reservoir allows the flow of water to be directed to bypass any of the cells. Below is the information on each of the three reservoirs.

Reservoir 1 (Cell 1&2 - 2007) – This reservoir has a 500,000 litre capacity
Reservoir 2 (Cell 3&4 - 2010) – This reservoir has a 1,200,000 litre capacity
Reservoir 3 (Cell 5&6 - 2023) – This reservoir has a 1,800,000 litre capacity

Why do we disinfect our water?

The final step in the treatment of safe water is disinfection. Disinfection is the selective destruction or inactivation of disease-causing organisms in water. The *Drinking Water Safety Act* and supporting regulations require that potable water be in contact with chlorine for a minimum of 20 minutes before it enters the distribution system. The Town uses sodium hypochlorite (chlorine) to disinfect our water. The provincial standards mandate that the Town maintains a minimum residual chlorine level of 0.5 mg/L leaving the water plant.

What is our water plant classification and who is certified?

The facility classification and operator certification fall under The Environmental Acts Water and Wastewater Facility Operators Regulations. Currently, the water treatment plant, and the

water distribution system are classified as a Class 2 facility. The Town of Niverville has the following operators available.

Water Treatment
Class II – 2 Certified Operators
Class I – 2 Certified Operators

Water Distribution
Class II – 2 Certified Operators
Class I – 2 Certified Operators

What is the 'distribution system'?

The water distribution system is the network of underground pipes used to carry the treated water from the water treatment facility to the homes & businesses within our community. We have both PVC (C-900) and High-density polyethylene (HDPE) piping through parts of the Town. The piping is interconnected (looped) to ensure that fresh safe potable water is continuously supplied. We carry out regular maintenance in the distribution system such as valve maintenance, hydrant flushing and fire hydrant testing in cooperation with the Town of Niverville Volunteer Fire Department.

Who do we serve water to?

The water distribution system is comprised of 1,486 service connections. All (100%) of the homes and businesses connected to the distribution system are metered.

Classification	**Size**	**Number**
Residential (Single / Multi)	5/8"	1,440
Residential (Multi)	1" - 3"	5
Commercial / Institutional	5/8"	23
Commercial / Institutional	3/4" - 3"	18
Total		1,486

What are the water rates?

The water rates for the Town of Niverville have not changed since July 2018. The current rate for 1,000 gallons of water is $11.18. Customers will pay the applicable minimum charge set below which includes the water allowance as listed.

Meter Size	Water Included 1000 of Ratio	Gallons	Customer Service Charge	Water Commodity Charge	Water Total Quarterly Minimum
5/8 inch	1	3,000	$7.37	$33.54	$40.91

3/4 inch	2	6,000	$7.37	$67.08	$74.45
1 inch	4	12,000	$7.37	$134.16	$141.53
1 1/2 inch	10	30,000	$7.37	$335.40	$342.77
2 inch	25	75,000	$7.37	$838.50	$845.87
3 inch	45	135,000	$7.37	$1,509.30	$1,516.67

The Town has also submitted a request to the Public Utility Board for a rate increase to account for the new water treatment plant expansion that was put online in 2022.

Water Quality Standards

The Town's Operating license identifies that our public water system shall operate in a manner that achieves or exceed the quality/treatment standards specified in the table below.

Parameter	Quality Standard
Total Coliform	Less than one total coliform bacteria detectable per 100 mL in all treated and distribution water
E. Coli	Less than one E. Coli bacteria detectable per 100 mL in all treated and distribution 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 always 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
Ethylbenzene	Less than or equal to 0.14 mg/L
Fluoride	Less than or equal to 1.5 mg/L
Lead	Less than or equal to 0.005 mg/L
Manganese	Less than or equal to 0.12 mg/L
Nitrate	Less than or equal to 45 mg/L measured as nitrate (10 mg/L measured as nitrogen)
Nitrite	Less than or equal to 3 mg/L measured as nitrite (1 mg/L measured as nitrogen)
Trichloroethylene	Less than or equal to 0.005 mg/L
Tetrachloroethylene	Less than or equal to 0.01 mg/L
Toluene	Less than or equal to 0.06 mg/L
Total Xylenes	Less than or equal to 0.09 mg/L
Uranium	Less than or equal to 0.02 mg/L

The parameters for total coliform and E. Coli are tested every two weeks.
The remaining parameters from our licence that require testing were completed on May 28, 2024. The Town is required to do this testing every three years.

The biweekly sample information, plus the full water analysis report can be found on the Town of Niverville website at *https://www.whereyoubelong.ca/town-services/financial-services/utilities/*

Below is a summary of the testing results for each parameter listed on our licence.

Parameter	Unit	Guide Limit #1 (mg/L)	Guide Limit #2 (mg/L)	Raw Water	Spruce Drive - Treated Water	Distribution @ Mid Point
Arsenic (As) *	**µg/L**		0.01	3.03	1.76	1.75
Benzene	mg/L		0.005	<0.00050		
Ethylbenzene	mg/L	0.0016	0.14	<0.00050		
Fluoride (F)	mg/L		1.5	0.853	0.445	
Lead (Pb) *	**µg/L**		0.005	<0.050	<0.050	0.291
Manganese (Mn) *	**µg/L**	0.02	0.12	7.70	2.36	1.64
Nitrate (as N)	mg/L		10	<0.0050	0.125	
Nitrite (as N)	mg/L		1	<0.0010	<0.0010	
Trichloroethylene	mg/L		0.005	<0.00050		
Tetrachloroethylene	mg/L		0.01	<0.00050		
Toluene	mg/L	0.024	0.06	<0.00050		
Total Xylenes	mg/L	0.02	0.09	<0.00050		
Uranium *	**µg/L**		0.02	0.234	0.128	0.121

* Note – These measurements are displayed in microgram per litre (µg/L) instead of milligram per litre (mg/L). 1 mg/L is equal to 1000 µg/L.

Is our water tested? What for? When?

The Town's operating license identifies that our public water system shall ensure monitoring is completed as set out from the specified table below.

Water Quality Monitoring	
Parameter	**Monitoring Requirement**
Bacteriological (total coliform and E. coli)	Biweekly 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 times 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
Total Metals (distribution system)	One sample taken at the same time(s) as General Chemistry sampling at a mid-point in the distribution system
Lead	As per the instructions of the drinking water officer Residential Lead Monitoring Program starting in Spring 2025. The number of samples needed per year is based on the population served but currently set at 20 samples per year with 2/3 of the samples taken between June and October
Manganese	Monitoring included in the General Chemical and Total Metals analysis
Other Parameters	As per the instructions of the drinking water officer

Residential Lead Monitoring Program

In 2019, Health Canada updated the national guideline for lead in drinking water. The maximum acceptable concentration (MAC) for total lead in drinking water was lowered from 0.010 mg/L to 0.005 mg/L with the sample taken from a resident's kitchen tap. This guideline was adopted by Manitoba as the new standard in 2020. This implementation was put into affect for the Town of Niverville in November 2024. The first samples for this program will be taken in Spring 2025.

For more information on the Lead Monitoring Program, please visit our website at *https://www.whereyoubelong.ca/town-services/financial-services/utilities/*

What do we have in place to alert Operations Staff to water emergencies?

The Town has an operator on-call for sewer & water emergencies 24 hours a day / 7 days a week. This operator can access the water plants Supervisory Control and Data Acquisition (SCADA) system via their smart phone or laptop. Operators can check on the status of pumps, valves, sensors, flows, and chemical dosing. All equipment in the water plant has alarm parameters set specifically for that piece of equipment. If any equipment runs outside of those set parameters, an alarm will go off. Once an alarm is triggered, a signal is sent to an auto dialer which will call through a list of preset operator's cell phone numbers until the alarm is acknowledged. The operator can then log on to the SCADA system to determine the cause of the alarm. This allows operators to diagnose issues more efficiently and effectively.

Disinfection summarization report for 2024

Below is a summary of the disinfection sampling that was completed for the year of 2024. All of this information can be found in greater detail starting on page 20 in this report.

Month	Handheld Disinfection Samples Taken	Handheld Disinfection Samples Below Standard	Automated Disinfection Samples Taken	Automated Disinfection Samples Below Standard
January	31	0	8928	0
February	29	0	8352	0
March	31	0	8915	0
April	30	0	8640	0
May	31	0	8928	0
June	30	0	8352	0
July	31	0	8928	0
August	31	0	8928	0
September	30	0	8640	0
October	31	0	8928	0
November	30	0	8640	29
December	31	0	8928	21
Total	**366**	**0**	**105107**	**50**

Were there any emergencies, regulatory compliance issues or other operational issues to report for 2024?

On June 17, 2024, the automated records for our regulatory compliance reports were not populating data correctly. Because of this, no chlorine data was being recorded for that day.

On November 7, 2024, our chlorine analyzer was cleaned and calibrated. This caused a couple zero readings on our regulatory compliance reports.

On November 17, 2024, we had a chlorine fitting crack and break causing chlorine to not enter the distribution header. This caused our chlorine level to drop below 0.50 mg/L for a short period of time. We replaced the broken fitting and added chlorine directly to the reservoir to bring the level back above 0.50 mg/L.

On December 24, 2024, we shut down flow to the chlorine analyzer to install a backflow prevention device on the water treatment plant's domestic supply line feeding the building. This was a requirement from the Office of Drinking Water after our engineered assessment.

Were there any drinking water safety orders issued?

In the reporting period, no Drinking Water Safety Orders were issued to the Town of Niverville's water treatment plant.

Were there any boil water advisories?

In the reporting period, no boil water advisories were issued to the Town of Niverville's water treatment plant.

Were there any warnings issued, fines, or charges laid?

In the reporting period, no warnings or fines were issued to the Town of Niverville's water treatment plant.

Were there any major expenses incurred in 2024?

1. One of the variable frequency drives (VFD) on a well pump was replaced due to constant alarm faults causing the well pump to be unreliable. This cost was still partially covered under warranty.

   Cost: $20,000

Future system expansion or expenses expected?

1. Research into a 3rd raw water supply well to build redundancy into the raw water supply for the Town of Niverville Treatment Plant.

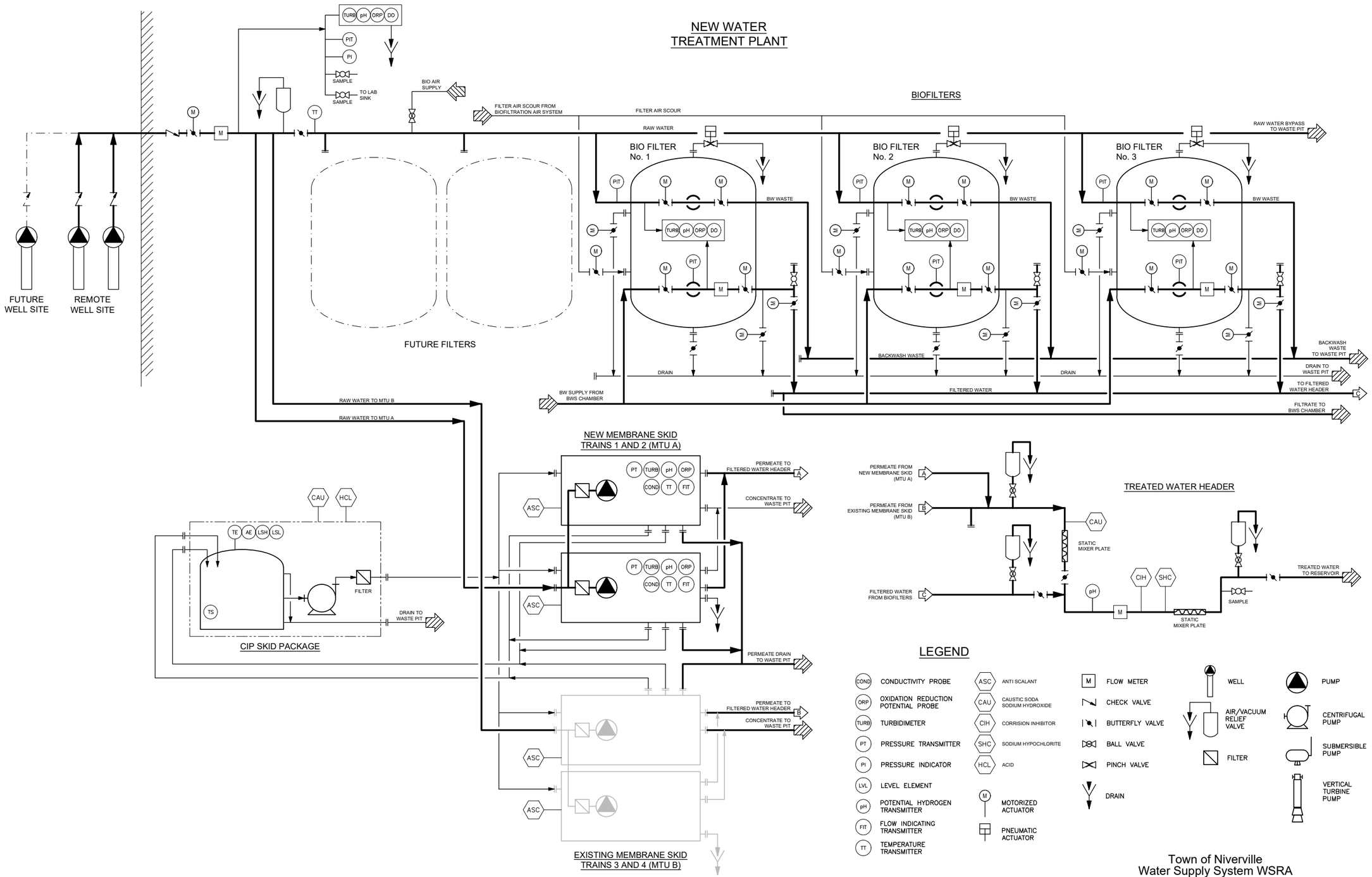
Who can we call with questions or concerns regarding our drinking water?

All calls regarding water (emergency or not), please call the Town of Niverville directory (204)-388-4600 ext.1111 and leave a message. Staff will listen to the message within a reasonable amount of time and respond accordingly.

How can you find out about this report?

This report will be available on or before March 31 of each year. The Town will also post the link to this report on our Facebook page once available. The link for this report can be found on the Towns website under the resources section at *https://www.whereyoubelong.ca/town-services/financial-services/utilities/*
Paper copies are available upon request at the Town Office.
If you wish to leave an email (non-emergency) please send it to *andrew.rempel@whereyoubelong.ca*

NEW WATER TREATMENT PLANT



LEGEND

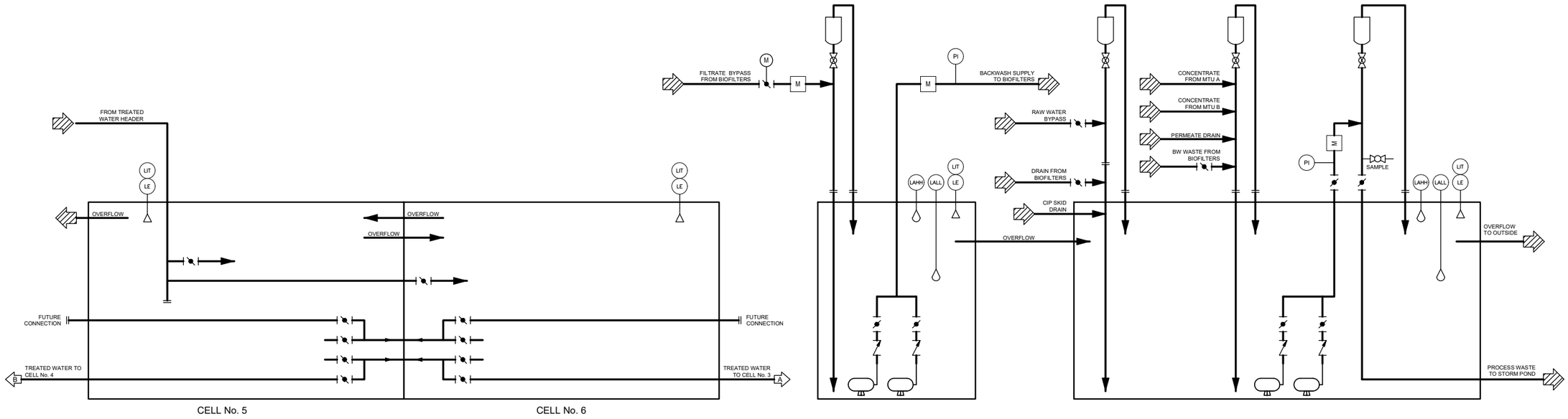
- COND — CONDUCTIVITY PROBE
- ORP — OXIDATION REDUCTION POTENTIAL PROBE
- TURB — TURBIDIMETER
- PT — PRESSURE TRANSMITTER
- PI — PRESSURE INDICATOR
- LVL — LEVEL ELEMENT
- pH — POTENTIAL HYDROGEN TRANSMITTER
- FIT — FLOW INDICATING TRANSMITTER
- TT — TEMPERATURE TRANSMITTER
- ASC — ANTI SCALANT
- CAU — CAUSTIC SODA SODIUM HYDROXIDE
- CIH — CORRISION INHIBITOR
- SHC — SODIUM HYPOCHLORITE
- HCL — ACID
- M — MOTORIZED ACTUATOR
- PNEUMATIC ACTUATOR
- M — FLOW METER
- CHECK VALVE
- BUTTERFLY VALVE
- BALL VALVE
- PINCH VALVE
- DRAIN
- WELL
- AIR/VACUUM RELIEF VALVE
- FILTER
- PUMP
- CENTRIFUGAL PUMP
- SUBMERSIBLE PUMP
- VERTICAL TURBINE PUMP

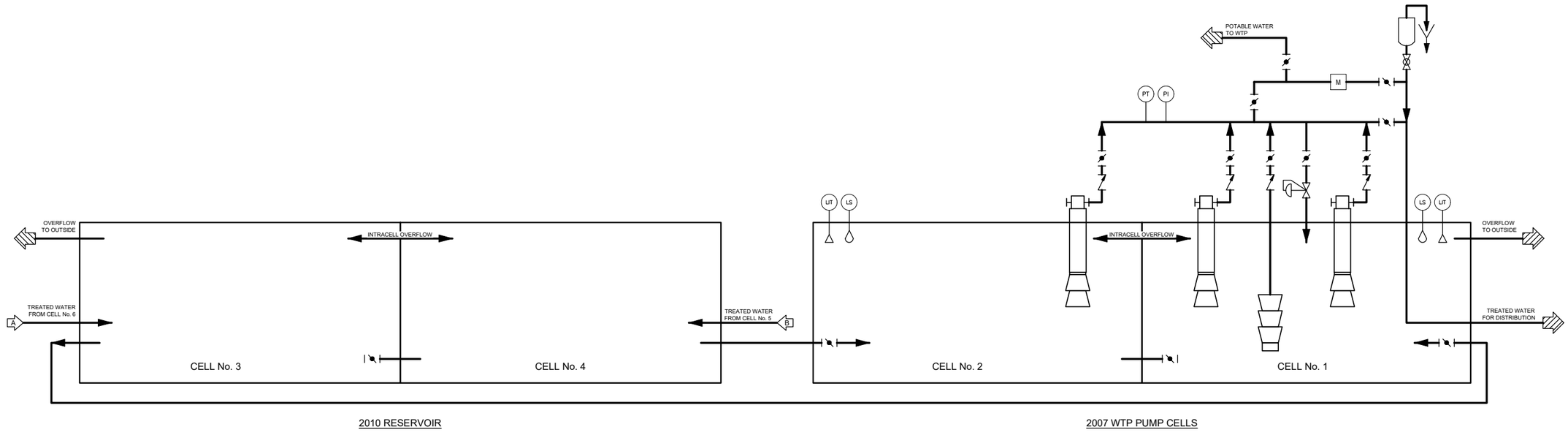
Town of Niverville
Water Supply System WSRA
Process Flow Diagram
1 of 2

PROJECT-NO CE882200

FILENAME:

PLOT DATE:





Town of Niverville
Water Supply System WSRA
Process Flow Diagram
2 of 2

Jacobs

PROJECT-NO CE882200

FILENAME:

PLOT DATE:

Water and Wastewater Facility Operators Certification Program

This is to certify that the

Spruce Drive Water Plant

owned by

Town of Niverville

has been classified as a

Class 2 Water Treatment Facility

in accordance with the Water and Wastewater Facility Operators Regulation under *The Environment Act.*

Dated at Winnipeg, Manitoba **this** 30th **day of** May 2016.

Certificate No.: 2016-010

Director
Manitoba Sustainable Development

Manitoba

Water and Wastewater Facility Operators Certification Program

This is to certify that the

Spruce Drive Water Distribution

owned by

Town of Niverville

has been classified as a

Class 2 Water Distribution Facility

in accordance with the Water and Wastewater Facility Operators Regulation under *The Environment Act.*

Dated at Winnipeg, Manitoba **this** 30th **day of** May 2016.

Certificate No.: 2016-011

Tracey Braun

Director
Manitoba Sustainable Development

Manitoba

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

OPERATING LICENCE FOR A PUBLIC WATER SYSTEM

LICENCE NUMBER: PWS-11-485-02

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

WATER SYSTEM CODE: **151.25**

OPERATION ID: **42862**

EFFECTIVE DATE: **DECEMBER 1, 2021**

EXPIRY DATE: **FEBRUARY 28, 2026**

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

TOWN OF NIVERVILLE: "THE LICENSEE"

FOR THE OPERATION OF THE **NIVERVILLE SPRUCE DRIVE PUBLIC WATER SYSTEM**, WHICH INCLUDES SECURE WELLS, 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 LICENCES FOR THIS PUBLIC WATER SYSTEM.

Siobhan Burland Ross
Digitally signed by Siobhan Burland Ross
Date: 2021.11.22 08:43:19 -06'00'

DATE: November 22, 2021

Siobhan Burland Ross, P.Eng.
A/Director

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 ownership of the water system within seven days of the transfer of 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 a copy of the first page of this 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 re-assessments of the water system infrastructure and water supply sources completed by a qualified person, who is not an employee of the water system, in accordance with assessment checklist GW by March 1, 2024, and every five years thereafter. The Licensee may instead have the assessment completed by a qualified professional engineer, who is not an employee of the water system, in accordance with terms of reference for engineering assessments.

2.5. The Licensee shall, upon request from the Office of Drinking Water, submit or re-submit a compliance plan, in a form satisfactory to the director, to address any non-compliance issues identified at the time.

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 in accordance with the advisory notification plan or by a method acceptable to the issuer.

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
Ethylbenzene	Less than or equal to 0.14 mg/L
Fluoride	Less than or equal to 1.5 mg/L
Lead	Less than or equal to 0.005 mg/L
Manganese	Less than or equal to 0.12 mg/L
Nitrate	Less than or equal to 45 mg/L measured as nitrate (10 mg/L measured as nitrogen)
Nitrite	Less than or equal to 3 mg/L measured as nitrite (1 mg/L measured as nitrogen)
Trichloroethylene	Less than or equal to 0.005 mg/L
Tetrachloroethylene	Less than or equal to 0.01 mg/L
Toluene	Less than or equal to 0.06 mg/L
Total Xylenes	Less than or equal to 0.09 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. 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.

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*)	Biweekly 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 times 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
Total Metals (distribution system)	One sample taken at the same time(s) as General Chemistry sampling at a mid-point in the distribution system
Lead	As per the instructions of the drinking water officer
Manganese	Monitoring included in the General Chemical and Total Metals analysis
Other Parameters	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) manganese
d) total metals
e) 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 certified water quality monitoring equipment and methods approved by the latest edition of *Standard Methods for the Examination of Water and Wastewater* published jointly by the American Public Health Association, the American Water Works Association and the Water Environment Federation.

5.4. 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.

5.5. The Licensee shall ensure that sampling within the distribution system takes place at varied locations acceptable to the drinking water officer.

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 this licence, 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 flow meter readings are recorded on a daily basis and such records are made available for inspection by a drinking water officer.

6.9. 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.

6.10. 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.

6.11. 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.

6.12. The Licensee shall maintain and submit an advisory notification plan to the drinking water officer by May 1st of each year. The plan must include a detailed description of communication tools and methods to be used to notify the public of a drinking water emergency, considering key contacts, fan-outs, critical customers, susceptible or difficult-to-reach sub-groups, and template notices where applicable.

Manitoba

nthly Chlorination Report

Water System Name: Spruce Drive WTP **Water System Code:** 151.25

Month: January **Year:** 2024 **Type of Measurement Device:** Hach DR890

Operator-in-charge (Print): Ryan Dyck **Other Operators (Print):** Andrew Rempel

Daily Consumption Units: Cubic Meters (M^3)

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	10:03am	KE	1.06	1.24	558
2	7:20am	AR	1.03	1.22	632
3	7:15am	AR	1.04	1.24	654
4	7:21am	AR	1.02	1.21	668
5	7:33am	AR	0.91	1.12	688
6	8:42am	SK	0.93	1.11	643
7	7:55am	KE	0.84	0.75	665
8	8:35am	JK	0.96	1.13	848
9	9:06am	AR	1.00	1.18	684
10	7:15am	AR	0.97	1.17	574
	9:36am	AR	1.05	1.25	688
12	8:39am	AR	1.08	1.27	642
13	6:58am	KE	1.09	1.29	555
14	7:04am	KE	1.07	1.26	736
15	7:20am	AR	1.02	1.20	826
16	8:12am	AR	1.07	1.25	719

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	7:22am	AR	0.99	1.21	631
18	7:17am	AR	1.08	1.27	686
19	8:27am	AR	1.06	1.26	711
20	7:03am	SK	1.04	1.20	568
21	6:55	MV	1.07	1.22	707
22	7:40am	AR	1.09	1.32	818
23	8:34am	AR	1.19	1.40	691
24	7:18am	AR	1.20	1.42	606
25	7:25am	AR	1.11	1.34	666
26	7:25am	AR	1.20	1.39	671
27	7:05am	SK	1.24	1.40	644
28	2:05pm	KE	1.08	1.31	732
29	7:15am	AR	1.10	1.33	765
30	7:19am	AR	1.10	1.28	650
31	7:19am	AR	1.06	1.29	645
				Total Monthly Consumption	20,967

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
2	7:35am	AR	0.00
9	9:21am	AR	0.00

Date	Time	Initials	Ammonia (mg/L)
16	8:30am	AR	0.00
23	8:50am	AR	0.01

Date	Time	Initials	Ammonia (mg/L)
30	7:32am	AR	0.00

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
9	8:52am	AR	309 Brownstone Drive	0.78	0.88
23	8:17am	AR	827 Turnberry Cove	0.89	1.00

nitted by (Print): Andrew Rempel **Signature:** Andrew Rempel

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP **Water System Code:** 151.25

Month: February **Year:** 2024 **Type of Measurement Device:** Hach DR890

Operator-in-charge (Print): Ryan Dyck **Other Operators (Print):** Andrew Rempel

Daily Consumption Units: Cubic Meter (M^3)

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	7:19am	AR	1.09	1.29	661
2	6:19am	AR	1.02	1.25	629
3	6:35am	SK	0.99	1.17	763
4	7:20	MV	1.06	1.23	642
5	8:43am	AR	1.02	1.22	886
6	6:15am	AR	1.09	1.28	595
7	7:49am	AR	1.08	1.33	724
8	7:12am	AR	1.06	1.28	652
9	7:18am	JK	1.11	1.30	663
10	8:47am	SK	1.05	1.22	687
11	7:09	MV	0.97	1.15	661
12	7:15am	AR	1.05	1.22	807
13	7:17am	AR	0.94	1.17	667
14	7:20am	AR	0.94	1.11	658
15	7:17am	AR	1.03	1.23	654
16	7:20am	AR	1.01	1.27	681

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	7:05am	SK	1.01	1.16	623
18	6:57am	KE	1.05	1.22	698
19	350pm	MV	0.96	0.90	1022
20	7:40am	AR	1.08	1.26	410
21	7:18am	AR	1.03	1.25	613
22	7:17am	AR	1.00	1.20	635
23	7:16am	AR	0.95	1.13	636
24	7:10am	SK	0.85	0.94	604
25	7:50am	MV	0.66	0.78	723
26	8:05am	AR	0.64	0.78	807
27	7:27am	JK	0.66	0.81	601
28	7:18am	AR	0.77	0.94	656
29	7:16am	AR	0.83	1.00	652
30					
31					
				Total Monthly Consumption	19,710

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
6	9:05am	AR	0.01
13	7:31am	AR	0.00

Date	Time	Initials	Ammonia (mg/L)
20	8:00am	AR	0.00
27	7:40am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
6	8:40am	AR	17 Cullane Street	0.94	1.08
20	7:12am	AR	329 Branstone Drive	1.01	1.14

Submitted by (Print): Andrew Rempel **Signature:** Andrew Rempel

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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Dr UTP **Water System Code:** 151.25

Month: March **Year:** 2024 **Type of Measurement Device:** Hach DR890

Operator-in-charge (Print): Ryan Dyck **Other Operators (Print):** Andrew Rempel

Daily Consumption Units: Cubic Meter

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	7:15am	AR	0.98	1.16	630
2	7:07	SK	1.00	1.20	594
3	8:10	MV	0.09	1.15	723
4	7:40am	JK	1.01	1.24	742
5	8:05	JK	1.06	1.23	699
6	7:22am	JK	1.03	1.21	590
7	9:43am	JK	1.14	1.34	720
8	6:10am	JK	1.22	1.43	498
9	9:18am	SK	1.35	1.54	722
10	8:04	MV	1.35	1.61	606
11	7:24am	AR	1.33	1.57	756
12	7:14am	AR	1.34	1.56	638
13	7:16am	AR	1.27	1.51	636
14	7:19am	AR	1.26	1.47	655
15	7:55am	AR	1.23	1.47	668
16	9:02am	SK	1.16	1.32	665

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	3:25pm	MV	1.24	1.46	1005
18	7:17am	AR	1.22	1.45	443
19	7:45am	AR	1.11	1.33	677
20	7:12am	AR	1.19	1.42	637
21	7:16am	AR	1.22	1.44	679
22	7:18am	AR	1.23	1.44	648
23	9:00am	SK	1.10	1.25	671
24	3:00pm	KE	1.25	1.43	946
25	7:13am	AR	1.11	1.34	422
26	7:13am	AR	1.18	1.40	657
27	8:08am	AR	1.16	1.34	660
28	10:39am	AR	1.13	1.34	710
29	8:28am	JK	1.14	1.35	515
30	11:34am	KP	1.24	1.32	787
31	8:12am	MV	1.00	1.19	510
				Total Monthly Consumption	20,509

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
5	8:18am	JK	0.00
12	7:30am	AR	0.00

Date	Time	Initials	Ammonia (mg/L)
19	8:02am	AR	0.00
26	7:27am	AR	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
5	7:45am	JK	175 Breckenridge	1.01	1.19
19	7:26am	AR	810 Turnberry Cove	0.92	0.94

Submitted by (Print): Andrew Rempel **Signature:** Andrew Rempel

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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Dr WTP Water System Code: 151.25

Month: April Year: 2024 Type of Measurement Device: Hach DR890

Operator-in-charge (Print): Ryan Dyck Other Operators (Print): Andrew Rempel

Daily Consumption Units: Cubic Meters

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	7:30am	AR	1.09	1.30	734
2	7:40am	AR	1.06	1.21	736
3	7:12am	AR	1.04	1.25	671
4	7:11am	AR	1.06	1.24	690
5	7:20am	JK	1.05	1.22	680
6	6:55am	KE	1.13	1.21	627
7	6:50am	KE	1.02	1.15	709
8	7:14am	AR	0.98	1.16	817
9	7:13am	AR	1.04	1.16	699
10	7:14am	AR	0.96	1.13	666
11	7:14am	AR	0.93	1.13	677
12	7:16am	AR	0.94	1.11	685
13	7:03am	SK	0.93	1.09	639
14	7:35	MV	0.94	1.08	740
15	7:15am	AR	0.99	1.17	772
16	7:30am	AR	1.14	1.21	697

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	7:18am	AR	1.02	1.22	636
18	7:12am	AR	0.98	1.19	665
19	7:18am	AR	1.00	1.20	654
20	7:03am	SK	0.95	1.15	627
21	7:10	MV	0.94	1.13	702
22	7:13am	AR	0.98	1.13	785
23	7:13am	AR	0.94	1.12	695
24	7:16am	AR	0.93	1.10	666
25	7:12am	AR	0.94	1.12	664
26	7:53am	AR	0.91	1.08	705
27	7:02am	SK	0.84	1.01	647
28	7:15am	MV	0.89	1.10	753
29	7:15am	AR	1.08	1.25	818
30	7:40am	AR	1.22	1.32	744
31					
				Total Monthly Consumption	21,000

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
2	7:57am	AR	0.00
9	7:29am	AR	0.00

Date	Time	Initials	Ammonia (mg/L)
16	7:45am	AR	0.00
23	7:30am	AR	0.00

Date	Time	Initials	Ammonia (mg/L)
30	7:56am	AR	0.00

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
2	7:15am	AR	329 Bronstone Drive	1.04	1.10
16	7:15am	AR	425-6th Ave South	0.98	1.15
30	7:25am	AR	33 Prestwick Street	0.85	0.96

Submitted by (Print): Andrew Rempel Signature: Andrew Rempel

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP **Water System Code:** 151.25

Month: May **Year:** 2024 **Type of Measurement Device:** Hach DR890

Operator-in-charge (Print): Ryan Dyck **Other Operators (Print):** Andrew Rempel

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	7:18am	JK	1.12	1.32	649
2	7:28am	JK	1.10	1.29	674
3	7:17am	JK	1.09	1.28	660
4	7:32am	SK	1.09	1.27	637
5	740	MV	1.12	1.26	774
6	7:15am	AR	1.02	1.22	899
7	7:16am	AR	0.99	1.20	727
8	7:15am	AR	0.98	1.19	677
9	7:16am	AR	1.01	1.20	756
10	7:13am	AR	0.99	1.19	792
	7:37am	SK	1.01	1.16	701
12	2:58pm	KE	0.95	1.15	1302
13	7:14am	AR	0.94	1.14	541
14	8:08am	AR	0.88	1.08	796
15	7:13am	AR	0.91	1.12	612
16	7:16am	AR	0.96	1.14	698

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	7:16am	AR	0.93	1.14	663
18	8:10am	KE	1.03	0.76	673
19	8:07	MV	1.09	1.00	652
20	1:30	MV	1.09	1.23	931
21	7:17am	JK	1.09	1.32	695
22	7:19am	JK	1.12	1.32	786
23	7:22am	JK	1.08	1.27	721
24	7:17am	AR	1.10	1.27	695
25	7:47am	SK	1.15	1.24	597
26	7:53am	KE	1.08	1.21	685
27	7:20am	AR	0.99	1.19	825
28	7:34am	JK	0.91	1.12	718
29	7:30am	JK	0.99	1.18	696
30	7:40am	JK	1.05	1.24	715
31	7:30am	JK	1.05	1.21	660
				Total Monthly Consumption	22,607

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
7	7:30am	AR	0.00
14	8:22am	AR	0.00

Date	Time	Initials	Ammonia (mg/L)
22	7:36am	JK	0.00
28	7:47am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
14	7:42am	AR	329 Bronstone Drive	0.88	1.02
28	7:10am	JK	425 6th Ave	0.98	1.17

Submitted by (Print): Andrew Rempel **Signature:** Andrew Rempel

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP Water System Code: 151.25

Month: June Year: 2024 Type of Measurement Device: Hach DR890

Operator-in-charge (Print): Ryan Dyck Other Operators (Print): Andrew Rempel

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	8:43	SK	1.09	1.25	762
2	3:00pm	MV	0.74	0.75	1031
3	7:20am	JK	1.07	1.27	499
4	7:20am	JK	1.08	1.23	700
5	7:25am	JK	1.03	1.27	696
6	7:20am	JK	1.06	1.28	673
7	7:35am	JB	1.04	1.37	737
8	7:16am	JB	1.10	1.28	658
9	6:19am	JH	1.09	1.27	805
10	7:17am	AR	1.08	1.32	963
	8:00am	JK	1.12	1.33	832
12	7:19am	JK	1.10	1.31	726
13	7:18am	JK	1.09	1.32	740
14	7:17am	AR	1.10	1.31	753
15	6:20am	JB	1.07	1.30	766
16	6:11am	JH	0.99	1.20	760

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	7:22am	JK	1.04	1.26	828
18	7:15am	AR	1.04	1.26	747
19	7:17am	AR	1.03	1.24	676
20	7:15am	JK	1.04	1.19	722
21	7:17am	JK	0.99	1.19	763
22	6:11am	JB	1.00	1.22	763
23	6:53am	LS	1.07	1.15	821
24	7:15am	JK	1.02	1.18	939
25	7:42am	JK	0.96	1.16	854
26	7:11am	AR	0.99	1.19	778
27	7:16am	JK	1.01	1.18	748
28	7:17am	JK	0.98	1.18	803
29	7:09am	JB	0.93	1.09	618
30	6:35am	JH	1.01	1.16	650
31					
				Total Monthly Consumption	22,911

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
4	7:35am	JK	0.00
11	8:18am	JK	0.01

Date	Time	Initials	Ammonia (mg/L)
18	7:27am	AR	0.00
25	8:00am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
11	7:30am	JK	808 Turnberry	0.87	0.95
25	7:15am	JK	801 Turnberry	0.96	1.09

Submitted by (Print): Andrew Rempel Signature: Andrew Rempel

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP Water System Code: 151.25

Month: July Year: 2024 Type of Measurement Device: Hach DR890

Operator-in-charge (Print): Ryan Dyck Other Operators (Print): Andrew Rempel

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	6:26am	JH	0.95	1.13	677
2	7:25am	JK	0.94	1.11	740
3	7:09am	LS	0.84	1.08	699
4	7:12am	AR	0.95	1.13	683
5	7:09am	AR	0.95	1.16	698
6	6:16am	JB	0.93	1.10	700
7	6:41am	LS	0.88	1.11	742
8	7:15am	JK	0.89	1.06	841
9	7:37am	JK	0.93	1.05	732
10	7:16am	JK	0.97	1.14	717
	7:15am	JK	0.97	1.15	785
12	7:50am	AR	1.03	1.12	848
13	6:13am	JB	1.03	1.29	715
14	9:34am	JH	1.04	1.20	783
15	7:10am	AR	1.05	1.27	795
16	10:32am	AR	1.08	1.24	790

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	7:25am	AR	1.00	1.19	548
18	7:15am	AR	1.06	1.26	672
19	7:16am	AR	1.05	1.24	760
20	6:27am	JB	1.09	1.17	759
21	7:05	LS	1.04	1.15	758
22	7:25am	AR	1.04	1.27	911
23	7:50am	JK	1.17	1.31	690
24	7:24am	AR	1.13	1.30	687
25	7:17am	JK	1.18	1.37	751
26	6:26am	JK	1.12	1.34	718
27	6:43am	JB	1.16	1.36	750
28	10:27am	JH	1.17	1.38	937
29	7:23am	AR	1.17	1.38	819
30	6:22am	JK	1.15	1.40	778
31	6:20am	JK	1.08	1.31	894
				Total Monthly Consumption	23,377

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
2	7:38am	JK	0.01
9	7:54am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)
15	7:25am	AR	0.01
23	7:55am	JK	0.01

Date	Time	Initials	Ammonia (mg/L)
30	6:37am	JK	0.01

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
9	7:10am	JK	425 6th Ave	0.86	1.00
23	7:25am	JK	425 6th Ave	0.99	1.17

Submitted by (Print): Andrew Rempel Signature: Andrew Rempel

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP Water System Code: 151.25

Month: Aug Year: 2024 Type of Measurement Device: Hach DR890

Operator-in-charge (Print): Ryan Dyck Other Operators (Print): Andrew Rempel, Jim Kehler

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	6:15am	JK	1.12	1.32	950
2	7:16am	JK	1.07	1.24	940
3	6:16am	JB	1.08	1.25	935
4	8:22am	JK	1.03	1.22	782
5	9:24am	JH	1.05	1.22	718
6	8:07am	JK	1.04	1.23	896
7	7:15am	JK	1.03	1.22	799
8	7:25am	JK	0.97	1.17	802
9	7:18am	JK	1.01	1.20	727
10	10:10am	KP	1.10	1.17	902
11	6:57	LS	0.94	1.15	805
12	7:20am	JK	1.02	1.20	1219
13	7:16am	JK	1.00	1.18	1061
14	7:43am	JK	1.01	1.18	1043
15	7:12am	AR	1.02	1.21	830
16	7:24am	JK	0.96	1.14	682

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	6:12	JB	0.92	1.07	656
18	7:33	LS	0.88	1.07	733
19	8:06am	JK	0.91	1.05	945
20	7:59am	JK	0.92	1.08	875
21	7:18am	JK	0.87	1.03	835
22	7:14am	JK	0.87	1.03	788
23	7:44am	AR	0.84	1.06	738
24	7:48am	MV	0.86	0.13	779
25	7:55	MV	0.84	0.94	788
26	7:17am	JK	1.01	1.21	934
27	7:17am	JK	1.06	1.28	807
28	7:15am	JK	1.04	1.22	741
29	7:15am	JK	1.05	1.23	757
30	7:15am	JK	1.07	1.27	726
31	7:50am	KP	1.08	1.28	712
				Total Monthly Consumption	25,905

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
6	8:20am	JK	0.01
13	7:33am	JK	0.01

Date	Time	Initials	Ammonia (mg/L)
20	8:15am	JK	0.01
27	7:30am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
6	7:45am	JK	61 Aberdeen	0.96	1.11
20	7:20am	JK	801 Turnberry	0.87	1.00

Submitted by (Print): Andrew Rempel Signature: Andrew Rempel

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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP Water System Code: 151.25

Month: Sept Year: 2024 Type of Measurement Device: Hach DR890

Operator-in-charge (Print): Ryan Dyck Other Operators (Print): Andrew Rempel, Jim Kehler

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	2:26pm	MV	1.02	0.91	950
2	9:54am	JH	1.16	1.39	557
3	7:35am	JK	1.24	1.46	821
4	7:48am	JK	1.26	1.47	929
5	7:27am	JK	1.25	1.45	752
6	7:22am	JK	1.21	1.44	764
7	8:15AM	KH	1.14	1.37	747
8	8:30AM	KH	1.20	1.39	761
9	7:20am	JK	1.20	1.40	1049
10	7:20am	JK	1.18	1.38	849
	7:15am	JK	1.19	1.40	833
12	7:19am	JK	1.20	1.40	791
13	7:21am	JK	1.14	1.34	831
14	8:11am	KE	0.93	1.08	789
15	8:45AM	KH	0.96	1.22	869
16	7:20am	JK	1.04	1.26	996

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	8:10am	JK	1.13	1.35	830
18	7:16am	JK	1.14	1.35	711
19	7:21am	AR	1.08	1.30	751
20	7:25am	AR	1.13	1.39	716
21	8:30 AM	KH	0.94	1.23	691
22	9:15 AM	KH	1.00	1.28	712
23	7:15am	JK	1.10	1.37	760
24	7:15am	JK	1.16	1.34	724
25	7:49am	JK	1.29	1.51	787
26	7:40am	JK	1.23	1.48	727
27	7:11am	AR	1.28	1.48	780
28	8:15am	KE	1.30	1.46	700
29	8:15AM	KH	1.09	1.35	710
30	8:56am	JK	1.08	1.26	759
31					
				Total Monthly Consumption	23,646

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
3	7:55am	JK	0.01
10	7:35am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)
17	8:00am	JK	0.01
24	7:30am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
3	7:15am	JK	425 6th Ave	1.15	1.32
17	7:50am	JK	329 Brookstone Dr	1.10	1.23

Submitted by (Print): Andrew Rempel Signature:

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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP Water System Code: 151.25

Month: Oct Year: 2024 Type of Measurement Device: Hach DR890

Operator-in-charge (Print): Ryan Dyck Other Operators (Print): Andrew Rempel, Jim Kehler

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	7:37am	JK	1.09	1.26	794
2	7:16am	JK	1.09	1.27	718
3	7:14am	JK	1.10	1.26	734
4	7:17am	JK	1.09	1.26	749
5	7:20am	AE	1.15	1.26	700
6	7:00AM	KH	1.06	1.30	705
7	7:13am	AR	1.09	1.28	864
8	7:15am	JK	1.16	1.34	717
9	7:14am	JK	1.12	1.30	727
10	7:30am	AR	1.13	1.32	745
	8:37am	AR	1.09	1.32	768
12	8:06am	KE	1.14	1.30	646
13	3:45pm	MV	1.31	1.49	1089
14	9:50am	KP	1.28	1.49	394
15	7:46am	JK	1.42	1.65	765
16	7:16am	JK	1.46	1.64	654

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	7:17am	JK	1.45	1.65	706
18	7:16am	AR	1.47	1.69	716
19	8:05AM	KH	1.31	1.58	655
20	8:55AM	KH	1.40	1.40	768
21	7:18am	JK	1.28	1.50	780
22	7:19am	JK	1.31	1.50	692
23	7:19am	JK	1.28	1.48	680
24	7:17am	JK	1.23	1.43	659
25	7:17am	AR	1.21	1.41	663
26	10:59am	KP	1.12	1.36	827
27	9:00 AM	KH	1.16	1.30	627
28	7:42am	JK	1.11	1.30	752
29	1:09PM	AR	1.10	1.29	857
30	7:16am	JK	1.09	1.27	454
31	7:18am	JK	1.07	1.24	669
				Total Monthly Consumption	22,269

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
1	7:51am	JK	0.00
8	7:29am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)
15	8:00am	JK	0.00
22	7:35am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)
28	8:06am	JK	0.00

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
1	7:15am	JK	425 6th Ave	1.08	1.22
15	7:26am	JK	61 Aberdeen	1.12	1.26
28	7:20am	JK	239 Kingshead	1.07	1.26

Submitted by (Print): Andrew Rempel Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
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Manitoba

onthly Chlorination Report

Water System Name: Spruce Drive WTP **Water System Code:** 151.25

Month: Nov **Year:** 2024 **Type of Measurement Device:** Hach DR890

Operator-in-charge (Print): Ryan Dyck **Other Operators (Print):** Andrew Rempel, Jim Kehler

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
1	10:35am	AR	1.04	1.22	737
2	8:10	MV	0.90	0.94	522
3	8:42	KH	0.85	1.11	742
4	7:13am	AR	0.95	1.19	782
5	7:17am	JK	1.01	1.28	685
6	7:17am	JK	1.09	1.38	667
7	7:17am	JK	1.08	1.28	672
8	7:18am	AR	1.04	1.27	646
9	6:55pm	KP	1.16	1.24	646
10	8:18Am	KH	1.05	1.28	730
	1:04pm	KE	1.07	1.18	925
12	7:41am	JK	1.09	1.27	575
13	7:15am	JK	1.14	1.27	655
14	7:15am	JK	1.10	1.27	662
15	7:24am	JK	1.04	1.22	649
16	8:28Am	KH	1.06	1.16	656

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Free	Total	
17	9:21AM	KH	0.54	0.69	750
18	7:20am	AR	1.25	1.44	752
19	7:46am	JK	1.24	1.39	693
20	7:17am	JK	1.12	1.33	670
21	7:16am	JK	1.08	1.25	707
22	7:27am	AR	1.07	1.24	656
23	9:38am	KE	1.13	1.26	700
24	9:23Am	KH	1.01	1.21	707
25	7:18am	JK	1.07	1.27	743
26	7:37am	JK	1.13	1.31	682
27	7:19am	JK	1.08	1.27	681
28	7:18am	JK	1.12	1.31	690
29	7:17am	JK	1.14	1.32	661
30	8:38AM	KH	1.09	1.25	661
31					
				Total Monthly Consumption	20,704

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
5	7:31am	JK	0.00
12	7:56am	JK	0.01

Date	Time	Initials	Ammonia (mg/L)
19	7:50am	JK	0.00
26	7:53am	JK	0.01

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)	
				Free	Total
12	7:10am	JK	425 6th Ave	1.04	1.22
26	7:25am	JK	329 Bronstone	1.10	1.24

mitted by (Print): Andrew Rempel **Signature:** Andrew Rempel

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Manitoba

Monthly Chlorination Report

Water System Name: Spruce Drive WTP Water System Code: 151.25

Month: Dec Year: 2024 Type of Measurement Device: Hach DR890

Operator-in-charge (Print): Ryan Dyck Other Operators (Print): Andrew Rempel, Jim Kehler

Daily Consumption Units: M^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L) Free	Residuals (mg/L) Total	Daily Consumption
1	9:23AM	KH	1.09	1.40	749
2	7:50am	JK	1.11	1.40	753
3	7:24am	JK	1.17	1.36	648
4	7:38am	JK	1.18	1.37	681
5	7:30am	JK	1.17	1.31	668
6	7:20am	JK	1.10	1.28	677
7	7:04am	KP	1.14	1.25	673
8	8:04am	MV	1.09	1.55	786
9	8:39am	AR	1.08	1.30	858
10	7:34am	JK	1.19	1.37	678
[illegible]	7:20am	JK	1.19	1.37	662
12	8:00am	JK	1.15	1.33	707
13	7:21am	JK	1.14	1.32	622
14	8:26AM	KH	1.17	1.30	659
15	9:09AM	KP	1.19	1.32	723
16	7:58am	JK	1.16	1.34	735

Date	Time	Initials	Residuals (mg/L) Free	Residuals (mg/L) Total	Daily Consumption
17	8:47am	AR	1.17	1.38	722
18	7:47am	JK	1.15	1.36	628
19	8:35am	JK	1.18	1.35	729
20	7:16am	AR	1.16	1.36	617
21	7:11am	KE	1.12	1.30	648
22	9:35AM	KH	1.13	1.30	825
23	7:50am	JK	1.16	1.33	672
24	7:05am	JK	1.16	1.35	675
25	8AM	RD	1.14	1.33	727
26	11:40am	AR	1.14	1.32	780
27	7:30am	JK	1.12	1.29	493
28	9:16AM	KH	1.04	1.24	708
29	8:27AM	KH	1.12	1.23	636
30	7:30am	JK	0.97	1.14	669
31	7:43am	JK	1.03	1.26	674
				Total Monthly Consumption	21,482

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
3	7:39am	JK	0.00
10	7:49am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)
17	9:00am	AR	0.00
23	8:05am	JK	0.00

Date	Time	Initials	Ammonia (mg/L)
31	8:02am	JK	0.01

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L) Free	Residuals (mg/L) Total
10	7:10am	JK	329 Bronstone Dr	1.11	1.29
23	7:25am	JK	329 Bronstone Dr	1.13	1.28

Submitted by (Print): Andrew Rempel Signature: Andrew Rempel

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
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Niverville WTP - Chlorine Report - January 2024

Water System Code: 151.25

Lead Operator: Ryan Dyck

Instrument Location: Distribution Chlorine

Other Operators: Andrew Rempel

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	10:00 AM	KP	1.24	1.06	0.97	0.96	0.89	288	0	100.0	701.7
2	7:20 AM	AR	1.22	1.03	0.95	1.02	0.94	288	0	100.0	681.1
3	7:15 AM	AR	1.24	1.04	0.97	1.03	0.96	288	0	100.0	660.7
4	7:21 AM	AR	1.21	1.02	1.03	1.04	0.87	288	0	100.0	705.5
5	7:33 AM	AR	1.12	0.91	1.02	0.94	0.82	288	0	100.0	641.3
6	8:42 AM	SK	1.11	0.93	0.86	0.88	0.83	288	0	100.0	705.3
7	7:55 AM	KE	0.84	0.75	0.88	0.90	0.82	288	0	100.0	782.5
8	8:35 AM	JK	1.13	0.96	0.90	0.88	0.72	288	0	100.0	683.2
9	9:06 AM	AR	1.18	1.00	0.88	0.95	0.84	288	0	100.0	657.3
10	7:15 AM	AR	1.17	0.97	1.05	1.00	0.89	288	0	100.0	641.6
11	9:36 AM	AR	1.25	1.05	0.94	1.02	0.87	288	0	100.0	658.7
12	8:39 AM	AR	1.27	1.08	1.11	1.10	0.95	288	0	100.0	642.6
13	6:58 AM	KE	1.29	1.09	1.12	1.09	1.04	288	0	100.0	762.6
14	7:04 AM	KE	1.26	1.07	1.06	1.04	1.00	288	0	100.0	795.4
15	7:20 AM	AR	1.20	1.02	1.00	1.03	0.85	288	0	100.0	699.3
16	8:12 AM	AR	1.25	1.07	1.02	1.02	0.84	288	0	100.0	661.3
17	7:22 AM	AR	1.21	0.99	1.03	1.03	0.84	288	0	100.0	706.9
18	7:17 AM	AR	1.27	1.08	1.04	1.02	0.92	288	0	100.0	689.2
19	8:27 AM	AR	1.26	1.06	0.99	1.04	0.95	288	0	100.0	654.8
20	7:03 AM	SK	1.20	1.04	1.07	1.08	0.89	288	0	100.0	732.4
21	6:55 AM	MV	1.22	1.07	1.09	1.09	0.81	288	0	100.0	777.4
22	7:40 AM	AR	1.32	1.09	1.11	1.12	0.99	288	0	100.0	666.0
23	8:34 AM	AR	1.40	1.19	1.19	1.18	0.91	288	0	100.0	673.9
24	7:18 AM	AR	1.42	1.20	1.15	1.16	0.97	288	0	100.0	667.8
25	7:25 AM	AR	1.34	1.11	1.15	1.17	0.96	288	0	100.0	683.7
26	7:25 AM	AR	1.39	1.20	1.19	1.18	0.84	288	0	100.0	689.0
27	7:05 AM	SK	1.40	1.24	1.10	1.12	1.08	288	0	100.0	735.6
28	2:05 PM	KE	1.31	1.08	1.11	1.11	0.97	288	0	100.0	767.3
29	7:15 AM	AR	1.33	1.10	1.09	1.08	0.94	288	0	100.0	663.1
30	7:19 AM	AR	1.28	1.10	1.05	1.05	1.01	288	0	100.0	651.0
31	7:19 AM	AR	1.29	1.06	1.04	1.07	0.87	288	0	100.0	671.2
							Monthly Total:	**8928**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - February 2024

Water System Code: 151.25

Instrument Location: Distribution Chlorine

Lead Operator: Ryan Dyck

Other Operators: Andrew Rempel

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	7:19 AM	AR	1.29	1.09	1.08	1.03	0.87	288	0	100.0	679.0
2	6:19 AM	AR	1.25	1.02	0.92	1.01	0.89	288	0	100.0	674.1
3	6:33 AM	SK	1.17	0.99	1.08	1.07	0.86	288	0	100.0	749.4
4	7:20 AM	MV	1.23	1.00	0.98	1.01	0.95	288	0	100.0	804.7
5	8:43 AM	AR	1.22	1.02	0.98	1.01	0.84	288	0	100.0	709.1
6	6:15 AM	AR	1.28	1.09	1.05	1.05	0.84	288	0	100.0	669.1
7	7:49 AM	AR	1.33	1.08	1.01	1.07	1.00	288	0	100.0	689.9
8	7:12 AM	AR	1.28	1.06	1.09	1.11	0.88	288	0	100.0	687.7
9	7:18 AM	JK	1.30	1.11	1.11	1.07	0.89	288	0	100.0	665.6
10	8:47 AM	SK	1.22	1.05	1.06	1.04	0.99	288	0	100.0	721.8
11	7:09 AM	MV	1.15	0.97	1.07	1.05	0.80	288	0	100.0	790.9
12	7:15 AM	AR	1.22	1.05	1.00	1.00	0.96	288	0	100.0	677.7
13	7:17 AM	AR	1.17	0.94	0.99	1.00	0.83	288	0	100.0	671.0
14	7:20 AM	AR	1.11	0.94	1.01	0.94	0.81	288	0	100.0	676.5
15	7:17 AM	AR	1.23	1.03	0.91	1.01	0.89	288	0	100.0	679.5
16	7:20 AM	AR	1.27	1.01	1.08	1.04	1.00	288	0	100.0	688.5
17	7:05 AM	SK	1.16	1.01	1.00	1.01	0.97	288	0	100.0	709.7
18	6:57 AM	KE	1.22	1.05	1.04	1.02	0.99	288	0	100.0	675.3
19	3:50 PM	AR	0.90	0.76	1.06	1.04	1.00	288	0	100.0	731.6
20	7:40 AM	AR	1.26	1.08	1.01	1.05	1.00	288	0	100.0	638.4
21	7:18 AM	AR	1.25	1.03	1.06	1.06	1.04	288	0	100.0	641.3
22	7:17 AM	AR	1.20	1.00	1.06	1.06	1.01	288	0	100.0	655.5
23	7:16 AM	AR	1.13	0.95	0.96	0.92	0.80	288	0	100.0	639.0
24	7:10 AM	SK	0.94	0.85	0.83	0.75	0.66	288	0	100.0	713.6
25	7:50 AM	MV	0.78	0.66	0.65	0.66	0.65	288	0	100.0	784.8
26	8:05 AM	AR	0.78	0.64	0.69	0.70	0.66	288	0	100.0	642.3
27	7:27 AM	JK	0.81	0.66	0.73	0.79	0.71	288	0	100.0	667.0
28	7:18 AM	AR	0.94	0.77	0.84	0.80	0.75	288	0	100.0	650.2
29	7:16 AM	AR	1.00	0.83	0.77	0.85	0.72	288	0	100.0	659.6
							Monthly Total	**8352**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - March 2024

Water System Code: 151.25

Instrument Location: Distribution Chlorine

Lead Operator: Ryan Dyck

Other Operators: Andrew Rempel

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	7:15 AM	AR	1.16	0.98	0.95	0.97	0.95	288	0	100.0	639.3
2	7:07 AM	SK	1.20	1.00	0.96	0.97	0.94	288	0	100.0	707.2
3	8:10 AM	MV	1.15	1.09	0.97	0.99	0.94	288	0	100.0	745.4
4	7:40 AM	JK	1.24	1.01	1.03	1.02	0.99	288	0	100.0	681.4
5	8:05 AM	JK	1.23	1.06	0.98	1.04	0.98	288	0	100.0	629.0
6	7:22 AM	JK	1.21	1.03	1.08	1.12	1.06	288	0	100.0	644.0
7	9:43 AM	JK	1.34	1.14	1.21	1.16	1.12	288	0	100.0	647.3
8	6:10 AM	JK	1.43	1.22	1.19	1.20	1.15	288	0	100.0	635.3
9	9:18 AM	SK	1.54	1.35	1.27	1.31	1.22	288	0	100.0	706.4
10	8:04 AM	MV	1.61	1.35	1.35	1.31	1.26	288	0	100.0	733.9
11	7:24 AM	AR	1.57	1.33	1.25	1.32	1.24	275	0	100.0	651.7
12	7:14 AM	AR	1.56	1.34	1.35	1.35	1.30	288	0	100.0	655.4
13	7:16 AM	AR	1.51	1.27	1.28	1.28	1.24	288	0	100.0	654.7
14	7:19 AM	AR	1.47	1.26	1.27	1.27	1.22	288	0	100.0	658.4
15	7:55 AM	AR	1.47	1.23	1.25	1.25	1.20	288	0	100.0	657.9
16	9:02 AM	SK	1.32	1.16	1.28	1.20	1.18	288	0	100.0	739.0
17	3:25 PM	MV	1.46	1.24	1.21	1.22	1.20	288	0	100.0	776.8
18	7:17 AM	AR	1.45	1.22	1.21	1.21	1.16	288	0	100.0	677.6
19	7:45 AM	AR	1.33	1.11	1.15	1.18	1.15	288	0	100.0	654.9
20	7:12 AM	AR	1.42	1.19	1.17	1.20	1.17	288	0	100.0	683.4
21	7:16 AM	AR	1.44	1.22	1.19	1.21	1.17	288	0	100.0	674.4
22	7:18 AM	AR	1.44	1.23	1.19	1.21	1.17	288	0	100.0	649.3
23	9:00 AM	SK	1.25	1.10	1.22	1.22	1.18	288	0	100.0	703.6
24	3:00 PM	KE	1.43	1.25	1.18	1.18	1.14	288	0	100.0	724.5
25	7:13 AM	AR	1.34	1.11	1.16	1.14	1.10	288	0	100.0	675.0
26	7:13 AM	AR	1.40	1.18	1.11	1.16	1.12	288	0	100.0	640.6
27	8:08 AM	AR	1.34	1.16	1.14	1.15	1.13	288	0	100.0	633.0
28	10:39 AM	AR	1.34	1.13	1.16	1.17	1.10	288	0	100.0	639.1
29	8:28 AM	JK	1.35	1.14	1.16	1.16	1.12	288	0	100.0	667.1
30	11:34 AM	KP	1.32	1.24	1.14	1.13	1.10	288	0	100.0	652.5
31	8:12 AM	MV	1.19	1.00	1.10	1.11	1.05	288	0	100.0	749.1
							Monthly Total:	**8915**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - April 2024

Water System Code: 151.25

Lead Operator: Ryan Dyck

Instrument Location: Distribution Chlorine

Other Operators: Andrew Rempel

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
			Total Chlorine	Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
				Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	7:30 AM	AR	1.30	1.09	1.05	1.08	1.04	288	0	100.0	724.9
2	7:40 AM	AR	1.21	1.06	1.08	1.09	1.07	288	0	100.0	692.7
3	7:12 AM	AR	1.25	1.04	1.09	1.04	1.00	288	0	100.0	705.7
4	7:11 AM	AR	1.24	1.06	0.99	1.05	0.98	288	0	100.0	692.7
5	7:20 AM	JK	1.22	1.05	1.08	1.08	1.05	288	0	100.0	680.6
6	6:55 AM	KE	1.21	1.13	1.07	1.05	1.02	288	0	100.0	723.7
7	6:50 AM	KE	1.15	1.02	1.05	1.03	1.00	288	0	100.0	792.7
8	7:14 AM	AR	1.16	0.98	1.00	1.02	0.99	288	0	100.0	714.7
9	7:13 AM	AR	1.16	1.04	0.99	1.02	0.97	288	0	100.0	669.7
10	7:14 AM	AR	1.13	0.96	1.02	0.98	0.95	288	0	100.0	682.6
11	7:14 AM	AR	1.13	0.93	0.99	0.93	0.90	288	0	100.0	700.0
12	7:16 AM	AR	1.11	0.94	0.90	0.94	0.89	288	0	100.0	686.5
13	7:03 AM	SK	1.09	0.93	0.97	0.99	0.95	288	0	100.0	746.1
14	7:35 AM	MV	1.08	0.94	0.97	0.97	0.95	288	0	100.0	769.7
15	7:15 AM	AR	1.17	0.99	0.96	0.97	0.90	288	0	100.0	696.2
16	7:30 AM	AR	1.21	1.14	1.00	1.09	0.98	288	0	100.0	660.9
17	7:18 AM	AR	1.22	1.02	1.10	1.05	1.01	288	0	100.0	673.1
18	7:12 AM	AR	1.19	0.98	1.01	1.03	1.01	288	0	100.0	666.1
19	7:18 AM	AR	1.20	1.00	1.05	1.03	0.99	288	0	100.0	675.6
20	7:03 AM	SK	1.15	0.95	1.01	1.00	0.98	288	0	100.0	713.4
21	7:10 AM	MV	1.13	0.94	0.99	1.01	0.98	288	0	100.0	768.4
22	7:13 AM	AR	1.13	0.98	1.04	0.98	0.93	288	0	100.0	705.3
23	7:13 AM	AR	1.12	0.94	0.94	0.94	0.92	288	0	100.0	669.7
24	7:16 AM	AR	1.10	0.93	0.93	0.97	0.93	288	0	100.0	689.5
25	7:12 AM	AR	1.12	0.94	0.95	0.93	0.88	288	0	100.0	680.9
26	7:53 AM	AR	1.08	0.91	0.90	0.91	0.89	288	0	100.0	707.8
27	7:05 AM	SK	1.01	0.84	0.92	0.93	0.90	288	0	100.0	772.7
28	7:15 AM	MV	1.10	0.89	0.97	0.99	0.95	288	0	100.0	801.9
29	7:15 AM	AR	1.25	1.08	1.03	1.14	1.00	288	0	100.0	734.5
30	7:40 AM	AR	1.32	1.22	1.23	1.21	1.19	288	0	100.0	685.5
							Monthly Total	**8640**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - May 2024

Water System Code: 151.25

Lead Operator: Ryan Dyck

Instrument Location: Distribution Chlorine

Other Operators: Andrew Rempel

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	7:18 AM	JK	1.32	1.12	1.19	1.16	0.99	288	0	100.0	667.2
2	7:28 AM	JK	1.29	1.10	1.10	1.13	1.10	288	0	100.0	688.5
3	7:17 AM	JK	1.28	1.09	1.08	1.09	1.07	288	0	100.0	662.5
4	7:32 AM	SK	1.27	1.09	1.07	1.07	1.03	288	0	100.0	777.9
5	7:40 AM	MV	1.26	1.12	1.05	1.05	1.00	288	0	100.0	899.3
6	7:15 AM	AR	1.22	1.02	0.96	1.01	0.99	288	0	100.0	739.0
7	7:16 AM	AR	1.20	0.99	1.01	1.02	1.00	288	0	100.0	682.7
8	7:15 AM	AR	1.19	0.98	1.02	1.01	0.97	288	0	100.0	770.2
9	7:16 AM	AR	1.20	1.01	0.98	0.99	0.94	288	0	100.0	788.6
10	7:13 AM	AR	1.19	0.99	0.98	0.99	0.98	288	0	100.0	748.8
11	7:37 AM	SK	1.16	1.01	0.97	0.96	0.92	288	0	100.0	843.7
12	2:58 PM	KE	1.15	0.95	0.94	0.94	0.93	288	0	100.0	987.4
13	7:14 AM	AR	1.14	0.94	0.92	0.92	0.88	288	0	100.0	785.0
14	8:08 AM	AR	1.08	0.88	0.86	0.89	0.86	288	0	100.0	675.7
15	7:13 AM	AR	1.12	0.91	0.87	0.90	0.87	288	0	100.0	684.0
16	7:16 AM	AR	1.14	0.96	0.93	0.95	0.92	288	0	100.0	695.1
17	7:16 AM	AR	1.14	0.93	0.97	0.97	0.94	288	0	100.0	679.5
18	8:10 AM	KE	0.76	1.03	0.99	1.01	0.95	288	0	100.0	688.4
19	8:07 AM	MV	1.00	1.09	1.02	1.03	1.00	288	0	100.0	686.7
20	1:30 PM	MV	1.23	1.09	1.07	1.07	1.01	288	0	100.0	933.8
21	7:17 AM	JK	1.32	1.09	1.09	1.08	1.05	288	0	100.0	789.6
22	7:19 AM	JK	1.32	1.12	1.04	1.10	1.03	288	0	100.0	740.5
23	7:22 AM	JK	1.27	1.08	1.12	1.13	1.12	288	0	100.0	725.9
24	7:17 AM	AR	1.27	1.10	1.13	1.12	1.10	288	0	100.0	632.0
25	7:47 AM	SK	1.24	1.15	1.09	1.11	1.08	288	0	100.0	684.1
26	7:53 AM	KE	1.21	1.08	1.11	1.12	1.08	288	0	100.0	822.8
27	7:20 AM	AR	1.19	0.99	1.08	1.02	0.97	288	0	100.0	719.5
28	7:34 AM	JK	1.12	0.91	1.00	1.00	0.95	288	0	100.0	694.3
29	7:30 AM	JK	1.18	0.99	1.01	1.01	0.99	288	0	100.0	738.6
30	7:40 AM	JK	1.24	1.05	1.00	1.01	0.97	288	0	100.0	677.9
31	7:30 AM	JK	1.21	1.05	1.02	1.04	1.00	288	0	100.0	724.4
							Monthly Total	**8928**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - June 2024

Water System Code: 151.25

Lead Operator: Ryan Dyck

Instrument Location: Distribution Chlorine

Other Operators: Andrew Rempel

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
			Total Chlorine	Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
				Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	8:43 AM	SK	1.25	1.09	1.03	1.03	0.99	288	0	100.0	749.4
2	3:00 PM	MV	1.15	1.14	1.04	1.04	1.00	288	0	100.0	846.2
3	7:20 AM	JK	1.27	1.07	1.07	1.05	1.02	288	0	100.0	737.9
4	7:20 AM	JK	1.23	1.08	1.01	1.06	1.01	288	0	100.0	670.8
5	7:25 AM	JK	1.27	1.03	1.08	1.08	1.05	288	0	100.0	701.8
6	7:20 AM	JK	1.28	1.06	1.09	1.08	1.04	288	0	100.0	723.4
7	7:35 AM	JB	1.37	1.04	1.10	1.05	1.03	288	0	100.0	733.6
8	7:16 AM	JB	1.28	1.10	1.05	1.06	1.04	288	0	100.0	814.0
9	6:19 AM	JH	1.27	1.09	1.06	1.05	1.03	288	0	100.0	942.8
10	7:17 AM	AR	1.32	1.08	1.05	1.06	1.04	288	0	100.0	823.6
11	8:00 AM	JK	1.33	1.12	1.07	1.11	1.06	288	0	100.0	753.4
12	7:19 AM	JK	1.31	1.10	1.12	1.12	1.10	288	0	100.0	766.7
13	7:18 AM	JK	1.32	1.09	1.14	1.13	1.09	288	0	100.0	743.5
14	7:17 AM	AR	1.31	1.10	1.10	1.11	1.08	288	0	100.0	833.9
15	6:20 AM	JB	1.30	1.07	1.10	1.11	1.09	288	0	100.0	788.8
16	6:11 AM	JH	1.20	0.99	1.12	1.08	1.06	288	0	100.0	779.6
17	7:22 AM	JK	1.26	1.04	1.06	-	-	-	-	-	
18	7:15 AM	AR	1.26	1.04	1.08	1.08	1.05	288	0	100.0	678.8
19	7:17 AM	AR	1.24	1.03	1.04	1.06	1.04	288	0	100.0	722.4
20	7:15 AM	JK	1.19	1.04	1.06	1.06	1.04	288	0	100.0	786.0
21	7:17 AM	JK	1.19	0.99	1.05	1.05	1.03	288	0	100.0	822.0
22	6:11 AM	JB	1.22	1.00	1.05	1.05	1.02	288	0	100.0	835.3
23	6:53 AM	LS	1.15	1.07	1.06	1.05	1.02	288	0	100.0	885.9
24	7:15 AM	JK	1.18	1.02	1.01	1.02	1.00	288	0	100.0	865.1
25	7:42 AM	JK	1.16	0.96	1.02	1.04	1.01	288	0	100.0	806.4
26	7:11 AM	AR	1.19	0.99	1.01	1.01	0.99	288	0	100.0	766.8
27	7:16 AM	JK	1.18	1.01	1.00	1.02	0.95	288	0	100.0	834.2
28	7:17 AM	JK	1.18	0.98	1.03	1.02	0.99	288	0	100.0	647.9
29	7:09 AM	JB	1.09	0.93	0.99	0.99	0.97	288	0	100.0	666.5
30	6:35 AM	JH	1.16	1.01	1.00	1.01	0.97	288	0	100.0	699.0
							Monthly Total	**8352**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

CORRECTIVE ACTION REPORT

Manitoba
Water Stewardship

WATER SYSTEM: Spruce Drive WTP WATER SYSTEM CODE: 151.25

LOCATION OF NON-COMPLIANCE INCIDENT (ex. Water Plant): Automated Records

OPERATOR: Andrew Rempel Signature: Andrew Rempel

TYPE OF NON-COMPLIANCE INCIDENT:

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

INITIAL TEST RESULTS: DATE: June 17 2024

DESCRIPTION OF CORRECTIVE ACTIONS TAKEN (attach additional sheets if required):

On June 17 we recieved an alarm labeled "Database Unavailable Alarm - No Trending Data." This was the first time we had experienced this alarm so I reached out to Delco who programmed our WTP.
They worked all day to resolve the issue but due to this, no automated records were recorded on June 17. The issue was resolved at about 7:00pm on June 17.
There were two times during the day that did not record any data, though probes were still working and fuctioning normally. If chlorine would have dropped to 0.55, we still would have recieved an alarm.
Chlorine trending data attached.

TEST RESULTS AFTER CORRECTIVE ACTIONS: DATE:

(attach laboratory results if applicable)

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER ON SITUATIONS REQUIRING IMMEDIATE REPORTING.

DISTRIBUTION:

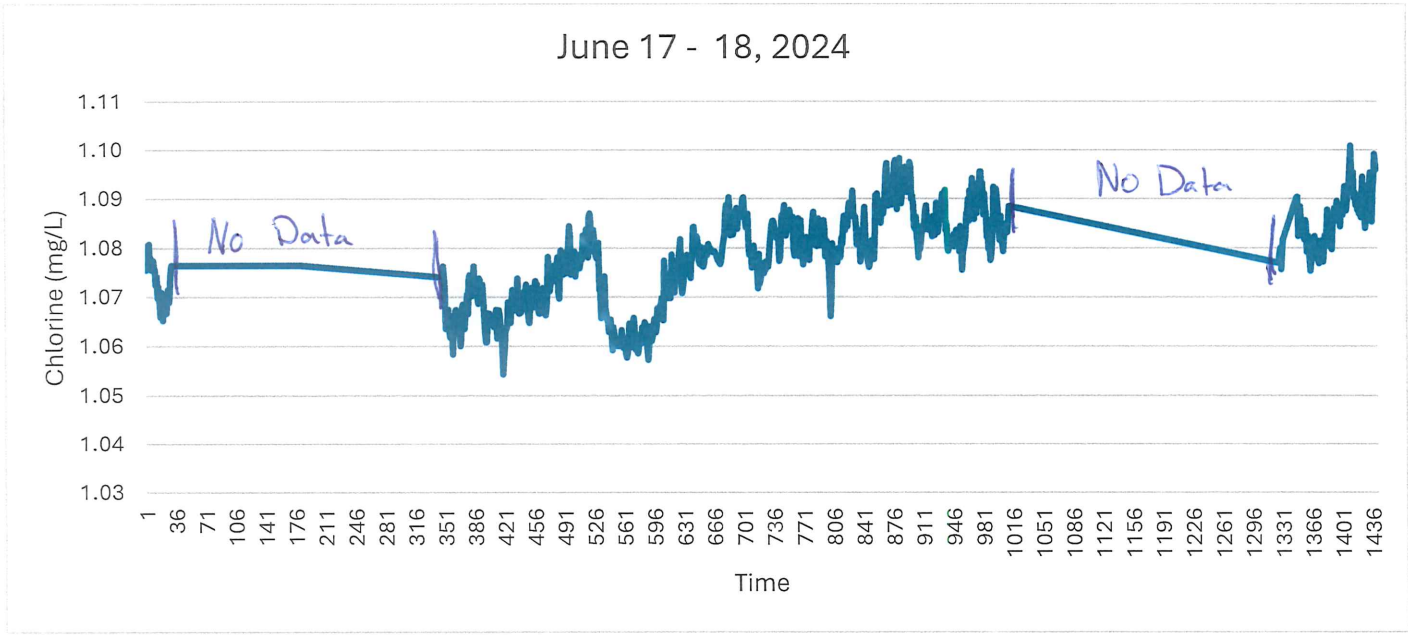
FORWARD THE ORIGINAL TO YOUR DRINKING WATER OFFICER WITH YOUR MONTHLY DISINFECTION OR TURBIDITY MONITORING REPORT

RETAIN A COPY FOR YOUR RECORDS

Contact your Drinking Water Officer with any comments, questions or concerns.

June 17 – June 18, 2024 - Trending Data

Chlorine Level



Niverville WTP - Chlorine Report - July 2024

Water System Code: 151.25

Instrument Location: Distribution Chlorine

Lead Operator: Ryan Dyck

Other Operators: Andrew Rempel, Jim Kehler

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	6:26 AM	JH	1.13	0.95	0.99	0.99	0.95	288	0	100.0	711.6
2	7:25 AM	JK	1.11	0.94	0.98	0.97	0.93	288	0	100.0	711.4
3	7:09 AM	LS	1.08	0.84	0.99	0.92	0.86	288	0	100.0	688.4
4	7:12 AM	AR	1.13	0.95	0.87	0.93	0.86	288	0	100.0	716.6
5	7:09 AM	AR	1.16	0.95	0.97	0.98	0.95	288	0	100.0	746.9
6	6:16 AM	JB	1.10	0.93	0.95	0.95	0.90	288	0	100.0	750.1
7	6:41 AM	LS	1.11	0.88	0.90	0.90	0.88	288	0	100.0	831.2
8	7:15 AM	JK	1.06	0.89	0.90	0.89	0.88	288	0	100.0	725.8
9	7:37 AM	JK	1.05	0.93	0.88	0.91	0.87	288	0	100.0	714.7
10	7:16 AM	JK	1.14	0.97	0.95	0.97	0.91	288	0	100.0	815.8
11	7:15 AM	JK	1.15	0.97	0.99	1.00	0.98	288	0	100.0	803.2
12	7:50 AM	AR	1.12	1.03	1.02	1.02	0.97	288	0	100.0	829.8
13	6:13 AM	JB	1.29	1.03	1.03	1.03	1.01	288	0	100.0	696.5
14	9:34 AM	JH	1.20	1.04	1.01	1.03	0.99	288	0	100.0	857.1
15	7:10 AM	AR	1.27	1.05	1.04	1.05	1.01	288	0	100.0	715.3
16	10:32 AM	AR	1.24	1.08	1.02	1.02	1.00	288	0	100.0	657.0
17	7:25 AM	AR	1.19	1.00	1.04	1.03	1.00	288	0	100.0	688.0
18	7:15 AM	AR	1.26	1.06	1.04	1.03	1.01	288	0	100.0	765.7
19	7:16 AM	AR	1.24	1.05	1.04	1.01	1.00	288	0	100.0	806.3
20	6:27 AM	JB	1.17	1.09	0.99	1.02	0.99	288	0	100.0	774.4
21	7:05 AM	LS	1.15	1.04	1.01	1.02	0.99	288	0	100.0	831.6
22	7:25 AM	AR	1.27	1.04	1.05	1.06	0.99	288	0	100.0	761.7
23	7:50 AM	JK	1.31	1.17	1.10	1.11	1.09	288	0	100.0	680.7
24	7:24 AM	AR	1.30	1.13	1.12	1.12	1.08	288	0	100.0	772.5
25	7:17 AM	JK	1.37	1.18	1.14	1.16	1.11	288	0	100.0	763.2
26	6:26 AM	JK	1.34	1.12	1.16	1.15	1.13	288	0	100.0	752.2
27	6:43 AM	JB	1.36	1.16	1.14	1.16	1.12	288	0	100.0	820.2
28	10:27 AM	JH	1.38	1.17	1.22	1.20	1.17	288	0	100.0	904.3
29	7:23 AM	AR	1.38	1.17	1.15	1.17	1.15	288	0	100.0	856.2
30	6:22 AM	JK	1.40	1.15	1.17	1.16	1.13	288	0	100.0	899.5
31	6:20 AM	JK	1.31	1.08	1.13	1.12	1.09	288	0	100.0	938.2
							Monthly Total	**8928**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - August 2024

Water System Code: 151.25

Instrument Location: Distribution Chlorine

Lead Operator: Ryan Dyck

Other Operators: Andrew Rempel, Jim Kehler

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	6:15 AM	JK	1.32	1.12	1.10	1.09	1.05	288	0	100.0	924.5
2	7:16 AM	JK	1.24	1.07	1.08	1.07	1.05	288	0	100.0	993.2
3	6:16 AM	JB	1.25	1.08	1.04	1.04	1.01	288	0	100.0	748.4
4	8:22 AM	JK	1.22	1.03	1.05	1.03	1.01	288	0	100.0	695.3
5	9:24 AM	JH	1.22	1.05	1.01	1.01	0.96	288	0	100.0	900.7
6	8:07 AM	JK	1.23	1.04	1.02	1.02	0.99	288	0	100.0	867.3
7	7:15 AM	JK	1.22	1.03	0.99	0.99	0.97	288	0	100.0	822.6
8	7:25 AM	JK	1.17	0.97	1.00	1.00	0.96	288	0	100.0	726.9
9	7:18 AM	JK	1.20	1.01	0.98	0.98	0.97	288	0	100.0	845.2
10	10:10 AM	KP	1.17	1.10	0.98	0.98	0.97	288	0	100.0	918.4
11	6:57 AM	LS	1.15	0.94	1.01	0.99	0.97	288	0	100.0	1180.2
12	7:20 AM	JK	1.20	1.02	0.97	0.97	0.93	288	0	100.0	1091.6
13	7:16 AM	JK	1.18	1.00	0.97	0.96	0.93	288	0	100.0	1040.3
14	7:43 AM	JK	1.18	1.01	0.94	0.95	0.93	288	0	100.0	890.6
15	7:12 AM	AR	1.21	1.02	1.00	0.96	0.93	288	0	100.0	691.2
16	7:24 AM	JK	1.14	0.96	0.93	0.92	0.90	288	0	100.0	702.8
17	6:12 AM	JB	1.07	0.92	0.91	0.91	0.89	288	0	100.0	737.3
18	7:33 AM	LS	1.07	0.88	0.89	0.88	0.82	288	0	100.0	862.7
19	8:06 AM	JK	1.05	0.91	0.86	0.87	0.84	288	0	100.0	935.2
20	7:59 AM	JK	1.08	0.92	0.89	0.88	0.86	288	0	100.0	827.4
21	7:18 AM	JK	1.03	0.87	0.85	0.85	0.83	288	0	100.0	846.0
22	7:14 AM	JK	1.03	0.87	0.86	0.86	0.84	288	0	100.0	732.0
23	7:44 AM	AR	1.06	0.84	0.87	0.88	0.84	288	0	100.0	797.6
24	7:48 AM	MV	1.13	0.86	0.94	0.95	0.89	288	0	100.0	831.9
25	7:55 AM	MV	0.94	0.84	0.96	0.98	0.95	288	0	100.0	889.1
26	7:17 AM	JK	1.21	1.01	1.01	1.01	0.96	288	0	100.0	876.1
27	7:17 AM	JK	1.28	1.06	1.04	1.02	0.98	288	0	100.0	739.4
28	7:15 AM	JK	1.22	1.04	0.98	1.03	0.95	288	0	100.0	792.0
29	7:15 AM	JK	1.23	1.05	1.07	1.07	1.02	288	0	100.0	715.9
30	7:15 AM	JK	1.27	1.07	1.07	1.07	1.04	288	0	100.0	753.9
31	7:50 AM	KP	1.28	1.08	1.09	1.12	1.07	288	0	100.0	698.4
							Monthly Total	**8928**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - September 2024

Water System Code: 151.25

Lead Operator: Ryan Dyck

Instrument Location: Distribution Chlorine

Other Operators: Andrew Rempel, Jim Kehler

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	2:26 PM	MV	0.91	1.02	1.17	1.16	1.13	288	0	100.0	715.3
2	9:54 AM	JH	1.39	1.16	1.19	1.20	1.14	288	0	100.0	919.4
3	7:35 AM	JK	1.46	1.24	1.25	1.25	1.23	288	0	100.0	890.1
4	7:48 AM	JK	1.47	1.26	1.22	1.22	1.18	288	0	100.0	803.4
5	7:27 AM	JK	1.45	1.25	1.21	1.21	1.18	288	0	100.0	771.3
6	7:22 AM	JK	1.44	1.21	1.19	1.19	1.16	288	0	100.0	778.1
7	8:15 AM	KH	1.37	1.14	1.19	1.20	1.18	288	0	100.0	785.5
8	8:30 AM	KH	1.39	1.20	1.20	1.20	1.18	288	0	100.0	1024.4
9	7:20 AM	JK	1.40	1.20	1.20	1.19	1.15	288	0	100.0	890.5
10	7:20 AM	JK	1.38	1.18	1.21	1.18	1.14	288	0	100.0	826.2
11	7:15 AM	JK	1.40	1.19	1.16	1.15	1.13	288	0	100.0	829.0
12	7:19 AM	JK	1.40	1.20	1.18	1.15	1.12	288	0	100.0	839.9
13	7:21 AM	JK	1.34	1.14	1.11	1.12	1.09	288	0	100.0	806.8
14	8:11 AM	KE	1.08	0.93	1.11	1.09	1.05	288	0	100.0	873.7
15	8:45 AM	KH	1.22	0.96	1.09	1.11	1.08	288	0	100.0	984.9
16	7:20 AM	JK	1.26	1.04	1.13	1.08	1.04	288	0	100.0	861.2
17	8:10 AM	JK	1.35	1.13	1.08	1.08	1.05	288	0	100.0	758.4
18	7:16 AM	JK	1.35	1.14	1.08	1.14	1.07	288	0	100.0	765.0
19	7:21 AM	AR	1.30	1.08	1.17	1.12	1.07	288	0	100.0	733.0
20	7:25 AM	AR	1.39	1.13	1.07	1.11	1.07	288	0	100.0	704.3
21	8:30 AM	KH	1.23	0.94	1.12	1.12	1.08	288	0	100.0	686.9
22	9:15 AM	KH	1.28	1.00	1.17	1.14	1.12	288	0	100.0	809.5
23	7:15 AM	JK	1.37	1.10	1.11	1.13	1.09	288	0	100.0	748.8
24	7:15 AM	JK	1.34	1.16	1.17	1.21	1.14	288	0	100.0	752.7
25	7:49 AM	JK	1.51	1.29	1.26	1.25	1.21	288	0	100.0	763.3
26	7:40 AM	JK	1.48	1.23	1.24	1.24	1.19	288	0	100.0	806.7
27	7:11 AM	AR	1.48	1.28	1.24	1.20	1.14	288	0	100.0	718.3
28	8:05 AM	KE	1.46	1.30	1.14	1.13	1.11	288	0	100.0	731.1
29	8:15 AM	KH	1.35	1.09	1.11	1.10	1.07	288	0	100.0	723.3
30	8:56 AM	JK	1.26	1.08	1.06	1.05	1.00	288	0	100.0	839.2
							Monthly Total	**8640**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature:

Niverville WTP - Chlorine Report - October 2024

Water System Code: 151.25

Lead Operator: Ryan Dyck

Instrument Location: Distribution Chlorine

Other Operators: Andrew Rempel, Jim Kehler

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	7:37 AM	JK	1.26	1.09	1.02	1.03	0.98	288	0	100.0	727.3
2	7:16 AM	JK	1.27	1.09	1.07	1.06	1.03	288	0	100.0	768.7
3	7:14 AM	JK	1.26	1.10	1.06	1.06	1.04	288	0	100.0	753.1
4	7:17 AM	JK	1.26	1.09	1.07	1.08	1.05	288	0	100.0	733.9
5	7:20 AM	KE	1.26	1.15	1.11	1.11	1.09	288	0	100.0	739.8
6	7:00 AM	KH	1.30	1.06	1.10	1.11	1.08	288	0	100.0	816.8
7	7:13 AM	AR	1.28	1.09	1.12	1.12	1.07	288	0	100.0	750.3
8	7:15 AM	JK	1.34	1.16	1.11	1.13	1.10	288	0	100.0	716.0
9	7:14 AM	JK	1.30	1.12	1.13	1.14	1.08	288	0	100.0	760.2
10	7:30 AM	AR	1.32	1.13	1.17	1.14	1.09	288	0	100.0	733.5
11	8:37 AM	AR	1.32	1.09	1.10	1.10	1.07	288	0	100.0	730.3
12	8:06 AM	KE	1.30	1.14	1.08	1.12	1.06	288	0	100.0	741.9
13	3:45 PM	MV	1.49	1.31	1.21	1.20	1.16	288	0	100.0	711.1
14	9:50 AM	KP	1.49	1.28	1.23	1.26	1.21	288	0	100.0	789.8
15	7:46 AM	JK	1.65	1.42	1.34	1.40	1.28	288	0	100.0	709.8
16	7:16 AM	JK	1.64	1.46	1.45	1.44	1.39	288	0	100.0	715.9
17	7:17 AM	JK	1.65	1.45	1.43	1.44	1.39	288	0	100.0	719.9
18	7:16 AM	AR	1.69	1.47	1.47	1.45	1.41	288	0	100.0	676.5
19	8:05 AM	KH	1.58	1.31	1.42	1.40	1.37	288	0	100.0	752.1
20	8:55 AM	KH	1.40	1.16	1.37	1.37	1.34	288	0	100.0	820.2
21	7:18 AM	JK	1.50	1.28	1.36	1.27	1.20	288	0	100.0	699.4
22	7:19 AM	JK	1.50	1.31	1.22	1.20	1.19	288	0	100.0	686.4
23	7:19 AM	JK	1.48	1.28	1.21	1.19	1.16	288	0	100.0	678.9
24	7:17 AM	JK	1.43	1.23	1.18	1.18	1.16	288	0	100.0	686.0
25	7:17 AM	AR	1.41	1.21	1.16	1.15	1.12	288	0	100.0	689.3
26	10:59 AM	KP	1.36	1.12	1.14	1.13	1.09	288	0	100.0	756.3
27	9:00 AM	KH	1.30	1.16	1.09	1.09	1.06	288	0	100.0	765.2
28	7:42 AM	JK	1.30	1.11	1.07	1.07	1.05	288	0	100.0	697.5
29	1:09 PM	AR	1.29	1.10	1.06	1.06	1.02	288	0	100.0	660.4
30	7:16 AM	JK	1.27	1.09	1.03	1.03	1.01	288	0	100.0	667.0
31	7:18 AM	JK	1.24	1.07	1.01	1.02	1.00	288	0	100.0	626.2
							Monthly Total	**8928**	**0**		
							Compliance with Chlorine Standard:		**100.0%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

Niverville WTP - Chlorine Report - November 2024

Water System Code: 151.25

Instrument Location: Distribution Chlorine

Lead Operator: Ryan Dyck

Other Operators: Andrew Rempel, Jim Kehler

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	10:35 AM	AR	1.22	1.04	1.01	1.01	0.98	288	0	100.0	666.0
2	8:10 AM	MV	0.94	0.90	0.99	0.99	0.96	288	0	100.0	711.7
3	8:42 AM	KH	1.11	0.85	0.99	1.00	0.98	288	0	100.0	816.0
4	7:13 AM	AR	1.19	0.95	1.02	0.96	0.92	288	0	100.0	700.9
5	7:17 AM	JK	1.28	1.01	0.92	0.99	0.87	288	0	100.0	666.7
6	7:17 AM	JK	1.28	1.09	1.04	1.05	1.03	288	0	100.0	700.0
7	7:17 AM	JK	1.28	1.08	1.03	1.07	0.00	288	4	98.6	656.5
8	7:18 AM	AR	1.27	1.04	1.11	1.06	1.00	288	0	100.0	685.0
9	6:55 AM	KP	1.24	1.10	1.04	1.01	0.96	288	0	100.0	714.9
10	8:18 AM	KH	1.23	1.05	0.95	0.94	0.91	288	0	100.0	709.4
11	1:04 PM	KE	1.18	1.07	0.90	0.91	0.89	288	0	100.0	786.5
12	7:41 AM	JK	1.27	1.09	0.90	0.99	0.89	288	0	100.0	693.0
13	7:15 AM	JK	1.27	1.14	1.00	1.09	0.99	288	0	100.0	671.8
14	7:15 AM	JK	1.27	1.10	1.14	1.13	1.11	288	0	100.0	662.9
15	7:24 AM	JK	1.22	1.04	1.10	1.09	1.04	288	0	100.0	655.2
16	8:28 AM	KH	1.16	1.06	1.03	0.95	0.75	288	0	100.0	725.8
17	9:21 AM	KH	0.69	0.59	0.60	0.77	0.42	288	25	91.3	808.8
18	7:20 AM	AR	1.44	1.25	1.20	1.21	1.14	288	0	100.0	689.0
19	7:46 AM	JK	1.39	1.24	1.19	1.16	1.11	288	0	100.0	701.8
20	7:17 AM	JK	1.33	1.12	1.11	1.09	1.02	288	0	100.0	712.7
21	7:16 AM	JK	1.25	1.08	1.02	1.02	0.99	288	0	100.0	675.2
22	7:27 AM	AR	1.24	1.07	1.01	1.04	0.98	288	0	100.0	642.7
23	9:38 AM	KE	1.26	1.13	1.07	1.07	1.04	288	0	100.0	743.0
24	9:23 AM	KH	1.21	1.01	1.07	1.08	1.05	288	0	100.0	796.1
25	7:18 AM	JK	1.27	1.07	1.10	1.12	1.06	288	0	100.0	699.6
26	7:37 AM	JK	1.31	1.13	1.10	1.11	1.08	288	0	100.0	691.8
27	7:18 AM	JK	1.27	1.08	1.09	1.11	1.06	288	0	100.0	694.0
28	7:18 AM	JK	1.31	1.12	1.14	1.14	1.12	288	0	100.0	684.4
29	7:17 AM	JK	1.32	1.14	1.11	1.12	1.10	288	0	100.0	646.8
30	8:38 AM	KH	1.25	1.09	1.13	1.14	1.09	288	0	100.0	739.6
							Monthly Total	**8640**	**29**		
							Compliance with Chlorine Standard:		**99.7%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

CORRECTIVE ACTION REPORT

Manitoba
Water Stewardship

WATER SYSTEM: Spruce Drive WTP **WATER SYSTEM CODE:** 151.25

LOCATION OF NON-COMPLIANCE INCIDENT (ex. Water Plant): Water Treatment Plant

OPERATOR: Andrew Rempel **Signature:** Andrew Rempel

TYPE OF NON-COMPLIANCE INCIDENT:

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

INITIAL TEST RESULTS: 0.00 free **DATE:** November 7 /2024

DESCRIPTION OF CORRECTIVE ACTIONS TAKEN (attach additional sheets if required):

On November 7 I cleaned and calibrated our online chlorine analyzer. This caused 4 reading to be below standard.

TEST RESULTS AFTER CORRECTIVE ACTIONS: [ ] **DATE:** _____

(attach laboratory results if applicable)

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER ON SITUATIONS REQUIRING IMMEDIATE REPORTING.

DISTRIBUTION:

FORWARD THE ORIGINAL TO YOUR DRINKING WATER OFFICER WITH YOUR MONTHLY DISINFECTION OR TURBIDITY MONITORING REPORT

RETAIN A COPY FOR YOUR RECORDS

Contact your Drinking Water Officer with any comments, questions or concerns.

CORRECTIVE ACTION REPORT

Manitoba
Water Stewardship

WATER SYSTEM: Spruce Drive WTP **WATER SYSTEM CODE:** 151.25

LOCATION OF NON-COMPLIANCE INCIDENT (ex. Water Plant): Water Treatment Plant

OPERATOR: Andrew Rempel **Signature:** [signature]

TYPE OF NON-COMPLIANCE INCIDENT:

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

INITIAL TEST RESULTS: 0.42 Free **DATE:** November 17 2024

DESCRIPTION OF CORRECTIVE ACTIONS TAKEN (attach additional sheets if required):

On November 17 I recieved a message that the free chlorine level was a lot lower than the day previous. I contacted our person who was oncall to check the chlorine system. After diagnostics, he found a fitting that had been cracked and leaking chlorine. This was repaired. Because chlorine was not being injected for a period of time, a dip test of the water in the reservoir was taken. The water was reading 0.42 free. Chorine was then added directly into the reservoir through six hatches to bring the chlorine back above 0.50 free.

Unfortunately 25 readings were below 0.50 before the levels came back up.

TEST RESULTS AFTER CORRECTIVE ACTIONS: 1.25 free **DATE:** November 18/24

(attach laboratory results if applicable)

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER ON SITUATIONS REQUIRING IMMEDIATE REPORTING.

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Contact your Drinking Water Officer with any comments, questions or concerns.

Niverville WTP - Chlorine Report - December 2024

Water System Code: 151.25

Lead Operator: Ryan Dyck

Instrument Location: Distribution Chlorine

Other Operators: Andrew Rempel, Jim Kehler

Day of Month	Time	Operator Initials	Chlorine, ppm								Daily Usage (m^3)
				Distribution Chlorine							
				Operator Verification		Automation Records		Number of Free Chlorine Readings			
			Total Chlorine	Free Chlorine Handheld	Free Chlorine Display	Average	Minimum	Total	Below Standard	% Within Standard	
1	9:23 AM	KH	1.40	1.09	1.19	1.18	1.17	288	0	100.0	783.8
2	7:50 AM	JK	1.40	1.11	1.17	1.13	1.07	288	0	100.0	681.9
3	7:24 AM	JK	1.36	1.17	1.13	1.16	1.08	288	0	100.0	682.8
4	7:38 AM	JK	1.37	1.18	1.18	1.17	1.14	288	0	100.0	674.6
5	7:30 AM	JK	1.31	1.17	1.14	1.13	1.09	288	0	100.0	700.2
6	7:20 AM	JK	1.28	1.10	1.12	1.13	1.11	288	0	100.0	720.6
7	7:04 AM	KP	1.25	1.14	1.11	1.11	1.07	288	0	100.0	752.6
8	8:04 AM	MV	1.55	1.09	1.12	1.13	1.09	288	0	100.0	834.4
9	8:39 AM	AR	1.30	1.08	1.15	1.15	1.13	288	0	100.0	735.1
10	7:34 AM	JK	1.37	1.19	1.15	1.16	1.13	288	0	100.0	672.9
11	7:20 AM	JK	1.37	1.19	1.18	1.19	1.15	288	0	100.0	695.3
12	8:00 AM	JK	1.33	1.15	1.16	1.17	1.14	288	0	100.0	670.8
13	7:21 AM	JK	1.32	1.14	1.16	1.16	1.13	288	0	100.0	663.6
14	8:26 AM	KH	1.30	1.12	1.18	1.17	1.15	288	0	100.0	716.3
15	9:09 AM	KP	1.32	1.19	1.14	1.16	1.13	288	0	100.0	756.9
16	7:58 AM	JK	1.34	1.16	1.17	1.18	1.14	288	0	100.0	694.1
17	8:47 AM	AR	1.38	1.17	1.20	1.18	1.16	288	0	100.0	682.0
18	7:47 AM	JK	1.36	1.15	1.16	1.17	1.15	288	0	100.0	701.2
19	8:35 AM	JK	1.35	1.18	1.19	1.18	1.16	288	0	100.0	681.6
20	7:16 AM	AR	1.36	1.16	1.17	1.19	1.17	288	0	100.0	698.4
21	7:11 AM	KE	1.30	1.12	1.18	1.18	1.15	288	0	100.0	742.7
22	9:35 AM	KH	1.30	1.13	1.17	1.17	1.13	288	0	100.0	742.8
23	7:50 AM	JK	1.33	1.16	1.19	1.19	1.17	288	0	100.0	713.3
24	7:05 AM	JK	1.35	1.16	1.16	1.02	0.00	288	21	92.7	722.7
25	8:00 AM	RD	1.33	1.14	1.06	1.11	1.04	288	0	100.0	643.6
26	11:40 AM	AR	1.32	1.14	1.13	1.13	1.10	288	0	100.0	678.8
27	7:30 AM	JK	1.29	1.12	1.12	1.12	1.08	288	0	100.0	655.3
28	9:16 AM	KH	1.24	1.04	1.13	1.12	1.10	288	0	100.0	691.1
29	8:27 AM	KH	1.23	1.12	1.09	1.09	1.07	288	0	100.0	695.4
30	7:30 AM	JK	1.14	0.97	1.09	1.01	0.97	288	0	100.0	685.2
31	7:43 AM	JK	1.26	1.03	0.98	1.02	0.97	288	0	100.0	697.6
							Monthly Total	**8928**	**21**		
							Compliance with Chlorine Standard:		**99.8%**		

Submitted by (Print): Andrew Rempel

Signature: Andrew Rempel

CORRECTIVE ACTION REPORT

Manitoba
Water Stewardship

WATER SYSTEM: Spruce Drive WTP **WATER SYSTEM CODE:** 151.25

LOCATION OF NON-COMPLIANCE INCIDENT (ex. Water Plant): Water Plant

OPERATOR: Andrew Rempel **Signature:** [signature]

TYPE OF NON-COMPLIANCE INCIDENT:

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

INITIAL TEST RESULTS: 0.00 free **DATE:** Dec 24/24

DESCRIPTION OF CORRECTIVE ACTIONS TAKEN (attach additional sheets if required):

On December 24/24 we shut down flow to the chlorine analyzer to install a back flow preventer on the distribution header feeding the Spruce Drive WTP building. Water was turned back on after the instalation 21 readings were below the standard because of this.

TEST RESULTS AFTER CORRECTIVE ACTIONS: [ ] **DATE:** _____

(attach laboratory results if applicable)

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER ON SITUATIONS REQUIRING IMMEDIATE REPORTING.

DISTRIBUTION:

FORWARD THE ORIGINAL TO YOUR DRINKING WATER OFFICER WITH YOUR MONTHLY DISINFECTION OR TURBIDITY MONITORING REPORT

RETAIN A COPY FOR YOUR RECORDS

Contact your Drinking Water Officer with any comments, questions or concerns.

2024 Bi-Weekly Sampling

Date	Address	T.C.	E.C	Free Ammonia	Chlorine (mg/L) Free	Chlorine (mg/L) Total
Janaury 9th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.00	1.18
	309 Bronstone Drive	< 1	< 1		0.78	0.88
January 23rd	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.14	1.40
	827 Turnberry Cove	< 1	< 1		0.89	1.00
February 6th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.09	1.28
	17 Gullane Street	< 1	< 1		0.94	1.08
February 20th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.08	1.26
	329 Bronstone Drive	< 1	< 1		1.01	1.14
March 5th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.06	1.23
	175 Breckenridge Drive	< 1	< 1		1.01	1.19
March 19th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.11	1.33
	810 Turnberry Cove	< 1	< 1		0.92	0.94
April 2nd	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.06	1.21
	329 Bronstone Drive	< 1	< 1		1.04	1.10
April 16th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.14	1.21
	425 - 6th Ave South	< 1	< 1		0.98	1.15
April 30th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.22	1.32
	33 Prestwick Street	< 1	< 1		0.85	0.96
May 14th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	0.88	1.08
	329 Bronstone Drive	< 1	< 1		0.88	1.02

May 28th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	0.91	1.12
	425 - 6th Ave South	< 1	< 1		0.98	1.17
June 11th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.12	1.33
	808 Turnberry Cove	< 1	< 1		0.87	0.95
June 25th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	0.96	1.16
	801 Turnberry Cove	< 1	< 1		0.96	1.09
July 9th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	0.93	1.05
	425 - 6th Ave South	< 1	< 1		0.86	1.00
July 23rd	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.17	1.31
	425 - 6th Ave South	< 1	< 1		0.99	1.17
August 7th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.04	1.23
	61 Aberdeen Drive	< 1	< 1		0.96	1.11
August 20th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	0.92	1.08
	801 Turnberry Cove	< 1	< 1		0.87	1.00
September 3rd	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.24	1.46
	425 - 6th Ave South	< 1	< 1		1.15	1.32
September 17th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.13	1.35
	329 Bronstone Drive	< 1	< 1		1.10	1.23
October 1st	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.09	1.26
	425 - 6th Ave South	< 1	< 1		1.08	1.22
October 15th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.42	1.65
	61 Aberdeen Drive	< 1	< 1		1.12	1.26

October 28th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.11	1.30
	239 Kingshead Road	< 1	< 1		1.07	1.26
November 12th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.09	1.27
	425 - 6th Ave South	< 1	< 1		1.04	1.22
November 26th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.13	1.31
	329 Bronstone Drive	< 1	< 1		1.10	1.24
December 10th	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.00	1.19	1.37
	329 Bronstone Drive	< 1	< 1		1.11	1.29
December 23rd	Raw Water	< 1	< 1		0.00	0.00
	Water Treatment Plant	< 1	< 1	0.01	1.16	1.33
	329 Bronstone Drive	< 1	< 1		1.13	1.28

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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2413356**	Page	: 1 of 10
Client	: **Manitoba Conservation & Climate**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Marc Balcaen	Account Manager	: Sheriza Rajack-Ahamed
Address	: 14 Fultz Boulevard Winnipeg MB Canada R3Y 0L6	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 204 945 5776	Telephone	: +1 204 255 9720
Project	: Niverville Spruce Drive - PWS 151.25	Date Samples Received	: 28-May-2024 09:46
PO	: ----	Date Analysis Commenced	: 28-May-2024
C-O-C number	: ----	Issue Date	: 03-Jun-2024 11:56
Sampler	: ----		
Site	: Niverville Spruce Drive - PWS 151.25 Op Id: 42862		
Quote number	: 2024 WTP Chemistry		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Gerry Vera	Analyst	Organics, Winnipeg, Manitoba
Rhovee Guevarra		Inorganics, Winnipeg, Manitoba
Rhovee Guevarra		Metals, Winnipeg, Manitoba

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
NIVERVILLE SPRUCE DRIVE 1 - RAW	Water	Solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	CDWG	AO	591 mg/L	500 mg/L
	Water	Turbidity	For systems that use groundwater, turbidity should generally be below 1.0 NTU. Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU.	CDWG	AO	1.49 NTU	1 NTU
	Water	Iron, total	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	CDWG	AO	312 µg/L	300 µg/L

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	Description
-	no units
%	percent
% T/cm	% transmittance per centimetre
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Drinking Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	NIVERVILLE SPRUCE DRIVE 1 - RAW	NIVERVILLE SPRUCE DRIVE 2 - TREATED	NIVERVILLE SPRUCE DRIVE 3 - DISTRIBUTION @ MID POINT	----	----	----	----
				Sampling date/time	28-May-2024 08:00	28-May-2024 08:10	28-May-2024 08:17	----	----	----	----
				Sub-Matrix	Drinking Water	Drinking Water	Drinking Water	----	----	----	----
					WP2413356-001	WP2413356-002	WP2413356-003	--------	--------	--------	--------
Physical Tests											
Absorbance, UV (@ 254nm)	----	E404/WP	AU/cm		0.0280	0.0130	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP	mg/L		282	155	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP	mg/L		<1.0	<1.0	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP	mg/L		<1.0	<1.0	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP	mg/L		282	155	----	----	----	----	----
Colour, true	----	E329/WP	CU		<5.0	<5.0	----	----	----	----	----
Conductivity	----	E100/WP	µS/cm		1120	653	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		145	76.2	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/WP	-		0.311	-0.254	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/WP	-		1.06	0.508	----	----	----	----	----
pH	----	E108/WP	pH units		8.12	8.02	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162-L/WP	mg/L		591	330	----	----	----	----	----
Turbidity	----	E121/WP	NTU		1.49	<0.10	----	----	----	----	----
Transmittance, UV (@ 254nm)	----	E404/WP	% T/cm		93.8	97.0	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/WP	mg/L		0.664	<0.0050	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/WP	mg/L		0.191	<0.050	----	----	----	----	----
Chloride	16887-00-6	E235.Cl-L/WP	mg/L		182	111	----	----	----	----	----
Fluoride	16984-48-8	E235.F/WP	mg/L		0.853	0.445	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/WP	mg/L		<0.0050	0.125	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/WP	mg/L		<0.0010	<0.0010	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	mg/L		34.7	18.6	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/WP	mg/L		1.31	1.68	----	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		1.71	0.81	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Drinking Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	NIVERVILLE SPRUCE DRIVE 1 - RAW	NIVERVILLE SPRUCE DRIVE 2 - TREATED	NIVERVILLE SPRUCE DRIVE 3 - DISTRIBUTION @ MID POINT	----	----	----	----
				Sampling date/time	28-May-2024 08:00	28-May-2024 08:10	28-May-2024 08:17	----	----	----	----
				Sub-Matrix	Drinking Water	Drinking Water	Drinking Water	----	----	----	----
					WP2413356-001	WP2413356-002	WP2413356-003	--------	--------	--------	--------
Ion Balance											
Anion sum	----	EC101A/WP	meq/L		11.5	6.65	----	----	----	----	----
Cation sum (total)	----	EC101A/WP	meq/L		10.3	5.81	----	----	----	----	----
Ion balance (cations/anions)	----	EC101A/WP	%		89.6	87.4	----	----	----	----	----
Ion balance (APHA)	----	EC101A/WP	%		-5.50	-6.74	----	----	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/WP	µg/L		<3.0	<3.0	3.1	----	----	----	----
Antimony, total	7440-36-0	E420/WP	µg/L		<0.10	<0.10	<0.10	----	----	----	----
Arsenic, total	7440-38-2	E420/WP	µg/L		3.03	1.76	1.75	----	----	----	----
Barium, total	7440-39-3	E420/WP	µg/L		48.2	24.2	23.7	----	----	----	----
Beryllium, total	7440-41-7	E420/WP	µg/L		<0.020	<0.020	Not Detected	----	----	----	----
Bismuth, total	7440-69-9	E420/WP	µg/L		<0.050	Not Detected	<0.050	----	----	----	----
Boron, total	7440-42-8	E420/WP	µg/L		453	442	442	----	----	----	----
Cadmium, total	7440-43-9	E420/WP	µg/L		<0.0050	<0.0050	0.0072	----	----	----	----
Calcium, total	7440-70-2	E420/WP	µg/L		30200	16500	16600	----	----	----	----
Cesium, total	7440-46-2	E420/WP	µg/L		<0.010	<0.010	<0.010	----	----	----	----
Chromium, total	7440-47-3	E420/WP	µg/L		Not Detected	Not Detected	<0.50	----	----	----	----
Cobalt, total	7440-48-4	E420/WP	µg/L		0.12	<0.10	<0.10	----	----	----	----
Copper, total	7440-50-8	E420/WP	µg/L		3.92	15.7	7.99	----	----	----	----
Iron, total	7439-89-6	E420/WP	µg/L		312	<10	<10	----	----	----	----
Lead, total	7439-92-1	E420/WP	µg/L		<0.050	<0.050	0.291	----	----	----	----
Lithium, total	7439-93-2	E420/WP	µg/L		43.8	24.4	24.7	----	----	----	----
Magnesium, total	7439-95-4	E420/WP	µg/L		16900	8500	8920	----	----	----	----
Manganese, total	7439-96-5	E420/WP	µg/L		7.70	2.36	1.64	----	----	----	----
Molybdenum, total	7439-98-7	E420/WP	µg/L		3.77	2.02	2.02	----	----	----	----
Nickel, total	7440-02-0	E420/WP	µg/L		<0.50	<0.50	0.51	----	----	----	----
Phosphorus, total	7723-14-0	E420/WP	µg/L		<50	213	212	----	----	----	----

Analytical Results Evaluation

Matrix: **Drinking Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	NIVERVILLE SPRUCE DRIVE 1 - RAW	NIVERVILLE SPRUCE DRIVE 2 - TREATED	NIVERVILLE SPRUCE DRIVE 3 - DISTRIBUTION @ MID POINT	----	----	----	----
				Sampling date/time	28-May-2024 08:00	28-May-2024 08:10	28-May-2024 08:17	----	----	----	----
				Sub-Matrix	Drinking Water	Drinking Water	Drinking Water	----	----	----	----
				WP2413356-001	WP2413356-002	WP2413356-003	--------	--------	--------	--------	
Total Metals											
Potassium, total	7440-09-7	E420/WP	µg/L	9060	5050	5010	----	----	----	----	
Rubidium, total	7440-17-7	E420/WP	µg/L	4.53	2.71	2.64	----	----	----	----	
Selenium, total	7782-49-2	E420/WP	µg/L	<0.050	<0.050	<0.050	----	----	----	----	
Silicon, total	7440-21-3	E420/WP	µg/L	4990	2610	2600	----	----	----	----	
Silver, total	7440-22-4	E420/WP	µg/L	<0.010	<0.010	Not Detected	----	----	----	----	
Sodium, total	7440-23-5	E420/WP	µg/L	163000	95500	97200	----	----	----	----	
Strontium, total	7440-24-6	E420/WP	µg/L	476	254	249	----	----	----	----	
Sulfur, total	7704-34-9	E420/WP	µg/L	12200	6230	5890	----	----	----	----	
Tellurium, total	13494-80-9	E420/WP	µg/L	<0.20	<0.20	<0.20	----	----	----	----	
Thallium, total	7440-28-0	E420/WP	µg/L	<0.010	Not Detected	Not Detected	----	----	----	----	
Thorium, total	7440-29-1	E420/WP	µg/L	<0.10	Not Detected	Not Detected	----	----	----	----	
Tin, total	7440-31-5	E420/WP	µg/L	<0.10	<0.10	0.15	----	----	----	----	
Titanium, total	7440-32-6	E420/WP	µg/L	<0.30	Not Detected	<0.30	----	----	----	----	
Tungsten, total	7440-33-7	E420/WP	µg/L	Not Detected	Not Detected	Not Detected	----	----	----	----	
Uranium, total	7440-61-1	E420/WP	µg/L	0.234	0.128	0.121	----	----	----	----	
Vanadium, total	7440-62-2	E420/WP	µg/L	<0.50	<0.50	<0.50	----	----	----	----	
Zinc, total	7440-66-6	E420/WP	µg/L	<3.0	5.1	27.6	----	----	----	----	
Zirconium, total	7440-67-7	E420/WP	µg/L	<0.20	<0.20	Not Detected	----	----	----	----	
Volatile Organic Compounds											
Benzene	71-43-2	E611D/WP	mg/L	<0.00050	----	----	----	----	----	----	
Bromodichloromethane	75-27-4	E611D/WP	mg/L	<0.00050	----	----	----	----	----	----	
Bromoform	75-25-2	E611D/WP	mg/L	<0.00050	----	----	----	----	----	----	
Chloroform	67-66-3	E611D/WP	mg/L	<0.00050	----	----	----	----	----	----	
Dibromochloromethane	124-48-1	E611D/WP	mg/L	<0.00050	----	----	----	----	----	----	
Dichloromethane	75-09-2	E611D/WP	mg/L	<0.0010	----	----	----	----	----	----	
Ethylbenzene	100-41-4	E611D/WP	mg/L	<0.00050	----	----	----	----	----	----	

Analytical Results Evaluation

Matrix: **Drinking Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	NIVERVILLE SPRUCE DRIVE 1 - RAW	NIVERVILLE SPRUCE DRIVE 2 - TREATED	NIVERVILLE SPRUCE DRIVE 3 - DISTRIBUTION @ MID POINT	----	----	----	----
				Sampling date/time	28-May-2024 08:00	28-May-2024 08:10	28-May-2024 08:17	----	----	----	----
				Sub-Matrix	Drinking Water	Drinking Water	Drinking Water	----	----	----	----
					WP2413356-001	WP2413356-002	WP2413356-003	--------	--------	--------	--------
Volatile Organic Compounds											
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WP	mg/L		<0.00050	----	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WP	mg/L		<0.00050	----	----	----	----	----	----
Toluene	108-88-3	E611D/WP	mg/L		<0.00050	----	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WP	mg/L		<0.00050	----	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WP	mg/L		<0.00050	----	----	----	----	----	----
Trichloroethylene	79-01-6	E611D/WP	mg/L		<0.00050	----	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WP	mg/L		<0.00040	----	----	----	----	----	----
Xylene, o-	95-47-6	E611D/WP	mg/L		<0.00030	----	----	----	----	----	----
Xylenes, total	1330-20-7	E611D/WP	mg/L		<0.00050	----	----	----	----	----	----
BTEX, total	----	E611D/WP	mg/L		<0.0010	----	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WP	%		87.0	----	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WP	%		102	----	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	CDWG AO	CDWG MAC	CDWG OG
Physical Tests					
Absorbance, UV (@ 254nm)	----	AU/cm	--	--	--
Alkalinity, bicarbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, carbonate (as CaCO3)	----	mg/L	--	--	--
Alkalinity, hydroxide (as CaCO3)	----	mg/L	--	--	--
Alkalinity, total (as CaCO3)	----	mg/L	--	--	--
Colour, true	----	CU	**15 CU**	--	--
Conductivity	----	µS/cm	--	--	--
Hardness (as CaCO3), from total Ca/Mg	----	mg/L	--	--	--
Langelier index (@ 4°C)	----	-	--	--	--
Langelier index (@ 60°C)	----	-	--	--	--
pH	----	pH units	--	--	**7 - 10.5 pH units**
Solids, total dissolved [TDS]	----	mg/L	**500 mg/L**	--	--
Transmittance, UV (@ 254nm)	----	% T/cm	--	--	--
Turbidity	----	NTU	**1 NTU**	--	--
Anions and Nutrients					
Ammonia, total (as N)	7664-41-7	mg/L	--	--	--
Bromide	24959-67-9	mg/L	--	--	--
Chloride	16887-00-6	mg/L	**250 mg/L**	--	--
Fluoride	16984-48-8	mg/L	--	**1.5 mg/L**	--
Nitrate (as N)	14797-55-8	mg/L	--	**10 mg/L**	--
Nitrite (as N)	14797-65-0	mg/L	--	**1 mg/L**	--
Sulfate (as SO4)	14808-79-8	mg/L	**500 mg/L**	--	--
Organic / Inorganic Carbon					
Carbon, dissolved organic [DOC]	----	mg/L	--	--	--
Carbon, total organic [TOC]	----	mg/L	--	--	--
Ion Balance					
Anion sum	----	meq/L	--	--	--
Cation sum (total)	----	meq/L	--	--	--
Ion balance (APHA)	----	%	--	--	--
Ion balance (cations/anions)	----	%	--	--	--
Total Metals					
Aluminum, total	7429-90-5	µg/L	--	**2900 µg/L**	**100 µg/L**
Antimony, total	7440-36-0	µg/L	--	**6 µg/L**	--
Arsenic, total	7440-38-2	µg/L	--	**10 µg/L**	--
Barium, total	7440-39-3	µg/L	--	**2000 µg/L**	--
Beryllium, total	7440-41-7	µg/L	--	--	--

Analyte	CAS Number	Unit	CDWG AO	CDWG MAC	CDWG OG
Total Metals - Continued					
Bismuth, total	7440-69-9	µg/L	--	--	--
Boron, total	7440-42-8	µg/L	--	**5000 µg/L**	--
Cadmium, total	7440-43-9	µg/L	--	**7 µg/L**	--
Calcium, total	7440-70-2	µg/L	--	--	--
Cesium, total	7440-46-2	µg/L	--	--	--
Chromium, total	7440-47-3	µg/L	--	**50 µg/L**	--
Cobalt, total	7440-48-4	µg/L	--	--	--
Copper, total	7440-50-8	µg/L	**1000 µg/L**	**2000 µg/L**	--
Iron, total	7439-89-6	µg/L	**300 µg/L**	--	--
Lead, total	7439-92-1	µg/L	--	**5 µg/L**	--
Lithium, total	7439-93-2	µg/L	--	--	--
Magnesium, total	7439-95-4	µg/L	--	--	--
Manganese, total	7439-96-5	µg/L	**20 µg/L**	**120 µg/L**	--
Molybdenum, total	7439-98-7	µg/L	--	--	--
Nickel, total	7440-02-0	µg/L	--	--	--
Phosphorus, total	7723-14-0	µg/L	--	--	--
Potassium, total	7440-09-7	µg/L	--	--	--
Rubidium, total	7440-17-7	µg/L	--	--	--
Selenium, total	7782-49-2	µg/L	--	**50 µg/L**	--
Silicon, total	7440-21-3	µg/L	--	--	--
Silver, total	7440-22-4	µg/L	--	--	--
Sodium, total	7440-23-5	µg/L	**200000 µg/L**	--	--
Strontium, total	7440-24-6	µg/L	--	**7000 µg/L**	--
Sulfur, total	7704-34-9	µg/L	--	--	--
Tellurium, total	13494-80-9	µg/L	--	--	--
Thallium, total	7440-28-0	µg/L	--	--	--
Thorium, total	7440-29-1	µg/L	--	--	--
Tin, total	7440-31-5	µg/L	--	--	--
Titanium, total	7440-32-6	µg/L	--	--	--
Tungsten, total	7440-33-7	µg/L	--	--	--
Uranium, total	7440-61-1	µg/L	--	**20 µg/L**	--
Vanadium, total	7440-62-2	µg/L	--	--	--
Zinc, total	7440-66-6	µg/L	**5000 µg/L**	--	--
Zirconium, total	7440-67-7	µg/L	--	--	--
Volatile Organic Compounds					
Benzene	71-43-2	mg/L	--	**0.005 mg/L**	--
Bromodichloromethane	75-27-4	mg/L	--	--	--
Bromoform	75-25-2	mg/L	--	--	--
BTEX, total	----	mg/L	--	--	--

Analyte	*CAS Number*	*Unit*	CDWG AO	CDWG MAC	CDWG OG				
Volatile Organic Compounds - Continued									
Chloroform	67-66-3	mg/L	--	--	--				
Dibromochloromethane	124-48-1	mg/L	--	--	--				
Dichloromethane	75-09-2	mg/L	--	**0.05 mg/L**	--				
Ethylbenzene	100-41-4	mg/L	**0.0016 mg/L**	**0.14 mg/L**	--				
Methyl-tert-butyl ether [MTBE]	1634-04-4	mg/L	**0.015 mg/L**	--	--				
Tetrachloroethylene	127-18-4	mg/L	--	**0.01 mg/L**	--				
Toluene	108-88-3	mg/L	**0.024 mg/L**	**0.06 mg/L**	--				
Trichloroethane, 1,1,1-	71-55-6	mg/L	--	--	--				
Trichloroethane, 1,1,2-	79-00-5	mg/L	--	--	--				
Trichloroethylene	79-01-6	mg/L	--	**0.005 mg/L**	--				
Xylene, m+p-	179601-23-1	mg/L	--	--	--				
Xylene, o-	95-47-6	mg/L	--	--	--				
Xylenes, total	1330-20-7	mg/L	**0.02 mg/L**	**0.09 mg/L**	--				
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	%	--	--	--				
Difluorobenzene, 1,4-	540-36-3	%	--	--	--				

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

CDWG — Canada Guidelines for Canadian Drinking Water Quality (JAN, 2023)

AO — Aesthetic Objective

MAC — Maximum Acceptable Concentrations

OG — Operational Guidance

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WP2413356**	Page	: 1 of 12
Client	: **Manitoba Conservation & Climate**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Marc Balcaen	Account Manager	: Sheriza Rajack-Ahamed
Address	: 14 Fultz Boulevard Winnipeg MB Canada R3Y 0L6	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: ----	Telephone	: +1 204 255 9720
Project	: Niverville Spruce Drive - PWS 151.25	Date Samples Received	: 28-May-2024 09:46
PO	: ----	Issue Date	: 03-Jun-2024 11:56
C-O-C number	: ----		
Sampler	: ----		
Site	: Niverville Spruce Drive - PWS 151.25 Op Id: 42862		
Quote number	: 2024 WTP Chemistry		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) NIVERVILLE SPRUCE DRIVE 1 - RAW	E298	28-May-2024	29-May-2024	28 days	1 days	✓	29-May-2024	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) NIVERVILLE SPRUCE DRIVE 2 - TREATED	E298	28-May-2024	29-May-2024	28 days	1 days	✓	29-May-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E235.Br-L	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E235.Br-L	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E235.Cl-L	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E235.Cl-L	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E235.F	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E235.F	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E235.NO3-L	28-May-2024	28-May-2024	3 days	0 days	✓	28-May-2024	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E235.NO3-L	28-May-2024	28-May-2024	3 days	0 days	✓	28-May-2024	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E235.NO2-L	28-May-2024	28-May-2024	3 days	0 days	✓	28-May-2024	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E235.NO2-L	28-May-2024	28-May-2024	3 days	0 days	✓	28-May-2024	3 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E235.SO4	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E235.SO4	28-May-2024	28-May-2024	28 days	0 days	✓	28-May-2024	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) NIVERVILLE SPRUCE DRIVE 1 - RAW	E358-L	28-May-2024	29-May-2024	3 days	1 days	✓	29-May-2024	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) NIVERVILLE SPRUCE DRIVE 2 - TREATED	E358-L	28-May-2024	29-May-2024	3 days	1 days	✓	29-May-2024	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
NIVERVILLE SPRUCE DRIVE 1 - RAW	E355-L	28-May-2024	29-May-2024	28 days	1 days	✓	29-May-2024	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
NIVERVILLE SPRUCE DRIVE 2 - TREATED	E355-L	28-May-2024	29-May-2024	28 days	1 days	✓	29-May-2024	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
NIVERVILLE SPRUCE DRIVE 1 - RAW	E290	28-May-2024	29-May-2024	14 days	1 days	✓	29-May-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
NIVERVILLE SPRUCE DRIVE 2 - TREATED	E290	28-May-2024	29-May-2024	14 days	1 days	✓	29-May-2024	14 days	2 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE										
NIVERVILLE SPRUCE DRIVE 1 - RAW	E329	28-May-2024	29-May-2024	3 days	1 days	✓	29-May-2024	3 days	1 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE										
NIVERVILLE SPRUCE DRIVE 2 - TREATED	E329	28-May-2024	29-May-2024	3 days	1 days	✓	29-May-2024	3 days	1 days	✓
Physical Tests : Conductivity in Water										
HDPE										
NIVERVILLE SPRUCE DRIVE 1 - RAW	E100	28-May-2024	29-May-2024	28 days	1 days	✓	29-May-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE										
NIVERVILLE SPRUCE DRIVE 2 - TREATED	E100	28-May-2024	29-May-2024	28 days	1 days	✓	29-May-2024	28 days	2 days	✓
Physical Tests : pH by Meter										
HDPE										
NIVERVILLE SPRUCE DRIVE 1 - RAW	E108	28-May-2024	29-May-2024	0.25 hrs	24 hrs	× EHTR-FM	29-May-2024	0.25 hrs	36 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E108	28-May-2024	29-May-2024	0.25 hrs	24 hrs	× EHTR-FM	29-May-2024	0.25 hrs	36 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E162-L	28-May-2024	----	----	----		30-May-2024	7 days	2 days	✓
Physical Tests : TDS by Gravimetry (Low Level)										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E162-L	28-May-2024	----	----	----		30-May-2024	7 days	2 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E121	28-May-2024	----	----	----		29-May-2024	3 days	1 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E121	28-May-2024	----	----	----		29-May-2024	3 days	1 days	✓
Physical Tests : UV Absorbance and Transmittance by Spectrometry										
HDPE NIVERVILLE SPRUCE DRIVE 1 - RAW	E404	28-May-2024	----	----	----		30-May-2024	3 days	2 days	✓
Physical Tests : UV Absorbance and Transmittance by Spectrometry										
HDPE NIVERVILLE SPRUCE DRIVE 2 - TREATED	E404	28-May-2024	----	----	----		30-May-2024	3 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) NIVERVILLE SPRUCE DRIVE 1 - RAW	E420	28-May-2024	31-May-2024	180 days	3 days	✓	31-May-2024	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) NIVERVILLE SPRUCE DRIVE 2 - TREATED	E420	28-May-2024	31-May-2024	180 days	3 days	✓	31-May-2024	180 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
NIVERVILLE SPRUCE DRIVE 3 - DISTRIBUTION @ MID POINT	E420	28-May-2024	31-May-2024	180 days	3 days	✓	31-May-2024	180 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
NIVERVILLE SPRUCE DRIVE 1 - RAW	E611D	28-May-2024	29-May-2024	14 days	1 days	✓	29-May-2024	14 days	1 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1466417	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1464814	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1464085	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1464086	1	5	20.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1464370	1	12	8.3	5.0	✓
Conductivity in Water	E100	1466418	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1464659	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1464084	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1464087	1	2	50.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1464088	1	2	50.0	5.0	✓
pH by Meter	E108	1466416	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1464089	1	8	12.5	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1465322	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469033	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1464241	1	18	5.5	5.0	✓
Turbidity by Nephelometry	E121	1464100	1	20	5.0	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1467792	1	15	6.6	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1464486	1	12	8.3	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1466417	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1464814	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1464085	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1464086	1	5	20.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1464370	1	12	8.3	5.0	✓
Conductivity in Water	E100	1466418	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1464659	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1464084	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1464087	1	2	50.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1464088	1	2	50.0	5.0	✓
pH by Meter	E108	1466416	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1464089	1	8	12.5	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1465322	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469033	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1464241	1	18	5.5	5.0	✓
Turbidity by Nephelometry	E121	1464100	1	20	5.0	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1467792	1	15	6.6	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1464486	1	12	8.3	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1466417	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1464814	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1464085	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1464086	1	5	20.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1464370	1	12	8.3	5.0	✓
Conductivity in Water	E100	1466418	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1464659	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1464084	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1464087	1	2	50.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1464088	1	2	50.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1464089	1	8	12.5	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1465322	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469033	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1464241	1	18	5.5	5.0	✓
Turbidity by Nephelometry	E121	1464100	1	20	5.0	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1467792	1	15	6.6	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1464486	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1464814	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1464085	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1464086	1	5	20.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1464659	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1464084	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1464087	1	2	50.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1464088	1	2	50.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1464089	1	8	12.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469033	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1464241	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1464486	1	12	8.3	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Winnipeg	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Winnipeg	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Winnipeg	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry (Low Level)	E162-L ALS Environmental - Winnipeg	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC (Low Level)	E235.Cl-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Winnipeg	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Winnipeg	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Colour (True) by Spectrometer (5 CU)	E329 ALS Environmental - Winnipeg	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
UV Absorbance and Transmittance by Spectrometry	E404 ALS Environmental - Winnipeg	Water	APHA 5910 B (mod)	UV Absorbance is determined by first filtering a sample through a 0.45 micron filter, followed by UV absorbance measurement in a quartz cell at 254 nm. The analysis is carried out without pH adjustment.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Winnipeg	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Winnipeg	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Winnipeg	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Ion Balance using Total Metals	EC101A ALS Environmental - Winnipeg	Water	APHA 1030E	Cation Sum (using total metals), Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
Saturation Index using Laboratory pH (Ca-T)	EC105A ALS Environmental - Winnipeg	Water	APHA 2330B	Langelier Index provides an indication of scale formation potential at a given pH and temperature, and is calculated as per APHA 2330B Saturation Index. Positive values indicate oversaturation with respect to CaCO3. Negative values indicate undersaturation of CaCO3. This calculation uses laboratory pH measurements and provides estimates of Langelier Index at temperatures of 4, 15, 20, 25, 66, and 77°C. Ryznar Stability Index is an alternative index used for scale formation and corrosion potential.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Winnipeg	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Winnipeg	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Winnipeg	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.

QUALITY CONTROL REPORT

Work Order	: **WP2413356**	Page	: 1 of 14
Client	: Manitoba Conservation & Climate	Laboratory	: ALS Environmental - Winnipeg
Contact	: Marc Balcaen	Account Manager	: Sheriza Rajack-Ahamed
Address	: 151.25 - Niverville Spruce Drive - PWS Box 267 Niverville MB Canada R0A 1E0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: ----	Telephone	: +1 204 255 9720
Project	: Niverville Spruce Drive - PWS 151.25	Date Samples Received	: 28-May-2024 09:46
PO	: ----	Date Analysis Commenced	: 28-May-2024
C-O-C number	: ----	Issue Date	: 03-Jun-2024 12:03
Sampler	: ----		
Site	: Niverville Spruce Drive - PWS 151.25 Op Id: 42862		
Quote number	: 2024 WTP Chemistry		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Gerry Vera	Analyst	Winnipeg Organics, Winnipeg, Manitoba
Rhovee Guevarra		Winnipeg Inorganics, Winnipeg, Manitoba
Rhovee Guevarra		Winnipeg Metals, Winnipeg, Manitoba

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1464100)											
WP2413277-001	Anonymous	Turbidity	----	E121	0.10	NTU	14.7	14.6	0.820%	15%	----
Physical Tests (QC Lot: 1464370)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Colour, true	----	E329	5.0	CU	<5.0	<5.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1465322)											
WP2413323-002	Anonymous	Solids, total dissolved [TDS]	----	E162-L	15.0	mg/L	808	834	3.11%	20%	----
Physical Tests (QC Lot: 1466416)											
WP2413404-005	Anonymous	pH	----	E108	0.10	pH units	7.73	7.65	1.04%	4%	----
Physical Tests (QC Lot: 1466417)											
WP2413404-005	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	39.9	40.3	0.998%	20%	----
Physical Tests (QC Lot: 1466418)											
WP2413404-005	Anonymous	Conductivity	----	E100	1.0	µS/cm	139	138	0.433%	10%	----
Physical Tests (QC Lot: 1467792)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Absorbance, UV (@ 254nm)	----	E404	0.0050	AU/cm	0.0280	0.0290	0.0010	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1464084)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.853	0.835	2.21%	20%	----
Anions and Nutrients (QC Lot: 1464085)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	0.191	0.191	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1464086)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Chloride	16887-00-6	E235.Cl-L	0.10	mg/L	182	182	0.198%	20%	----
Anions and Nutrients (QC Lot: 1464087)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1464088)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1464089)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	34.7	34.1	1.55%	20%	----
Anions and Nutrients (QC Lot: 1464814)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1464814) - continued											
WP2413333-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0329	0.0403	0.0074	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1464241)											
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.71	1.70	0.008	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1464659)											
WP2413300-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	20.6	20.9	1.68%	20%	----
Total Metals (QC Lot: 1469033)											
WP2413345-003	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00057	0.00053	0.00003	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0451	0.0448	0.736%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.075	0.076	0.002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	140	141	1.13%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00321	0.00315	0.00006	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000288	0.000289	0.0000003	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0458	0.0457	0.199%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	69.3	69.1	0.346%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000950	0.000909	4.44%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00118	0.00118	0.000001	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	5.00	4.97	0.519%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00215	0.00205	4.77%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.00514	0.00545	5.74%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	12.4	12.4	0.0570%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	41.7	40.2	3.59%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.599	0.578	3.53%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	120	120	0.456%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1469033) - continued											
WP2413345-003	Anonymous	Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.0114	0.0112	2.65%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1464486)											
WP2413269-001	Anonymous	Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1464100)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1464370)						
Colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 1465322)						
Solids, total dissolved [TDS]	----	E162-L	3	mg/L	<3.0	----
Physical Tests (QCLot: 1466417)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1466418)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1467792)						
Absorbance, UV (@ 254nm)	----	E404	0.005	AU/cm	<0.0050	----
Anions and Nutrients (QCLot: 1464084)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1464085)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1464086)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1464087)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1464088)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1464089)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1464814)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1464241)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1464659)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1469033)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1469033) - continued						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1469033) - continued						
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Volatile Organic Compounds (QCLot: 1464486)						
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1464100)									
Turbidity	----	E121	0.1	NTU	200 NTU	90.5	85.0	115	----
Physical Tests (QCLot: 1464370)									
Colour, true	----	E329	5	CU	250 CU	100	85.0	115	----
Physical Tests (QCLot: 1465322)									
Solids, total dissolved [TDS]	----	E162-L	3	mg/L	1000 mg/L	93.2	85.0	115	----
Physical Tests (QCLot: 1466416)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1466417)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	100 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1466418)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	99.7	90.0	110	----
Physical Tests (QCLot: 1467792)									
Absorbance, UV (@ 254nm)	----	E404	0.005	AU/cm	0.582 AU/cm	102	85.0	115	----
Anions and Nutrients (QCLot: 1464084)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1464085)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1464086)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1464087)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1464088)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1464089)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1464814)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.2	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1464241)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1464659)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1464659) - continued									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	110	80.0	120	----
Total Metals (QCLot: 1469033)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	90.3	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	97.8	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	89.2	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.6	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	85.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.2	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	92.9	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	91.3	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	93.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	93.2	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	85.8	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.8	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	85.6	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	96.4	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	93.9	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.8	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	91.6	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	94.8	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	85.4	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.5	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	88.6	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	89.1	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	91.6	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	88.5	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	84.5	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	94.8	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	94.6	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1469033) - continued									
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	89.6	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	96.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	93.3	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	93.7	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	92.1	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.6	80.0	120	----
Volatile Organic Compounds (QCLot: 1464486)									
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	100.0	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	94.5	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	109	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	85.6	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	98.0	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	85.4	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	97.0	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	104	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	94.7	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1464084)										
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1464085)										
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Bromide	24959-67-9	E235.Br-L	0.491 mg/L	0.5 mg/L	98.2	75.0	125	----
Anions and Nutrients (QCLot: 1464086)										
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Chloride	16887-00-6	E235.Cl-L	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1464087)										
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Nitrate (as N)	14797-55-8	E235.NO3-L	2.45 mg/L	2.5 mg/L	98.0	75.0	125	----
Anions and Nutrients (QCLot: 1464088)										
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Nitrite (as N)	14797-65-0	E235.NO2-L	0.486 mg/L	0.5 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 1464089)										
WP2413356-001	NIVERVILLE SPRUCE DRIVE 1 - RAW	Sulfate (as SO4)	14808-79-8	E235.SO4	96.2 mg/L	100 mg/L	96.2	75.0	125	----
Anions and Nutrients (QCLot: 1464814)										
WP2413333-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0920 mg/L	0.1 mg/L	92.0	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1464241)										
WP2413356-002	NIVERVILLE SPRUCE DRIVE 2 - TREATED	Carbon, total organic [TOC]	----	E355-L	5.34 mg/L	5 mg/L	107	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1464659)										
WP2413300-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Metals (QCLot: 1469033)										
WP2413345-003	Anonymous	Aluminum, total	7429-90-5	E420	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0214 mg/L	0.02 mg/L	107	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0215 mg/L	0.02 mg/L	108	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0360 mg/L	0.04 mg/L	90.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00968 mg/L	0.01 mg/L	96.8	70.0	130	----
		Boron, total	7440-42-8	E420	0.085 mg/L	0.1 mg/L	84.9	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00408 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0107 mg/L	0.01 mg/L	107	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1469033) - continued										
WP2413345-003	Anonymous	Chromium, total	7440-47-3	E420	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Copper, total	7440-50-8	E420	0.0180 mg/L	0.02 mg/L	90.0	70.0	130	----
		Iron, total	7439-89-6	E420	1.86 mg/L	2 mg/L	92.9	70.0	130	----
		Lead, total	7439-92-1	E420	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0835 mg/L	0.1 mg/L	83.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0364 mg/L	0.04 mg/L	90.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.91 mg/L	10 mg/L	99.1	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00394 mg/L	0.004 mg/L	98.4	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0419 mg/L	0.04 mg/L	105	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00382 mg/L	0.004 mg/L	95.5	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0218 mg/L	0.02 mg/L	109	70.0	130	----
		Tin, total	7440-31-5	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, total	7440-66-6	E420	0.371 mg/L	0.4 mg/L	92.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	----
Volatile Organic Compounds (QCLot: 1464486)										
WP2413269-001	Anonymous	Benzene	71-43-2	E611D	93.0 µg/L	100 µg/L	93.0	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Bromoform	75-25-2	E611D	86.3 µg/L	100 µg/L	86.3	60.0	140	----
		Chloroform	67-66-3	E611D	94.2 µg/L	100 µg/L	94.2	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	92.3 µg/L	100 µg/L	92.3	60.0	140	----
		Dichloromethane	75-09-2	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Ethylbenzene	100-41-4	E611D	88.8 µg/L	100 µg/L	88.8	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	91.2 µg/L	100 µg/L	91.2	60.0	140	----
		Toluene	108-88-3	E611D	89.0 µg/L	100 µg/L	89.0	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	93.6 µg/L	100 µg/L	93.6	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	93.4 µg/L	100 µg/L	93.4	60.0	140	----
		Trichloroethylene	79-01-6	E611D	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	204 µg/L	200 µg/L	102	60.0	140	----
		Xylene, o-	95-47-6	E611D	96.4 µg/L	100 µg/L	96.4	60.0	140	----

Chain of Custody (COC)
Manitoba Drinking Water Systems

Regular Service (defaul	☑ Regular Service (is 5-7 Days):
Unless otherwise reque	☑ **1 Day, rush / priority** ☑ **2 Day, rush / priority** ☑ **3 Day, rush / priority**

Office of Drinking Water
14 Fultz Boulevard, Winnipeg, Manitoba,
Canada R3Y 0L6

Report to Operator (email PDF):	
Contact:	Ryan Dyck
Address:	Box 267, Niverville, MB R0A1E0
Phone:	(204) 388-4600
Email:	ryan@whereyoubelong.ca; operations@whereyoubelong.ca

Report to Owner (email PDF):	
Contact:	Eric King
Address:	Box 267, Niverville, MB R0A1E0
Phone:	(204) 388-4600
Email:	ericking@whereyoubelong.ca

Email PDF copy to:	
DWO:	Adam Freiling
DWO Address:	Box 4000 #4 HWY 502, Lac du Bonnet, MB R
DWO Phone:	(204) 371-3885
DWO Email:	Adam.Freiling@gov.mb.ca
Additional Email:	Joern.Muenster@gov.mb.ca; Marc.Balcaen@gov.mb.ca;

If an update in Owner or Operator contact information is required, please contact your Drinking Water Officer

Client / Project Information:	**Lab:**	**Account:**	Agency Code: 382	Report Type: EMS (Lab-MWS)	Project: DWQ-C

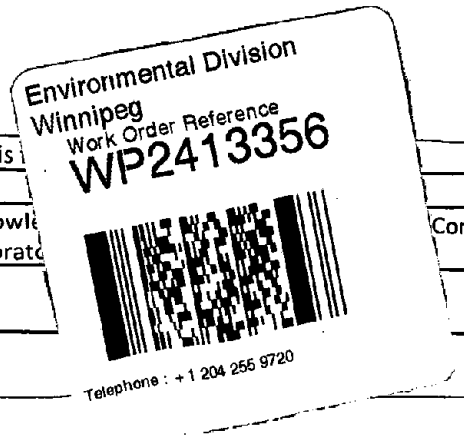
Operation Name:	NIVERVILLE SPRUCE DRIVE - PWS
Operation Code:	151.25
Operation ID:	42862
Sampled by:	Andrew Rempel

Expected Sample Time: August-2024

Please record Free & Total Chlorine residuals for Distribution By-product Sampling

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

Sample Number	Station Number	Sample Identification	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Sample Date dd-mmm-yyyy	Sample Time hh:mm	Sample Matrix	Sample Type	MB-CH-PWS-V2013	MB-MET-T-CCMS	MB-VOC-PWS-V2013	# of Containers
2408AA5001	MB05OED101	Niverville Spruce Drive 1 - Raw	0	0	29-May-2024	8:00am	6	1	X		X	6
2408AA5002	MB05OED102	Niverville Spruce Drive 2 - Treated	0.91	1.12	26-May-2024	8:10am	10	1	X			4
2408AA5003	MB05OED103	Niverville Spruce Drive 3 - Distribution mid-point @	0.98	1.17	23-May-2024	8:17am	9	1		X		1



Failure to complete all portions of this
Please fill in this form LEGIBLY.
By the use of this form the user acknowl
For ALL other testing, please use Laborat

Sample Matrix: 6-Raw Water, 9-Distributed Water, 10-Treated Water
Sample Type: 1-Grab Sample
Conditions as specified by the Laboratory.

Relinquished By:		Validated By (lab use only):	Date & Time: MAY 28 2024 9:46am
Received By: (lab use only)		Sample Condition (lab use only)	
		Temperature: 12.7°C	Samples Received in Good Condition? Y / N

Sample Intak					
Client:	N. S. Drive				
Cheque Enclosed / CoC		Yes	No		
Priority/Emergen- required (circle one)		Yes	No		
Time Sensitive H- re (i		Yes	No		
Matrix (circle one		Water	Soil/solid	Air	Biota	Other
# of Bottles receiv-						
Green/White	3 X 1 L/ME	Yellow/Black				
Purple/White	9 X100	Light blue/White				
Warm red/White	3 X100	Orange/Black				
Dark Green/White		Dark Blue/White	~~1X 100ml NP~~	2X100ml	2X40ml	
Grey/black		Black/white				
Other:						
Additional Comme						

Login Che	Check yes if you have verified the following:	
	Yes	N/A
Received date/time		
Project/PO/LSD		
Quote/Office match		
Sample IDs/Descript		
Sample Date/time		
Sales Items as per C		
Express Due Dates		
Client due date mat / ALS Due date		
Client recipient ema		
Guidelines/threshold added		
Billing/payment recd		
Field data entered		
Sub-contracting For Printed		
SUBCO/Chromatogr added to client conta required analysis		
Are sub-samples req		
Has a SIF been subm for this WO?		
Has the SIF been resc		