West Hawk annual water report

This report is to provide public awareness about the operation, requirements and results of the water treatment system for West Hawk lake MB. Under The Environment Act's Water and Wastewater Facility Operators Regulation, the plant is rated a class 2 treatment facility as well as the operators maintaining the plant. Copies of this report will be made available at the Falcon District Office as well as on the Manitoba government website. Residents will be made aware of this report via e-mail and/or signage posted on bulletins around town. The Whiteshell cottagers association will also direct residents on how to access this report.

Plant operators:

Matthew MacInnis – MM3
Steve Kuharski – MM1
Jacob klassen – PK2

For the year of 2024

- **Where does the water come from?**

    - Our raw water source comes from two 8” drilled wells, each well equipped with its own submersible pump tapped into an underground aquafer. These wells are classified as GUDI due to the potential of being contaminated in the scenario of a flood. When our system calls for water these pumps pump the raw water into the water plant to be then treated.

- **What do you do to this raw water once it’s at the water plant?**

    - Once the raw water is pumped into the water plant, chlorine (sodium hypochlorite) is injected into the raw water line. Once chlorine is added it then distributes between 3 green sand filters which remove particulates/debris/solids from the water. The now filtered water gets distributed between 4 UV lights before entering our 1600 gal storage tanks. We have 6 above ground storage tanks which hold 9600 gals to store our now treated potable water ready for distribution supplied to town from three variable speed distribution pumps that supply water to the town through the underground piping in our distribution system. We are required to have a minimum of 20 minutes of chlorine contact time. This means that we exceed the minimum required 20 minutes of contact time of chlorine with the raw water, before going to the distribution system.

- **What is the purpose for adding this chlorine to the water?**

    - The main purpose of the chlorine is that it disinfects and kills any harmful bacteria that may be present in the water. This makes chlorine your number one line of defense in providing safe drinking water, but it also helps with filtration process by pulling out particulates from the water so the filters can then remove them.

- **What is the purpose of the UV lights?**

    - We are required to have dual disinfection which is where the UV comes into play. The UV lights kill or sterilize any bacteria that may be present in the water. This step is an extra precautionary measure, an extra bit of security to make sure the public is always safe and can help to guarantee consistently safe water at all times. UV monitoring is done daily with the units functioning properly at 95%of the time as required by the drinking water safety act. A dosage of 40mJ/cm2 is a standard minimum.

- **Should we worry about the safety of our water during a power outage?**

- If and when a power outage does occur the water plant is equipped with a generator that provides ample amount of power and starts up automatically to keep everything running. The generator will continue every step of the treatment process so that the water is always being properly treated.

How can we be assured our water is safe at all times?

- There is an entire branch of the government designated to monitoring water plants throughout the province called The Office of Drinking Water. These water officers work very closely with plant operators to help ensure water quality is at its best while also making sure operators are following Drinking Water Safety Acts and it supporting regulations on a daily basis.

What kind of regulations need to be met?

- The Office of Drinking Water has different requirements for ever system depending on the water source, population, treatment method, etc. West Hawk water treatment plant is required to test chlorine free and total in person every day of the year. We must also send water samples to an accredited laboratory every two weeks to be tested for E-coli and total coliforms. We do this test to the raw water, treatment water at the plant and from various sample points around town in the distribution system. The lab results are sent to the water officer every two weeks and our daily monitoring of chlorine levels are sent to the officer every month. We monitor turbidity on a daily basis in the raw and treated water. Further into this report you will find two charts for turbidity. One is our monthly average over the year and the other from our bi weekly samples that get sent in for lab analysis. We must also sample for THM (trihalomethane) and HAAs (haloacetic acids) quarterly or four times a year every second year making sure to not exceed 0.10 mg/l for THMs and to not exceed 0.08 mg/l for HAAs. Last year average of THMs = 0.0503 mg/l and HAAs = 0.0203 mg/l our next sampling will done in 2026. We are also required to sample annually for benzene, toluene, ethyibenzene, and xylenes in our water. UV disinfection must be monitored daily and be operational 95% of each month at a UV dose of 40mJ/cm2. The microbial standards that we are required to meet are inactivation or reduction at 99.9% of Cryptosporidium cysts and Giardia lamblia cysts, this standard is met through our UV disinfection process. We are also required to maintain in effective working order the filtration and disinfection equipment to provide reduction or inactivation of 99.99% all viruses. This standard is met through chlorination contact time. These are all requirements of our operating licence which you can review below.

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

OPERATING LICENCE FOR A PUBLIC WATER SYSTEM

LICENCE NUMBER: PWS-10-426-02

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

WATER SYSTEM CODE: 245.00

OPERATION ID: 7226

EFFECTIVE DATE: DECEMBER 1, 2021

EXPIRY DATE: FEBRUARY 28, 2025

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

ENVIRONMENT, CLIMATE AND PARKS: "THE LICENSEE"

FOR THE OPERATION OF THE **WEST HAWK LAKE PUBLIC WATER SYSTEM**, WHICH INCLUDES WELLS UNDER THE DIRECT INFLUENCE OF SURFACE WATER, TREATMENT EQUIPMENT, WATER STORAGE TANKS, 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.

Digitally signed by Kate Bolton
Date: 2022.11.30 15:44:11 -06'00'

DATE: November 30, 2022

Kate Bolton
Director, Office of Drinking Water

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, equipment, any reservoirs/cisterns and/or distribution lines 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 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 follow the requirements as specified in *Operational Guideline ODW-OG-02 Seasonal Water Systems Start-up Shut-down Procedures* for any portion(s) of the distribution system that operate on a seasonal basis.

2.5. 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 GUDI by September 1, 2019, 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.

2.6. 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
Ultraviolet Disinfection	95% of water produced per month is disinfected within validated conditions
Total Trihalomethanes (THMs)	Less than or equal to 0.10 mg/L as locational annual average of quarterly samples
Total Haloacetic Acids (HAAs)	Less than or equal to 0.08 mg/L as locational annual average of quarterly samples
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 based on a sample(s) collected at a cold water tap or other appropriate location where water may be used for drinking or food preparation
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 have in place and maintain in effective working order, filtration and/or disinfection equipment and controls designed to provide reduction or inactivation of 99.9% (3-log) of *Cryptosporidium* oocysts and 99.9% (3-log) of *Giardia lamblia* cysts.

4.5. The Licensee shall have in place and maintain in effective working order, filtration and/or disinfection equipment and controls designed to provide reduction or inactivation of 99.99% (4-log) of viruses.

4.6. 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.

4.7. The Licensee shall maintain in effective working order ultraviolet (UV) light disinfection equipment and controls that result in greater than or equal to 95% of the water produced per month undergoing UV light disinfection within validated conditions and at a minimum dose of 40 mJ/cm^2.

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
Ultraviolet Disinfection	Continuous monitoring of UV intensity level for each operating UV unit
Turbidity	One raw water sample per day One treated water sample per day at the location established by the drinking water officer
Turbidity (distribution system)	At the same times and location(s) as bacteriological distribution system sampling
General Chemistry (parameter list provided by Office of Drinking Water)	One raw and one treated water sample once every year
Total Metals (distribution system)	One sample taken at the same time(s) as General Chemistry sampling at a mid-point in the distribution system
Total Trihalomethanes (THMs) (distribution system)	One preserved sample taken on a quarterly basis during February, May, August, and November, every second year at the furthest point in the distribution system beginning 2023
Total Haloacetic Acids (HAAs) (distribution system)	One preserved sample taken on a quarterly basis during February, May, August, and November, every second year at a mid-point in the distribution system beginning 2023
Lead	As per the instructions of the drinking water officer
Manganese (Laboratory Analysis)	Monitoring included in the general chemistry 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) total trihalomethanes
f) total haloacetic acids
g) 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 raw water samples are taken on an alternating basis in instances where more than one water supply source is used.

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

5.6. The Licensee shall operate equipment capable of continuously monitoring the UV light intensity to ensure compliance with the inactivation requirement specified in Clause 4.4.

5.7. 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 turbidity measurements on the monthly report forms or other forms satisfactory to the director.

6.6. The Licensee shall record UV alarms and maintenance procedures performed on the water system and its supporting equipment on the monthly UV report forms or other forms satisfactory to the director.

6.7. The Licensee shall record validated UV condition verifications on the monthly report forms or other forms satisfactory to the director.

6.8. 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.

6.9. 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.

6.10. 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.

6.11. 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.

6.12. 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.

6.13. 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.

6.14. 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.

- **Are your operators trained?**

    - Yes, all our operators were trained at Red River College in each field (water treatment, water distribution, wastewater collection and wastewater treatment) to the level/classification meeting our operations licences. To make sure we keep up with changes in these fields, regulations, new products, testing, etc. we are taking training and extra courses every year as part of our CEU program. CEU's are continuing education units which we are required to obtain every year.

- **What is free and total? And how do you know how much chlorine to make the water safe?**

    - Free chlorine is the amount of unused chlorine in the water and total chlorine is the total amount of chlorine that was in the water, the deference between the two is how much chlorine was needed to treat the water and make it safe. The drinking water safety acts requires that we maintain no less than 0.5 mg/l of free chlorine at the water plant at all times as well as 0.1 mg/l in the piping/distribution system. The chart below is our free

and total readings at the water plant for everyday of the year. The second chart shows our bi weekly readings of the distribution system. Failing to meet requirements under the drinking water safety act can result in drinking water safety orders, charges, boil water advisories or water quality advisories.

	January		February		March		April		May		June		July		August		September		October		November		December	
	Free	total	Free	total	Free	total	Free	total	Free	total	Free	total	Free	total	Free	total	Free	total	Free	total	Free	total	Free	total
1	1.17	1.35	1.23	1.44	1.03	1.20	.89	1.18	1.28	1.48	1.02	1.14	1.20	1.44	.89	1.11	1.46	1.61	.98	1.17	.81	.97	.52	61
2	1.11	1.32	1.22	1.45	.91	1.14	1.08	1.25	1.30	1.54	1.33	1.47	1.06	1.25	1.01	1.10	1.37	1.54	1.08	1.27	1.22	1.42	.54	.60
3	1.10	1.29	1.27	1.49	1.03	1.19	1.11	1.31	1.24	1.55	.98	1.14	1.26	1.47	.96	1.12	1.35	1.53	.74	.90	1.11	1.31	.93	1.12
4	1.10	1.21	1.33	1.58	.89	1.13	.89	1.08	1.32	1.63	.93	1.13	1.12	1.30	1.12	1.30	1.33	1.50	1.00	1.09	1.09	1.27	1.09	1.22
5	1.05	1.26	1.22	1.42	1.02	1.17	1.02	1.23	1.30	1.56	.89	1.03	.97	1.22	1.06	1.19	1.27	1.38	1.03	1.19	1.46	1.69	2.20	2.20
6	1.02	1.21	1.25	1.47	1.00	1.09	1.09	1.25	1.15	1.32	.79	.93	1.08	1.23	1.04	1.19	1.21	1.36	.99	1.18	1.03	1.28	2.20	2.20
7	.96	1.16	1.26	1.43	.98	1.11	1.05	1.16	.93	1.17	.78	1.00	1.04	1.26	1.03	1.18	1.29	1.48	1.08	1.23	1.23	1.21	2.20	2.20
8	.98	1.20	1.08	1.24	1.03	1.20	1.26	1.42	1.19	1.40	1.11	1.21	1.03	1.22	1.00	1.09	1.29	1.54	.94	1.10	.62	.68	1.46	1.64
9	1.14	1.27	1.25	1.40	.97	1.13	1.24	1.46	1.14	1.31	1.15	1.31	.95	1.18	1.00	1.19	1.21	1.40	1.16	1.31	.57	.66	1.39	1.52
10	.96	1.16	1.18	1.43	1.01	1.23	1.09	1.26	1.26	1.41	1.11	1.33	1.14	1.31	1.03	1.21	1.45	1.56	1.03	1.18	.60	.72	1.33	1.41
11	.98	1.14	1.22	1.43	.97	1.17	1.04	1.22	1.28	1.50	.95	1.11	1.13	1.41	.90	1.15	1.47	1.60	1.24	1.47	.96	1.11	1.44	1.54
12	1.09	1.32	1.23	1.41	1.17	1.41	1.29	1.50	1.40	1.61	1.26	1.45	1.10	1.17	.89	1.08	1.20	1.46	1.34	1.59	.85	.97	1.35	1.45
13	1.04	1.19	1.02	1.25	1.12	1.32	1.32	1.57	1.49	1.75	.96	1.17	1.14	1.23	.87	1.03	1.36	1.49	1.40	1.47	1.23	1.40	1.35	1.52
14	1.25	1.38	.98	1.20	.98	1.19	1.24	1.38	1.39	1.66	.94	1.08	1.09	1.24	1.13	1.35	1.40	1.51	1.26	1.47	1.29	1.53	1.46	1.65
15	1.11	1.25	.88	1.12	1.30	1.43	1.06	1.16	1.22	1.52	1.02	1.25	1.03	1.22	.84	1.08	1.36	1.41	1.22	1.39	1.56	1.75	1.47	1.67
16	1.15	1.34	.96	1.08	.99	1.14	1.26	1.50	1.17	1.29	1.11	1.25	.89	1.10	.85	1.01	1.33	1.56	1.49	1.64	1.64	1.88	1.33	1.53
17	1.10	1.29	.90	1.09	1.12	1.28	.94	1.14	1.30	1.47	1.10	1.25	1.03	1.25	.97	1.10	1.28	1.47	1.36	1.57	1.42	1.66	1.34	1.49
18	1.04	1.23	.92	1.11	.98	1.18	.96	1.16	1.39	1.61	1.02	1.20	.99	1.10	.98	1.17	1.18	1.39	1.29	1.41	1.45	1.66	1.66	1.78
19	1.17	1.32	.78	.96	1.23	1.48	1.13	1.32	1.34	1.59	1.01	1.02	1.00	1.12	.98	1.17	1.27	1.40	1.44	1.63	1.49	1.73	1.48	1.64
20	1.14	1.34	.86	1.07	1.01	1.20	1.12	1.32	1.51	1.67	.99	1.09	1.02	1.18	.75	1.00	1.16	1.36	1.38	1.61	1.59	1.86	.95	1.16
21	1.19	1.37	.93	1.12	1.01	1.16	1.08	1.29	1.22	1.46	.95	1.12	.94	1.21	.98	1.21	1.27	1.46	1.46	1.64	1.64	1.90	.74	.85
22	1.14	1.37	1.08	1.37	1.11	1.32	1.03	1.18	1.12	1.30	1.03	1.24	.92	1.15	.92	1.07	1.22	1.42	1.42	1.57	1.96	2.12	1.01	1.12
23	.97	1.16	.94	1.22	1.09	1.28	1.23	1.34	1.15	1.34	1.05	1.28	.94	1.11	.78	.99	1.19	1.44	1.46	1.72	1.55	1.71	.86	1.05
24	1.22	1.47	.92	1.08	1.08	1.30	1.31	1.44	1.21	1.30	1.00	1.18	.95	1.16	.88	1.02	1.20	1.30	1.49	1.73	1.20	1.38	.62	.67
25	1.69	1.83	.80	.97	1.07	1.21	1.12	1.37	1.27	1.43	.87	1.08	.90	1.03	.94	1.11	1.37	1.49	1.32	1.62	1.14	1.24	.70	.81
26	1.25	1.50	.73	.91	1.21	1.36	1.27	1.47	1.21	1.41	1.04	1.19	.88	1.05	.83	.96	1.24	1.41	1.59	1.76	1.10	1.26	.60	.72
27	1.11	1.24	.97	1.06	1.07	1.15	1.70	1.86	1.09	1.33	.93	.96	1.02	1.12	.80	.99	1.24	1.39	1.60	1.75	1.26	1.41	1.11	1.32

28	.58	.66	.70	.80	.67	.77	1.70	1.87	1.20	1.31	.92	1.00	1.08	1.27	.93	1.12	1.39	1.57	1.42	1.67	1.06	1.22	1.04	1.19
29	1.65	1.94	.75	.82	1.16	1.29	1.64	1.92	1.13	1.29	1.16	1.21	.93	1.15	.72	.89	1.30	1.44	1.54	1.72	1.01	1.18	1.12	1.28
30	1.36	1.52			.96	1.18	1.38	1.65	1.14	1.29	1.16	1.32	1.11	1.31	.95	1.19	1.26	1.38	1.52	1.77	.55	.62	.96	1.15
31	1.29	1.48			.97	1.12			1.03	1.24			1.10	1.28	1.24	1.52			.94	1.10			1.01	1.17

Date	Location	Free	Total	turbidity	Date	Location	Free	Total	turbidity
Jan 11	Fire hall	.67	.79	.14	Jul 9	Fire hall	.72	.91	.12
Jan 25	Fire hall	.47	.71	.21	Jun 24	Meteor mikes	.85	1.02	.12
Feb 8	Lunch room	.58	.75	.11	Aug 7	Meteor mikes	.66	.91	.11
Feb 22	Fire hall	.97	1.15	.14	Aug 21	Fire hall	1.01	1.17	.19
Mar 6	Fire hall	.77	.87	.27	Sep 4	Fire hall	.90	1.14	.18
Mar 21	Bunkhouse	.24	.42	2.45	Sep 18	Meteor mikes	1.19	1.36	.26
Apr 4	Fire hall	.46	.63	.17	Oct 3	Bunkhouse	1.24	1.34	.20
Apr 18	Fire hall	.48	.71	.18	Oct 16	Fire hall	.36	.49	.26
Apr 25	Bcg site e1	1.07	1.24	1.29	Oct 30	Fire hall	.82	1.07	.25
May 2	Seasonal site 21	.82	1.30	.23	13	CBC	.81	1.39	.19
May 16	Meteor mikes	.96	1.11	.27	25	Fire hall	.72	.94	.11
May 30	CBC	.94	1.05	.16	10	Fire hall	.61	.70	.18
Jun 12	Meteor mikes	1.01	1.25	.33	22	Fire hall	.61	.74	.17
Jun 27	Picnic shelter	.52	.67	.19					

Collection Date	TC	EC	Sample Identification
11-Jan-24	<1	<1	WEST HAWK LAKE 1 - RAW
11-Jan-24	<1	<1	WEST HAWK LAKE 2 - TREATED
11-Jan-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ FIRE HALL
25-Jan-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ FIREHALL
25-Jan-24	<1	<1	WEST HAWK LAKE 2 - TREATED
25-Jan-24	<1	<1	WEST HAWK LAKE 1 - RAW
08-Feb-24	<1	<1	WEST HAWK LAKE 1 - RAW
08-Feb-24	<1	<1	WEST HAWK LAKE 2 - TREATED
08-Feb-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Fire hall
22-Feb-24	<1	<1	WEST HAWK LAKE 1 - RAW
22-Feb-24	<1	<1	WEST HAWK LAKE 2 - TREATED
22-Feb-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ FIRE HALL
06-Mar-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ FIRE HALL
06-Mar-24	<1	<1	WEST HAWK LAKE 1 - RAW
06-Mar-24	<1	<1	WEST HAWK LAKE 2 - TREATED
21-Mar-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ BUNB HOUSE
21-Mar-24	<1	<1	WEST HAWK LAKE 1 - RAW
21-Mar-24	<1	<1	WEST HAWK LAKE 2 - TREATED
04-Apr-24	<1	<1	WEST HAWK LAKE 1 - RAW
04-Apr-24	<1	<1	WEST HAWK LAKE 2 - TREATED
04-Apr-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ FIRE HALL
18-Apr-24	<1	<1	WEST HAWK LAKE 2 - TREATED
18-Apr-24	<1	<1	WEST HAWK LAKE 1 - RAW
18-Apr-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ FIRE HALL
25-Apr-24	<1	<1	WEST HAWK LAKE 4 - DISTRIBUTION @ BCG SITE E1
25-Apr-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ SEASONAL SITE 21
25-Apr-24	<1	<1	WEST HAWK LAKE 1 - RAW
25-Apr-24	<1	<1	WEST HAWK LAKE 2 - TREATED
26-Apr-24	<1	<1	WEST HAWK LAKE 4 BCG SITE E1
26-Apr-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ SEASONAL SITE 21
26-Apr-24	<1	<1	WEST HAWK LAKE 1 - RAW
26-Apr-24	<1	<1	WEST HAWK LAKE 2 - TREATED
02-May-24	<1	<1	WEST HAWK LAKE 2 - TREATED
02-May-24	<1	<1	WEST HAWK LAKE 1 - RAW
02-May-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ BCG Site E1
02-May-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Seasonal Site 21
16-May-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Meteor Mikes
16-May-24	<1	<1	WEST HAWK LAKE 2 - TREATED
16-May-24	<1	<1	WEST HAWK LAKE 1 - RAW
21-May-24	<1	<1	WEST HAWK LAKE 2 - TREATED
21-May-24	<1	<1	WEST HAWK LAKE 1 - RAW
21-May-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ fire hall
22-May-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @
22-May-24	<1	<1	WEST HAWK LAKE 1 - RAW
22-May-24	<1	<1	WEST HAWK LAKE 2 - TREATED
30-May-24	<1	<1	WEST HAWK LAKE 1 - RAW
30-May-24	<1	<1	WEST HAWK LAKE 2 - TREATED
30-May-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ CBC

12-Jun-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @Metero Mikes
12-Jun-24	<1	<1	WEST HAWK LAKE 1 - RAW
12-Jun-24	<1	<1	WEST HAWK LAKE 2 - TREATED
27-Jun-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Picnic Shelter
27-Jun-24	<1	<1	WEST HAWK LAKE 1 - RAW
27-Jun-24	<1	<1	WEST HAWK LAKE 2 - TREATED
09-Jul-24	<1	<1	WEST HAWK LAKE 1 - RAW
09-Jul-24	<1	<1	WEST HAWK LAKE 2 - TREATED
09-Jul-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @Fire Hall
24-Jul-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @Metero Mikes
24-Jul-24	<1	<1	WEST HAWK LAKE 1 - RAW
24-Jul-24	<1	<1	WEST HAWK LAKE 2 - TREATED
07-Aug-24	<1	<1	WEST HAWK LAKE 1 - RAW
07-Aug-24	<1	<1	WEST HAWK LAKE 2 - TREATED
07-Aug-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Fire Hall
21-Aug-24	<1	<1	WEST HAWK LAKE 1 - RAW
21-Aug-24	<1	<1	WEST HAWK LAKE 2 - TREATED
21-Aug-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Firehall
04-Sep-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Fire Hall
04-Sep-24	<1	<1	WEST HAWK LAKE 2 - TREATED
04-Sep-24	<1	<1	WEST HAWK LAKE 1 - RAW
18-Sep-24	<1	<1	WEST HAWK LAKE 1 - RAW
18-Sep-24	<1	<1	WEST HAWK LAKE 2 - TREATED
18-Sep-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Meteor Mikes Tap
03-Oct-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Bankhouse
03-Oct-24	<1	<1	WEST HAWK LAKE 1 - RAW
03-Oct-24	<1	<1	WEST HAWK LAKE 2 - TREATED
16-Oct-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Fire Hall
16-Oct-24	<1	<1	WEST HAWK LAKE 1 - RAW
16-Oct-24	<1	<1	WEST HAWK LAKE 2 - TREATED
30-Oct-24	<1	<1	WEST HAWK LAKE 2 - TREATED
30-Oct-24	<1	<1	WEST HAWK LAKE 1 - RAW
30-Oct-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @Fire Hall
13-Nov-24	<1	<1	WEST HAWK LAKE 1 - RAW
13-Nov-24	<1	<1	WEST HAWK LAKE 2 - TREATED
13-Nov-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @CBC
27-Nov-24	<1	<1	WEST HAWK LAKE 1 - RAW
27-Nov-24	<1	<1	WEST HAWK LAKE 2 - TREATED
27-Nov-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Fire Hall
10-Dec-24	<1	<1	WEST HAWK LAKE 1 - RAW
10-Dec-24	<1	<1	WEST HAWK LAKE 2 - TREATED
10-Dec-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Fire Hall
19-Dec-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Tall Pine Office
19-Dec-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Tall Pine Cabin #10
19-Dec-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Tall Pine Cabin #11
22-Dec-24	<1	<1	WEST HAWK LAKE 3 - DISTRIBUTION @ Fire Hall
22-Dec-24	<1	<1	WEST HAWK LAKE 1 - RAW
22-Dec-24	<1	<1	WEST HAWK LAKE 2 - TREATED

What is turbidity? And why do we care about it?

- Turbidity is the measure of clarity of water; it is measured by light passing through water and is calculated by the amount of light that is scattered on the other side of the water. The more light that is scattered the higher the turbidity meaning there are more particulates in the water scattering the beam of light and a smaller turbidity reading where more light travels undisturbed or less scattered means the clearer the water. We care about this very much because bacteria can use these particulates to hide behind and evade the UV light disinfection process so we want the water to be as clear as possible.

Treated monthly average turbidity

January	February	March	April	May	June
.12	.15	.15	.17	.26	.15

July	August	September	October	November	December
.13	.15	.17	.14	.13	.13

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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2402659**	Page	: 1 of 6
Client	: **Manitoba Conservation & Climate**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Matthew MacInnis	Account Manager	:
Address	: Box 130 Rennie , MB Canada R0E 1R0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 204 371 9257	Telephone	: +1 204 255 9720
Project	: WEST GAWK LAKE - PWS - 245.00	Date Samples Received	: 02-Feb-2024 15:29
PO	:	Date Analysis Commenced	: 02-Feb-2024
C-O-C number	: ----	Issue Date	: 09-Feb-2024 07:51
Sampler	: ----		
Site	: WEST HAWK LAKE - PWS - 245.00 OP ID: 7226		
Quote number	: DWQ-C		
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*
Christopher Chow		Inorganics, Winnipeg, Manitoba
Gerry Vera	Analyst	Organics, Winnipeg, Manitoba
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba

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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: WP2402659	Page	: 1 of 6
Client	: Manitoba Conservation & Climate	Laboratory	: ALS Environmental - Winnipeg
Contact	: Matthew MacInnis	Account Manager	:
Address	: Box 130 Rennie, MB Canada R0E 1R0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 204 371 9257	Telephone	: +1 204 255 9720
Project	: WEST GAWK LAKE - PWS - 245.00	Date Samples Received	: 02-Feb-2024 15:29
PO	:	Date Analysis Commenced	: 02-Feb-2024
C-O-C number	: ----	Issue Date	: 09-Feb-2024 07:51
Sampler	: ----		
Site	: WEST HAWK LAKE - PWS - 245.00 OP ID: 7226		
Quote number	: DWQ-C		
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.

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- 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*
Christopher Chow		Inorganics, Winnipeg, Manitoba
Gerry Vera	Analyst	Organics, Winnipeg, Manitoba
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba

No Breaches Found

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
-	pp 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: Water

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	WEST HAWK LAKE 1 - RAW	WEST HAWK LAKE 2 - TREATED	WEST HAWK LAKE 3 - DISTRIBUTION MID-POINT CBC	----	----	----	----
				Sampling date/time	02-Feb-2024 09:11	02-Feb-2024 09:11	02-Feb-2024 09:20	----	----	----	----
				Sub-Matrix	Water	Water	Water	----	----	----	----
					WP2402659-001	WP2402659-002	WP2402659-003	--------	--------	--------	--------
Physical Tests											
Absorbance, UV (@ 254nm)	----	E404/WP	AU/cm		0.103	0.0730	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP	mg/L		178	180	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP	mg/L		Not Detected	Not Detected	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP	mg/L		Not Detected	Not Detected	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP	mg/L		178	180	----	----	----	----	----
Colour, true	----	E329/WP	CU		5.8	<5.0	----	----	----	----	----
Conductivity	----	E100/WP	µS/cm		573	591	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		221	219	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/WP	-		-0.640	-0.523	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/WP	-		0.128	0.246	----	----	----	----	----
pH	----	E108/WP	pH units		6.90	7.02	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162-L/WP	mg/L		326	335	----	----	----	----	----
Turbidity	----	E121/WP	NTU		<0.10	Not Detected	----	----	----	----	----
Transmittance, UV (@ 254nm)	----	E404/WP	% T/cm		78.9	84.5	----	----	----	----	----
Anions and Nutrients											
Bromide	24959-67-9	E235.Br-L/WP	mg/L		0.060	Not Detected	----	----	----	----	----
Chloride	16887-00-6	E235.Cl-L/WP	mg/L		63.2	68.2	----	----	----	----	----
Fluoride	16984-48-8	E235.F/WP	mg/L		0.047	0.044	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/WP	mg/L		0.216	0.222	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/WP	mg/L		Not Detected	Not Detected	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	mg/L		15.7	16.2	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/WP	mg/L		4.74	4.85	----	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		5.44	4.96	----	----	----	----	----
Ion Balance											
Anion sum	----	EC101A/WP	meq/L		5.68	5.88	----	----	----	----	----

Analytical Results Evaluation

Matrix: Water

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: WEST HAWK LAKE 1 - RAW	WEST HAWK LAKE 2 - TREATED	WEST HAWK LAKE 3 - DISTRIBUTION MID-POINT CBC	----	----	----	----
Sampling date/time				02-Feb-2024 09:11	02-Feb-2024 09:11	02-Feb-2024 09:20	----	----	----	----
Sub-Matrix				Water	Water	Water	----	----	----	----
				WP2402659-001	WP2402659-002	WP2402659-003	-------	-------	-------	-------
Ion Balance										
Cation sum (total)	----	EC101A/WP	meq/L	5.75	5.83	----	----	----	----	----
Ion balance (cations/anions)	----	EC101A/WP	%	101	99.1	----	----	----	----	----
Ion balance (APHA)	----	EC101A/WP	%	0.612	-0.427	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/WP	µg/L	4.8	<3.0	<3.0	----	----	----	----
Antimony, total	7440-36-0	E420/WP	µg/L	<0.10	<0.10	<0.10	----	----	----	----
Arsenic, total	7440-38-2	E420/WP	µg/L	1.92	1.72	1.77	----	----	----	----
Barium, total	7440-39-3	E420/WP	µg/L	9.95	8.82	8.77	----	----	----	----
Beryllium, total	7440-41-7	E420/WP	µg/L	Not Detected	<0.020	<0.020	----	----	----	----
Bismuth, total	7440-69-9	E420/WP	µg/L	Not Detected	<0.050	Not Detected	----	----	----	----
Boron, total	7440-42-8	E420/WP	µg/L	20	20	19	----	----	----	----
Cadmium, total	7440-43-9	E420/WP	µg/L	0.0093	<0.0050	<0.0050	----	----	----	----
Calcium, total	7440-70-2	E420/WP	µg/L	76900	76200	75800	----	----	----	----
Cesium, total	7440-46-2	E420/WP	µg/L	2.55	2.42	2.61	----	----	----	----
Chromium, total	7440-47-3	E420/WP	µg/L	<0.50	<0.50	<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	6.61	32.2	33.2	----	----	----	----
Iron, total	7439-89-6	E420/WP	µg/L	24	<10	<10	----	----	----	----
Lead, total	7439-92-1	E420/WP	µg/L	0.053	0.352	0.367	----	----	----	----
Lithium, total	7439-93-2	E420/WP	µg/L	2.8	2.8	2.7	----	----	----	----
Magnesium, total	7439-95-4	E420/WP	µg/L	6950	6920	7190	----	----	----	----
Manganese, total	7439-96-5	E420/WP	µg/L	80.9	0.38	0.22	----	----	----	----
Molybdenum, total	7439-98-7	E420/WP	µg/L	0.151	0.118	0.121	----	----	----	----
Nickel, total	7440-02-0	E420/WP	µg/L	2.38	1.35	1.63	----	----	----	----
Phosphorus, total	7723-14-0	E420/WP	µg/L	<50	<50	<50	----	----	----	----
Potassium, total	7440-09-7	E420/WP	µg/L	1570	1540	1560	----	----	----	----
Rubidium, total	7440-17-7	E420/WP	µg/L	3.68	3.56	3.65	----	----	----	----

Analytical Results Evaluation

Matrix: Water

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: WEST HAWK LAKE 1 - RAW	WEST HAWK LAKE 2 - TREATED	WEST HAWK LAKE 3 - DISTRIBUTION MID-POINT CBC	----	----	----	----
				Sampling date/time: 02-Feb-2024 09:11	02-Feb-2024 09:11	02-Feb-2024 09:20	----	----	----	----
				Sub-Matrix: Water	Water	Water	----	----	----	----
				WP2402659-001	WP2402659-002	WP2402659-003	--------	--------	--------	--------
Total Metals										
Selenium, total	7782-49-2	E420/WP	µg/L	0.271	0.282	0.190	----	----	----	----
Silicon, total	7440-21-3	E420/WP	µg/L	9330	9410	9500	----	----	----	----
Silver, total	7440-22-4	E420/WP	µg/L	<0.010	<0.010	<0.010	----	----	----	----
Sodium, total	7440-23-5	E420/WP	µg/L	29800	32700	33100	----	----	----	----
Strontium, total	7440-24-6	E420/WP	µg/L	110	108	113	----	----	----	----
Sulfur, total	7704-34-9	E420/WP	µg/L	5680	5910	5690	----	----	----	----
Tellurium, total	13494-80-9	E420/WP	µg/L	<0.20	<0.20	Not Detected	----	----	----	----
Thallium, total	7440-28-0	E420/WP	µg/L	<0.010	Not Detected	Not Detected	----	----	----	----
Thorium, total	7440-29-1	E420/WP	µg/L	Not Detected	Not Detected	Not Detected	----	----	----	----
Tin, total	7440-31-5	E420/WP	µg/L	Not Detected	0.14	0.19	----	----	----	----
Titanium, total	7440-32-6	E420/WP	µg/L	<0.30	<0.30	<0.30	----	----	----	----
Tungsten, total	7440-33-7	E420/WP	µg/L	Not Detected	<0.10	<0.10	----	----	----	----
Uranium, total	7440-61-1	E420/WP	µg/L	1.58	1.65	1.60	----	----	----	----
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	5.7	10.3	----	----	----	----
Zirconium, total	7440-67-7	E420/WP	µg/L	<0.20	<0.20	<0.20	----	----	----	----
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	----	----	----	----	----	----
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	----	----	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: WEST HAWK LAKE 1 - RAW	WEST HAWK LAKE 2 - TREATED	WEST HAWK LAKE 3 - DISTRIBUTION MID-POINT CBC	----	----
					Client sampling date / time: 02-Feb-2024 09:11	02-Feb-2024 09:11	02-Feb-2024 09:20	----	----
					WP2402659-001	WP2402659-002	WP2402659-003	--------	--------
					Result	Result	Result	----	----
Volatile Organic Compounds									
Trichloroethylene	79-01-6	E611D/WP	0.00050	mg/L	<0.00050	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WP	0.00040	mg/L	<0.00040	----	----	----	----
Xylene, o-	95-47-6	E611D/WP	0.00030	mg/L	<0.00030	----	----	----	----
Xylenes, total	1330-20-7	E611D/WP	0.00050	mg/L	<0.00050	----	----	----	----
BTEX, total	----	E611D/WP	0.0010	mg/L	<0.0010	----	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611D/WP	1.0	%	87.2	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WP	1.0	%	96.0	----	----	----	----

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.

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	:**WP2402659**	Page	: 1 of 13
Client	:**Manitoba Conservation & Climate**	Laboratory	: ALS Environmental - Winnipeg
Contact	:Matthew MacInnis	Account Manager	:
Address	:Box 130 Rennie, MB Canada R0E 1R0	Address	:1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	204 371 9257	Telephone	:+1 204 255 9720
Project	:WEST GAWK LAKE - PWS - 245.00	Date Samples Received	: 02-Feb-2024 15:29
PO	:	Issue Date	: 09-Feb-2024 07:51
C-O-C number	:----		
Sampler	:----		
Site	:WEST HAWK LAKE - PWS - 245.00 OP ID: 7226		
Quote number	:DWQ-C		
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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Total Metals	QC-1324985-001	----	Selenium, total	7782-49-2	E420	0.000131 B mg/L	0.00005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	*Description*
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

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 : Bromide in Water by IC (Low Level)										
HDPE										
WEST HAWK LAKE 1 - RAW	E235.Br-L	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WEST HAWK LAKE 2 - TREATED	E235.Br-L	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE										
WEST HAWK LAKE 1 - RAW	E235.Cl-L	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE										
WEST HAWK LAKE 2 - TREATED	E235.Cl-L	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WEST HAWK LAKE 1 - RAW	E235.F	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WEST HAWK LAKE 2 - TREATED	E235.F	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WEST HAWK LAKE 1 - RAW	E235.NO3-L	02-Feb-2024	02-Feb-2024	3 days	0 days	✓	02-Feb-2024	3 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 : Nitrate in Water by IC (Low Level)										
HDPE WEST HAWK LAKE 2 - TREATED	E235.NO3-L	02-Feb-2024	02-Feb-2024	3 days	0 days	✓	02-Feb-2024	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WEST HAWK LAKE 1 - RAW	E235.NO2-L	02-Feb-2024	02-Feb-2024	3 days	0 days	✓	02-Feb-2024	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WEST HAWK LAKE 2 - TREATED	E235.NO2-L	02-Feb-2024	02-Feb-2024	3 days	0 days	✓	02-Feb-2024	3 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WEST HAWK LAKE 1 - RAW	E235.SO4	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WEST HAWK LAKE 2 - TREATED	E235.SO4	02-Feb-2024	02-Feb-2024	28 days	0 days	✓	02-Feb-2024	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WEST HAWK LAKE 1 - RAW	E358-L	02-Feb-2024	06-Feb-2024	28 days	4 days	✓	06-Feb-2024	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WEST HAWK LAKE 2 - TREATED	E358-L	02-Feb-2024	06-Feb-2024	28 days	4 days	✓	06-Feb-2024	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) WEST HAWK LAKE 1 - RAW	E355-L	02-Feb-2024	06-Feb-2024	28 days	4 days	✓	06-Feb-2024	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) WEST HAWK LAKE 2 - TREATED	E355-L	02-Feb-2024	06-Feb-2024	28 days	4 days	✓	06-Feb-2024	28 days	4 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
Physical Tests : Alkalinity Species by Titration										
HDPE WEST HAWK LAKE 1 - RAW	E290	02-Feb-2024	05-Feb-2024	14 days	3 days	✓	05-Feb-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WEST HAWK LAKE 2 - TREATED	E290	02-Feb-2024	05-Feb-2024	14 days	3 days	✓	05-Feb-2024	14 days	3 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE WEST HAWK LAKE 1 - RAW	E329	02-Feb-2024	06-Feb-2024	3 days	4 days	☒ EHT	06-Feb-2024	3 days	4 days	☒ EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE WEST HAWK LAKE 2 - TREATED	E329	02-Feb-2024	06-Feb-2024	3 days	4 days	☒ EHT	06-Feb-2024	3 days	4 days	☒ EHT
Physical Tests : Conductivity in Water										
HDPE WEST HAWK LAKE 1 - RAW	E100	02-Feb-2024	05-Feb-2024	28 days	3 days	✓	05-Feb-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WEST HAWK LAKE 2 - TREATED	E100	02-Feb-2024	05-Feb-2024	28 days	3 days	✓	05-Feb-2024	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE WEST HAWK LAKE 1 - RAW	E108	02-Feb-2024	05-Feb-2024	0.25 hrs	71 hrs	☒ EHTR-FM	05-Feb-2024	0.25 hrs	71 hrs	☒ EHTR-FM
Physical Tests : pH by Meter										
HDPE WEST HAWK LAKE 2 - TREATED	E108	02-Feb-2024	05-Feb-2024	0.25 hrs	71 hrs	☒ EHTR-FM	05-Feb-2024	0.25 hrs	71 hrs	☒ EHTR-FM
Physical Tests : TDS by Gravimetry (Low Level)										
HDPE WEST HAWK LAKE 1 - RAW	E162-L	02-Feb-2024	----	----	----		07-Feb-2024	7 days	5 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
Physical Tests : TDS by Gravimetry (Low Level)										
HDPE WEST HAWK LAKE 2 - TREATED	E162-L	02-Feb-2024	----	----	----		07-Feb-2024	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE WEST HAWK LAKE 1 - RAW	E121	02-Feb-2024	----	----	----		05-Feb-2024	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE WEST HAWK LAKE 2 - TREATED	E121	02-Feb-2024	----	----	----		05-Feb-2024	3 days	3 days	✓
Physical Tests : UV Absorbance and Transmittance by Spectrometry										
HDPE WEST HAWK LAKE 1 - RAW	E404	02-Feb-2024	----	----	----		06-Feb-2024	3 days	4 days	✗ EHT
Physical Tests : UV Absorbance and Transmittance by Spectrometry										
HDPE WEST HAWK LAKE 2 - TREATED	E404	02-Feb-2024	----	----	----		06-Feb-2024	3 days	4 days	✗ EHT
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) WEST HAWK LAKE 1 - RAW	E420	02-Feb-2024	07-Feb-2024	180 days	5 days	✓	07-Feb-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) WEST HAWK LAKE 2 - TREATED	E420	02-Feb-2024	07-Feb-2024	180 days	5 days	✓	07-Feb-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) WEST HAWK LAKE 3 - DISTRIBUTION MID-POINT CBC	E420	02-Feb-2024	07-Feb-2024	180 days	5 days	✓	07-Feb-2024	180 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WEST HAWK LAKE 1 - RAW	E611D	02-Feb-2024	06-Feb-2024	14 days	4 days	✓	06-Feb-2024	14 days	4 days	✓

Legend & Qualifier Definitions

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	1323596	1	10	10.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1322882	0	2	0.0	5.0	☒
Chloride in Water by IC (Low Level)	E235.Cl-L	1322883	0	2	0.0	5.0	☒
Colour (True) by Spectrometer (5 CU)	E329	1324331	1	10	10.0	5.0	✓
Conductivity in Water	E100	1323595	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1323717	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1322875	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1322880	0	3	0.0	5.0	☒
Nitrite in Water by IC (Low Level)	E235.NO2-L	1322881	0	3	0.0	5.0	☒
pH by Meter	E108	1323594	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1322878	1	17	5.8	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1323160	1	4	25.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1324985	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1324082	1	12	8.3	5.0	✓
Turbidity by Nephelometry	E121	1322842	1	15	6.6	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1323777	1	5	20.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1323629	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1323596	1	10	10.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1322882	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1322883	1	2	50.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1324331	1	10	10.0	5.0	✓
Conductivity in Water	E100	1323595	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1323717	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1322875	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1322880	1	3	33.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1322881	1	3	33.3	5.0	✓
pH by Meter	E108	1323594	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1322878	1	17	5.8	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1323160	1	4	25.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1324985	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1324082	1	12	8.3	5.0	✓
Turbidity by Nephelometry	E121	1322842	1	15	6.6	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1323777	1	5	20.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1323629	1	9	11.1	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*
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1323596	1	10	10.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1322882	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1322883	1	2	50.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1324331	1	10	10.0	5.0	✓
Conductivity in Water	E100	1323595	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1323717	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1322875	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1322880	1	3	33.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1322881	1	3	33.3	5.0	✓
Sulfate in Water by IC	E235.SO4	1322878	1	17	5.8	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1323160	1	4	25.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1324985	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1324082	1	12	8.3	5.0	✓
Turbidity by Nephelometry	E121	1322842	1	15	6.6	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1323777	1	5	20.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1323629	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	1322882	0	2	0.0	5.0	☒
Chloride in Water by IC (Low Level)	E235.Cl-L	1322883	0	2	0.0	5.0	☒
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1323717	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1322875	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1322880	0	3	0.0	5.0	☒
Nitrite in Water by IC (Low Level)	E235.NO2-L	1322881	0	3	0.0	5.0	☒
Sulfate in Water by IC	E235.SO4	1322878	1	17	5.8	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1324985	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1324082	1	12	8.3	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1323629	1	9	11.1	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.
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 CO2. 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 CO2. 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.
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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 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.

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QUALITY CONTROL REPORT

Work Order	:**WP2402659**	Page	: 1 of 14
Client	: Manitoba Conservation & Climate	Laboratory	: ALS Environmental - Winnipeg
Contact	: Matthew MacInnis	Account Manager	:
Address	: Box 130 Rennie, MB Canada R0E 1R0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	:	Telephone	: +1 204 255 9720
Project	: WEST GAWK LAKE - PWS - 245.00	Date Samples Received	: 02-Feb-2024 15:29
PO	:	Date Analysis Commenced	: 02-Feb-2024
C-O-C number	: ----	Issue Date	: 09-Feb-2024 07:52
Sampler	: ---- 204 371 9257		
Site	: WEST HAWK LAKE - PWS - 245.00 OP ID: 7226		
Quote number	: DWQ-C		
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*
Christopher Chow		Winnipeg Inorganics, Winnipeg, Manitoba
Gerry Vera	Analyst	Winnipeg Organics, Winnipeg, Manitoba
Lee McTavish		Winnipeg Inorganics, Winnipeg, Manitoba
Lee McTavish		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: 1322842)											
WP2402550-001	Anonymous	Turbidity	----	E121	0.10	NTU	3.54	3.46	2.28%	15%	----
Physical Tests (QC Lot: 1323160)											
WP2402659-001	WEST HAWK LAKE 1-RAW	Solids, total dissolved [TDS]	----	E162-L	15.0	mg/L	326	326	0.00%	20%	----
Physical Tests (QC Lot: 1323594)											
WP2402618-001	Anonymous	pH	----	E108	0.10	pH units	7.81	7.83	0.256%	4%	----
Physical Tests (QC Lot: 1323595)											
WP2402618-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	245	244	0.409%	10%	----
Physical Tests (QC Lot: 1323596)											
WP2402618-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	84.7	83.2	1.79%	20%	----
Physical Tests (QC Lot: 1323777)											
WP2402550-001	Anonymous	Absorbance, UV (@ 254nm)	----	E404	0.0050	AU/cm	0.0220	0.0230	0.0010	Diff <2x LOR	----
Physical Tests (QC Lot: 1324331)											
WP2402550-001	Anonymous	Colour, true	----	E329	5.0	CU	<5.0	<5.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1322875)											
WP2402618-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.101	0.099	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1322878)											
WP2402618-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	22.4	22.3	0.392%	20%	----
Organic / Inorganic C rbon (QC Lot: 132371)											
WP2402487-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	7.89	7.82	0.827%	20%	----
Organic / Inorganic C rbon (QC Lot: 132408)											
WP2402535-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.38	1.27	0.11	Diff <2x LOR	----
Total Metals (QC Lo : 1324985)											
WP2402626-003	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	0.000004	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00730	0.00726	0.608%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.00022	0.00024	0.00002	Diff <2x LOR	----
		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	0.187	0.185	1.40%	20%	----

Sub-Matrix: Water

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Laboratory Duplicate (DUP) Report						
					LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lo : 1324985) - continued											
WP2402626-003	Anonymous	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	0.073	0.074	0.0005	Diff <2x LOR	----
		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	0.0240	0.0237	0.946%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.053	0.052	0.0004	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000229	0.000226	0.000003	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0029	0.0029	0.00002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	0.204	0.203	0.544%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00020	0.00030	0.00010	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00630	0.00637	1.13%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	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	0.594	0.592	0.246%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	7.59	7.31	3.74%	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	127	125	1.72%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.00046	0.00047	0.0000009	Diff <2x LOR	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	8.62	8.12	5.96%	20%	----
		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	0.00117	0.00116	0.874%	20%	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000316	0.000315	0.0887%	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	0.0089	0.0094	0.0005	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Volatile Organic Com pounds (QC Lot: 1323(29)											
WP2402642-001	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	----

Sub-Matrix: Water

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Laboratory Duplicate (DUP) Report						
					LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Com pounds (QC Lot: 1323(29) - continued											
WP2402642-001	Anonymous	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: 1322842)						
Turbidity		E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1323160)						
Solids, total dissolved [TDS]		E162-L	3	mg/L	<3.0	----
Physical Tests (QCLot: 1323595)						
Conductivity		E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1323596)						
Alkalinity, total (as CaCO3)		E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1323777)						
Absorbance, UV (@ 254nm)		E404	0.005	AU/cm	<0.0050	----
Physical Tests (QCLot: 1324331)						
Colour, true		E329	5	CU	<5.0	----
Anions and Nutrients (QCLot: 1322875)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1322878)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1322880)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1322881)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1322882)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1322883)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Organic / Inorganic Carbon (QCLot: 1323717)						
Carbon, dissolved organic [DOC]		E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1324082)						
Carbon, total organic [TOC]		E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1324985)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1324985) - continued						
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	# 0.000131	B
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	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1323629)						
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	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

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	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1322842)									
Turbidity		E121	0.1	NTU	200 NTU	107	85.0	115	----
Physical Tests (QCLot: 1323160)									
Solids, total dissolved [TDS]		E162-L	3	mg/L	1000 mg/L	93.8	85.0	115	----
Physical Tests (QCLot: 1323594)									
pH		E108	----	pH units	7 pH units	99.6	98.0	102	----
Physical Tests (QCLot: 1323595)									
Conductivity		E100	1	µS/cm	1412 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1323596)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	100 mg/L	103	85.0	115	----
Physical Tests (QCLot: 1323777)									
Absorbance, UV (@ 254nm)		E404	0.005	AU/cm	0.582 AU/cm	101	85.0	115	----
Physical Tests (QCLot: 1324331)									
Colour, true		E329	5	CU	250 CU	100	85.0	115	----
Anions and Nutrients (QCLot: 1322875)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1322878)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1322880)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1322881)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1322882)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1322883)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	100.0	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1323717)									
Carbon, dissolved organic [DOC]		E358-L	0.5	mg/L	8.57 mg/L	94.5	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1324082)									
Carbon, total organic [TOC]		E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1324985)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	99.6	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	92.3	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	96.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	95.4	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	98.7	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	92.8	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	111	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	93.7	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.0	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	106	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.7	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.4	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	94.7	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	98.2	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	99.4	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.4	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1324985) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.0	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	94.7	80.0	120	----
Volatile Organic Compounds (QCLot: 1323629)									
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	99.1	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	93.8	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	100.0	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	95.4	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	104	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	96.0	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	97.4	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	99.4	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	92.0	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	95.8	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	99.4	70.0	130	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	107	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	97.9	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: 1322875)										
WP2402618-001	Anonymous	Fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1322878)										
WP2402618-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	105 mg/L	100 mg/L	105	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1323117)										
WP2402487-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1324182)										
WP2402535-002	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.19 mg/L	5 mg/L	104	70.0	130	----
Total Metals (QCLot: 1324985)										
WP2402626-003	Anonymous	Aluminum, total	7429-90-5	E420	0.225 mg/L	0.2 mg/L	113	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0219 mg/L	0.02 mg/L	110	70.0	130	----
		Barium, total	7440-39-3	E420	0.0227 mg/L	0.02 mg/L	113	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0440 mg/L	0.04 mg/L	110	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0114 mg/L	0.01 mg/L	114	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	0.1 mg/L	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00439 mg/L	0.004 mg/L	110	70.0	130	----
		Calcium, total	7440-70-2	E420	4.50 mg/L	4 mg/L	113	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0113 mg/L	0.01 mg/L	113	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0451 mg/L	0.04 mg/L	113	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0222 mg/L	0.02 mg/L	111	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Iron, total	7439-89-6	E420	2.21 mg/L	2 mg/L	110	70.0	130	----
		Lead, total	7439-92-1	E420	0.0218 mg/L	0.02 mg/L	109	70.0	130	----
		Lithium, total	7439-93-2	E420	0.112 mg/L	0.1 mg/L	112	70.0	130	----
		Magnesium, total	7439-95-4	E420	1.13 mg/L	1 mg/L	113	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0226 mg/L	0.02 mg/L	113	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0429 mg/L	0.04 mg/L	107	70.0	130	----
		Phosphorus, total	7723-14-0	E420	11.4 mg/L	10 mg/L	114	70.0	130	----
		Potassium, total	7440-09-7	E420	4.61 mg/L	4 mg/L	115	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: 1324985) - continued										
WP2402626-003	Anonymous	Rubidium, total	7440-17-7	E420	0.0224 mg/L	0.02 mg/L	112	70.0	130	----
		Silicon, total	7440-21-3	E420	9.91 mg/L	10 mg/L	99.1	70.0	130	----
		Silver, total	7440-22-4	E420	0.00410 mg/L	0.004 mg/L	103	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	0.0222 mg/L	0.02 mg/L	111	70.0	130	----
		Sulfur, total	7704-34-9	E420	22.6 mg/L	20 mg/L	113	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00425 mg/L	0.004 mg/L	106	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0227 mg/L	0.02 mg/L	114	70.0	130	----
		Tin, total	7440-31-5	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0420 mg/L	0.04 mg/L	105	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00452 mg/L	0.004 mg/L	113	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.114 mg/L	0.1 mg/L	114	70.0	130	----
		Zinc, total	7440-66-6	E420	0.441 mg/L	0.4 mg/L	110	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0422 mg/L	0.04 mg/L	105	70.0	130	----
Volatile Organic C mpounds (QCLot: 13 3629)										
WP2402642-001	Anonymous	Benzene	71-43-2	E611D	95.6 µg/L	100 µg/L	95.6	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Bromoform	75-25-2	E611D	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Chloroform	67-66-3	E611D	94.9 µg/L	100 µg/L	94.9	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	91.0 µg/L	100 µg/L	91.0	60.0	140	----
		Dichloromethane	75-09-2	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Ethylbenzene	100-41-4	E611D	93.9 µg/L	100 µg/L	93.9	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	96.4 µg/L	100 µg/L	96.4	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		Toluene	108-88-3	E611D	91.0 µg/L	100 µg/L	91.0	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	93.3 µg/L	100 µg/L	93.3	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	95.7 µg/L	100 µg/L	95.7	60.0	140	----
		Trichloroethylene	79-01-6	E611D	96.4 µg/L	100 µg/L	96.4	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	210 µg/L	200 µg/L	105	60.0	140	----
		Xylene, o-	95-47-6	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----

What happens if you fail to meet any of these regulations?

- If any lab samples come back with positive results then the laboratory immediately notifies us as well as the water officer. With a positive result for bacteria, The Office of Drinking Water and/ or Medical Officer of Health will provide instructions on how to proceed.

Will we be notified if a problem occurs?

- Yes, if for any reason a boil water advisory is put in place then you will be notified via call/e-mail list and signage will be posted around town. The Whiteshell Cottagers Association will also immediately be notified and can reach residents through social platforms.

- **Is there anything else in the water that should be monitored or regulations you should meet?**

    - Our main focus is the disinfection and bacteria in the water because that has the most concerning effect to the publics' direct health, but yes there is much more that we monitor. Things that don't directly affect your health like how the water looks, tastes, smells, etc. is monitored through a full lab analysis to insure their limits are within the regulated guidelines. Below is a full analytical report on our water from the laboratory, this includes raw water, treated water and distribution water giving any limits set and the results of our water.

- **Were there any issues or failures with meeting any requirements over the year?**

    - No, all requirements were met.

- **Where there any incidents of non-compliance or boil water advisories.**

    - On May 19th a boil water advisory was issued due to low reservoir levels for the distribution water supply. Water was hauled from Falco lake water treatment plant. This order was rescinded aft the completion of the required sampled results.

Manitoba

Health
Environment and Climate Change

PUBLIC NOTICE

BOIL WATER ADVISORY
FOR THE WEST HAWK LAKE PUBLIC WATER SYSTEM

Issued by the Medical Officer of Health, Manitoba Health and
the Office of Drinking Water, Manitoba Environment and Climate Change

May 19, 2024

Low water storage levels at the water plant have created the need to haul water from another water source, which could result in inadequately treated water entering the distribution system. A boil water advisory has been issued to ensure public health protection.

RECOMMENDATIONS

Until further notice, all water used for consumption should be brought to a rolling boil for at least one minute before it is used for:

- Drinking and ice making
- Preparing beverages, such as infant formula
- Preparing food, including washing fruits and vegetables
- Brushing teeth

It is **not** necessary to boil tap water used for other household purposes, such as laundry or washing dishes. Adults and older children that are able to avoid swallowing the water can wash, bathe, or shower. Young children should be sponge bathed. If boiling is not practical, an alternate and safe supply of water should be used for consumptive purposes; i.e. bottled water. **Boil Water Advisory Fact Sheet #1 - Boil Water Advisory For Manitoba Water System Users** contains additional information on water use and can be found on the website below.

All commercial, public and permitted facilities (ex: restaurants, health care facilities, day cares, personal care homes and other private facilities that provide food and water services) must follow water use recommendations from the **Boil Water Advisory Fact Sheet #3 – Boil Water Advisory For Commercial/Public Facilities**. A copy of this Fact Sheet is available on the website below.

To avoid burn injuries from hot water, caution should be taken. Please keep young children away from boiling water. Place kettles and pots away from counter and stove edges.

Please share this information with other people who use the tap water, especially those who may not have received this notice directly (ex: renters, tenants, staff, or clients). This notice can also be posted in common areas where people tend to gather.

DURATION

The Boil Water Advisory will remain in effect until the water supplied by this water system no longer presents a risk to public health. You will be notified when the advisory has been rescinded.

If you have any questions or concerns, please contact water system at 204-349-6026 or the Regional Drinking Water Officer at 204-371-5065, or Health Links at 204-788-8200 (toll free at 1-888-315-9257).

To review Fact Sheets on water use, please go to www.manitoba.ca/drinkingwater or http://www.gov.mb.ca/health/publichealth/environmentalhealth/water.html

Interlake–Eastern
Regional Health Authority

Dr. Karen Robinson
589 – 3rd Avenue South
Stonewall, Manitoba
R0C 2Z0

May 23, 2024 Code: 245.00

Manitoba Environment and Climate Change
Rob Nedotiafko, Director of Parks
4th Floor – 254/258 Portage Avenue
Winnipeg, MB R3C 0B6
rob.nedotiafko@gov.mb.ca

RE: RESCIND BOIL WATER ADVISORY ISSUED TO WEST HAWK PUBLIC WATER SYSTEM

Dear Rob Nedotiafko:

Drinking Water Officer, Sarah Belisle has advised me that the West Hawk public water system has met all conditions for rescinding the boil water advisory and that bacteriological testing results meet regulatory standards.

I am therefore rescinding the boil water advisory that was placed on the West Hawk public water system on May 19, 2024.

Please ensure all water users are notified that the advisory has been rescinded and that normal water usage can be resumed. A copy of this letter can be provided as notification. Notices posted in public locations such as washrooms are to be removed.

Should you have any questions, please contact Sarah Belisle, Senior Regional Drinking Water Officer at 204-371-5065.

Sincerely,

Dr. Karen Robinson
Medical Officer of Health
Interlake-Eastern Regional Health Authority

cc:
Sacha Janzen – A/Director, Office of Drinking Water
Marc Balcaen – A/Manager, Field Operations, Office of Drinking Water
Colin Nakata – A/Supervisor Drinking Water Officer, Office of Drinking Water
Keith Hood, Parks District Manager
Matthew MacInnis, Parks Operator
Public Health Inspector - healthprotection@gov.mb.ca
ERT Duty Officer - ERTDutyOfficer@gov.mb.ca
Interlake Eastern Health Authority Emergency Preparedness Program
(disastermanagement@ierha.ca)

Pinawa
24 Aberdeen Avenue, Box 339
Pinawa, Manitoba
R0E 1L0
Phone: 1.204.753.2012
Toll Free: 1.877.753.2012
Fax: 1.204.753.2015

Stonewall
589–3rd Avenue South
Stonewall, Manitoba
R0C 2Z0
Phone: 1.204.467.4742
Toll Free: 1.888.488.2299
Fax: 1.204.467.4750

Selkirk
100 Easton Drive, Box 5000
Selkirk, Manitoba
R1A 2M2
Phone: 1.204.482.5800
Toll Free: 1.888.488.2299
Fax: 1.204.785.9113

Website: www.ierha.ca
Email: info@ierha.ca

- On December 18th a boil water advisory was issued for a scheduled water main repair. This was rescinded following the required sampling results.

Manitoba

Health
Environment and Climate Change

PUBLIC NOTICE

BOIL WATER ADVISORY

FOR A PORTION OF THE WEST HAWK LAKE PUBLIC WATER SYSTEM
Tallpine Lodges

Issued by the Medical Officer of Health, Manitoba Health and
the Office of Drinking Water, Manitoba Environment and Climate Change

December 18, 2024

Scheduled maintenance to the water system will lead to the loss of water pressure in a portion of the West Hawk Lake distribution system that services **Tallpine Lodges**. Distribution depressurization can compromise the safety of the water supply. A boil water advisory is being issued starting at **11:00 am on December 18, 2024** to ensure the protection of public health.

RECOMMENDATIONS

Until further notice, all water used for consumption should be brought to a rolling boil for at least one minute before it is used for:

- Drinking and ice making
- Preparing beverages, such as infant formula
- Preparing food, including washing fruits and vegetables
- Brushing teeth

It is **not** necessary to boil tap water used for other household purposes, such as laundry or washing dishes. Adults and older children that are able to avoid swallowing the water can wash, bathe, or shower. Young children should be sponge bathed. If boiling is not practical, an alternate and safe supply of water should be used for consumptive purposes; i.e. bottled water. **Boil Water Advisory Fact Sheet #1 - Boil Water Advisory For Manitoba Water System Users** contains additional information on water use and can be found on the website below.

All commercial, public and permitted facilities (ex: restaurants, health care facilities, day cares, personal care homes and other private facilities that provide food and water services) must follow water use recommendations from the **Boil Water Advisory Fact Sheet #3 – Boil Water Advisory For Commercial/Public Facilities**. A copy of this Fact Sheet is available on the website below.

To avoid burn injuries from hot water, caution should be taken. Please keep young children away from boiling water. Place kettles and pots away from counter and stove edges.

Please share this information with other people who use the tap water, especially those who may not have received this notice directly (ex: renters, tenants, staff, or clients). This notice can also be posted in common areas where people tend to gather.

DURATION

The Boil Water Advisory will remain in effect until the water supplied by this water system no longer presents a risk to public health. You will be notified when the advisory has been rescinded.

If you have any questions or concerns, please contact water system at 204-371-9376 or the Regional Drinking Water Officer at 204-371-5065, or Health Links at 204-788-8200 (toll free at 1-888-315-9257).

To review Fact Sheets on water use, please go to www.manitoba.ca/drinkingwater or http://www.gov.mb.ca/health/publichealth/environmentalhealth/water.html

- **Are you required to disclose any non - compliances to public?**
    - Yes, if any non-compliances due occur in the year it will be on our audit. We will also give you a description on the incident such as what it means, what happened, why it happened, and what corrective actions were taken to solve this issue and prevent the issue from recurring.

- **Were there any unforeseen major issues or expenses over the year?**

    - We had some maintenance done to the raw water wells and lines to try to help keep up with the daily peek demands. The wells and lines were flushed and swabbed to increase flow, and the pumps were replaced.

- **Do you expect any major projects or expenses next year that we should be aware of, or that may affect my water service?**

    - Current there are no major projects or expenses planned for the next year.

Here at West Hawk Lake Water Treatment Plant we would like to say thank you for your support and we plan to work diligently in the new year to improve our water system and provide a constant supply of clean potable water to our community.

Sincerely your operators

Matt, Steve, Jake

Manitoba