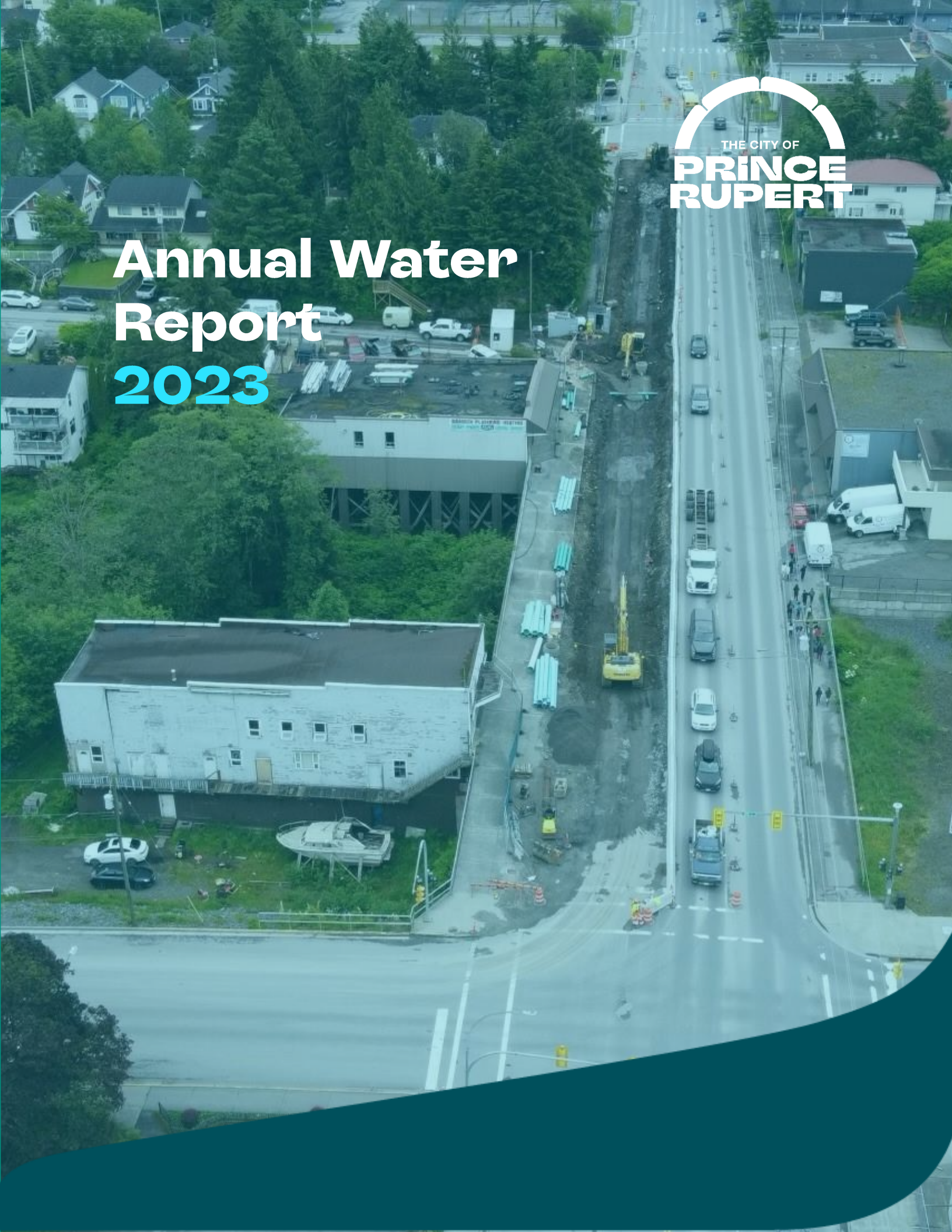




Annual Water Report 2023



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Introduction

The annual report is an important part of providing Prince Rupert residents with information regarding the quality and the risks associated with the drinking water supply system. It also provides users with educational information, ongoing challenges, and planned improvements to the water supply system. Community water systems are governed by the British Columbia Drinking Water Protection Act which sets out requirements for drinking water operators and suppliers to ensure the provision of safe drinking water to their customers. In 2024, Prince Rupert is providing additional information on an infrastructure replacement plan to guide future improvements to the water system and to continue to provide residents with safe drinking water.

Drinking water can be a complex issue and much of the information provided in this report is technical in nature. If you have any questions or concerns about the information in this report, please feel free to contact the City's Operations Department.

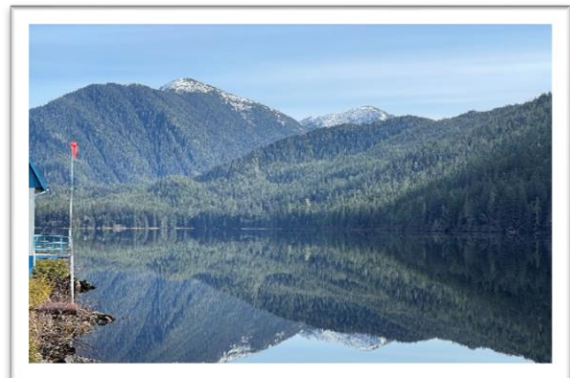
Operations Department

Phone: (250) 624 6795

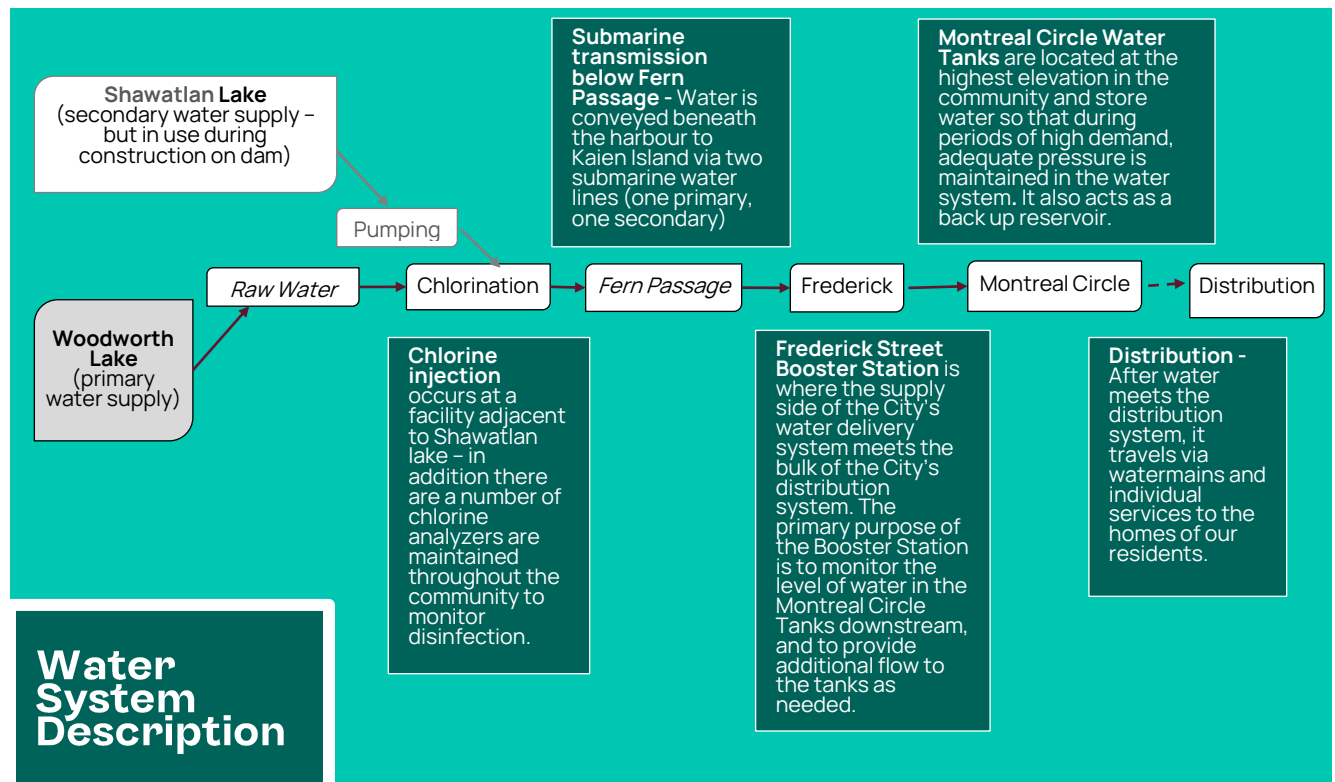
Email: works@princerupert.ca

Water System Description

The Prince Rupert Community Water System, owned and operated by the City of Prince Rupert, feeds approximately 6 million cubic metres of potable water per year to local residents, businesses, and industry, utilizing over 50 kilometres of distribution line and close to 6000 individual service connections. The Community Water System supplies port industries located on Kaien Island, as well as BC Ferries. The system is also capable of meeting the peak seasonal demand of a number of industrial fish processors, an industry that has declined in recent years with the closure of local canneries, but when active can generate over twice the average daily consumption.



See the following page for a schematic diagram and detailed description of the path that water takes through the Community Water System



Water Source(s)

The City of Prince Rupert has two sources of raw water – Woodworth and Shawatlan Lakes - two large lakes and watersheds on the Ts'msyen Peninsula. The primary source of water is Woodworth Lake, at elevation and remotely located in the Coastal Mountain Range, which forms the backbone of the City's gravity-fed water supply system.

When necessary, the City relies on Shawatlan Lake, at lower elevation, which requires pumping from a shoreside intake to transmit water when in use. The Shawatlan pumping system is a valuable back-up facility to be used in case of emergency or necessary maintenance

activity, and has been vital to the current work on replacing our dam.

Whether powered by gravity or a pumping system, water is transferred from one of these two water sources through an undersea or sub-marine supply main across Fern Passage to the Kaien Island townsite, where it is distributed to local households, businesses and industry.

System Classification and Operator Certifications

The City of Prince Rupert's Water System has been classified as a Level 1 System for Water Treatment and a Level 2 for Water Distribution by the Environmental

Operators Certification Program (EOCP). See [Appendix D](#) for System Classification Certification.

Methods of Disinfection and Protection

Remote Water Source

Few issues are more important to a municipality than the quality of the drinking water it delivers. Prince Rupert is lucky to host a water supply well-protected from human interference and potential contamination thanks to its remote location. To ensure this continued

benefit, the City of Prince Rupert maintains restricted access to the watersheds surrounding both Woodworth and Shawatlan Lakes.

Chlorination and Water Quality Testing

Currently, as the primary barrier of defense against the incidence of waterborne disease, the municipality maintains an enduring chlorine residual throughout the water distribution system. Chlorine is the most reliable and widely used drinking water disinfectant in North America. A "residual" is the trace amount of chlorine left in the drinking water after initial disinfection have taken place. As long as a trace of chlorine or residual can be detected, the line is still subject to active disinfection.

For greater public safety and adequate contact time, chlorine is added before the water reaches Kaien Island. Chlorine dosage must be constantly trimmed and balanced to maximize disinfection but minimize the production of disinfection



(Pictured Above: The City's distribution system runs beneath the harbour to Kaien Island)

by-products (DBPs), such as Trihalomethanes (THMs) and Haloacetic Acids (HAAs). Residual levels are therefore electronically monitored on a constant basis throughout the

municipality. In 2023, the City continued to work with Northern Health to adjust chlorination levels, in order to reduce associated levels of chlorination byproducts.

To further check that the chlorination process is working properly and that the water system has not been otherwise compromised, various types of water

quality samples are taken daily, weekly, or at other regular intervals. The results of the Water Quality Testing Program are reported to the Provincial Ministry of Health and are available on the Northern Health Authority's Public Health Protection website at:

<http://www.healthspace.ca/nha>, and in the [Water Quality Data section](#) of this Report.

Future Disinfection

As noted above, the City currently has a single form of treatment – chlorination – that it relies on to disinfect our potable water. However, over the longer term we are working towards a new Treatment Facility that will provide secondary forms of treatment, and bring our community in line with Canada-wide best practices. This project has been delayed slightly while we focus on protecting the distribution system through an aggressive renewal plan, to prevent the costly loss of treated water throughout the system. Now that funding for that critical work has been secured, the City will be pursuing the additional funds necessary to develop treatment.

The new treatment facility will address the following:

- Removal of suspended solids that contribute to the colour and turbidity issues with the existing supplied potable water, additionally reducing potential

interaction with chlorine and associated byproducts;

- Institution of a secondary form of treatment that can ensure adequate protection against potential water-borne pathogens like Cryptosporidia, which cannot be treated with chlorination alone;
- Reduction of the overall levels of chlorination and associated byproducts present in our water; and,
- Treatment for pH that will reduce the corrosivity of the water and associated health risks to homeowners with lead/copper in home plumbing.

The City engaged with the Province in the engineering phase for this project throughout 2022-2023, with work ultimately held off while the distribution system is addressed.

Cross Connection Control

In plumbing systems water is generally maintained at a substantial pressure so that water will flow from taps, showers, etc on demand. When there is reduced pressure due to a broken water main or high demand on water supply, for instance, a building's water pipe may allow contaminated water from the ground, from storage or from other sources to be drawn up into the system, contaminating drinking water. Points at which a drinking water system connects with a non-potable water system are called cross connections. Cross connection mechanisms (called backflow preventers)

must be in place to protect the water we drink from contamination.

To reduce potential cross contamination of the City's potable water, the City has an annual reporting requirement for at-risk commercial water users to ensure that their backflow preventers are working. As per Water Utility Management Bylaw 3401, the City requires that Backflow Preventers are annually tested by a certified professional. The fillable form as well as information on which businesses are required to participate, is [available on the City's website](#).

Water Quality Data

Bacteriological Results

Microbiological sampling requirements are established by Northern Health, and follow the Guidelines for Canadian Drinking Water Quality and the British Columbia Drinking Water Protection Regulation. In 2023, the City conducted weekly sampling at four sample locations within the City,

and monthly sampling at several other sites to meet its permit condition of 20 bacteriological samples each month. The City also conducted monthly protozoology sampling of the source water in accordance with the City's operating permit.

Sampling Summary

Parameter	Standard	Did we meet the standard?
Escherichia coli (for all samples)	No detectable Escherichia coli per 100 mL	Yes
Total coliform bacteria (more than 1 sample collected in a 30 day period)	No more than 10% of samples contain total coliform bacteria, and no sample has more than 10 total coliform bacteria per 100 mL	Yes
Treatability of Cryptosporidium and Giardia	No cryptosporidium detected; Giardia within treatable limits (rendered inert via chlorination)	Yes

***Note** – the standard for testable parameters of e-coli and coliforms that allows for a small amount of detectable escherchia coli, with retesting to determine if the parameter was a false positive

Chemical Sampling

Chemical sampling, which occurs every 3 months, identifies results relating to a number of parameters – namely looking for the presence of different metals and especially substances harmful to human health like arsenic, lead and other contaminants. It also measures general water parameters like colour, turbidity, pH, organic material and alkalinity. The City of Prince Rupert's source water tests have met all Maximum Acceptable Criteria (MAC) for contaminants specified by the Canadian Drinking Water Guidelines, with the exception of Hal turbidity samples, which have been above the MAC on occasion, leading the City to issue Water Quality Advisories. Turbidity in and of itself is not harmful to human health, however higher turbidity can indicate a greater likelihood of potential

bacteriological contamination, so Water Quality Advisories are issued during high turbidity events to alert sensitive users in an abundance of caution.

In addition, along the same lines as turbidity, the City's water colour does not meet the Guideline, however this is an aesthetic objective, rather than a health risk. Finally, due to the above-ground nature of the City's lake-fed source water, the City's pH levels hover below the lower limit of the identified goals for pH, which was updated in 2016 to a range of 7.0 to 10.5 in finished drinking water. This is due to the City's above ground water supply sources, which are subject to slight acidification from rain, as experienced by most coastal communities.

All above noted issues with the chemical composition of the City's water supply and associated required protections have been noted on our Operating Permit ([see conditions below](#)). These issues are unfortunately untreatable with treatment methods within City's current treatment infrastructure, however they will be

addressed by the institution of a new treatment plant, and are a primary impetus behind the upgrade to our system.

Test results regarding the chemical composition of the CWS are listed in [Appendix C](#) of this document.

Access to Water Quality Data

[Northern Health Authority's Public Health Protection website](#) lists all municipal water quality data from within the Northern Health region. This public site lists the following up-to-date information about our water quality monitoring program:

- **Drinking Water inspection Reports**
- **Current Water Notices / Advisories** – There are no current notices in effect with respect to water quality in Prince Rupert. Instances of Water Notices/Advisories are noted in the Water Quality Data and Inspection Results section below.
- **Chemical Samples & Results** – Actual chemical analysis test results for 8 key sampling points

going back as far as 1989. See [Appendix C for 2023 Results](#).

- **Water Sample Results** – Actual bacteriological test results for selected sampling points dating back to 1994. "L1" means "less than one" or no coliform issues detected. See [Appendix C for 2023 Results](#).

For more information regarding water quality standards, the following links may be of interest:

- **Northern Health website:** <http://www.healthspace.ca/nha>
- **Guidelines for Canadian Drinking Water Quality:** <http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php>

Conditions of our Water Operating Permit

The City has a number of conditions to its Operating Permit ([See Appendix B](#)), including corrective actions to be taken until a new treatment system can be constructed.

Monitoring for Cryptosporidium and Giardia

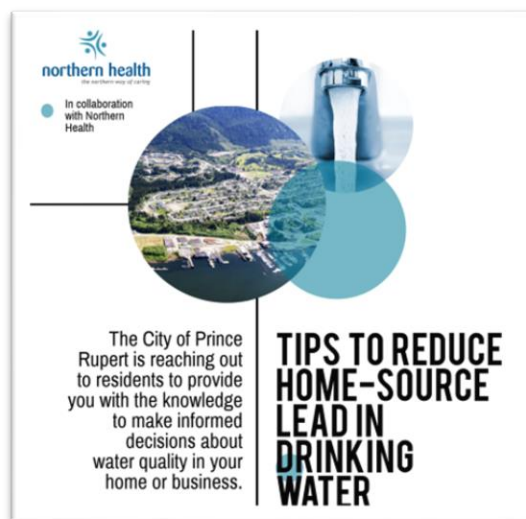
Issue: Provincial surface water treatment objectives are not currently met by the City's single disinfection method – chlorination – as this method cannot achieve 3-log inactivation of Cryptosporidium (although disinfection to inactivate Giardia is being performed). Two independent treatment processes are required for treating surface water sources. Monitoring data also shows that turbidity sometimes exceeds the objective of one nephelometric turbidity unit (NTU) or less. Given this deficiency in the existing system, the City must continue to monitor the source water for Giardia and Cryptosporidium once a month as identified in the operating permit conditions. Over the longer term, the City must also design and implement effective water treatment that meets provincial surface water treatment objectives in accordance with the timeline in the operating permit conditions.

Response: The City has consistently maintained chlorine residual levels to achieve a 3-log inactivation of Giardia following the direction of Northern Health, and has also continued to regularly monitor source water for Giardia cysts and Cryptosporidium oocysts throughout 2023 to ensure that concentrations of these microbiological contaminants remained within treatable limits. In response to the noted turbidity incidents, the City has developed a Turbidity Response Plan as part of its overall Water System Emergency Plan, which has been reviewed and approved by Northern Health, and implemented by the City. Over the longer term, the City's plan is to implement multiple barriers of treatment that will address all drinking water treatment objectives noted above.

Metal Leaching and Corrosion Control

Issue: Water chemistry data indicates that the City's source water is corrosive (with a low pH), and so on private properties that have older plumbing components, leaching of lead and/or copper into drinking water may occur. The City has provided information on potential for lead leaching in drinking water to users in the past, and information is posted on the [City of Prince Rupert's website](#). The City has also conducted a Household Water Sampling Program to collect data on lead and copper levels from a representative sample of over 60 private residences. The results from the sampling show that centralized corrosion control is appropriate. In addition, due to the spread of results, it was determined that City infrastructure is not contributing in a meaningful way to higher results as higher incidences of lead and copper found in samples were sporadic rather than clustered in any given area.

Response: The City has shared information regarding initial results of the Household Water Sampling Program, and publicized the results of its 2019



(Pictured Above: An informational flyer was sent to all households in 2019)

Household Lead Sampling program in 2020. The City has engaged in further household testing to assess the risk of corrosive water on household plumbing systems in 2020, with results posted following the completion of reporting on 2021 test results. Over the longer term, the City's plan is to implement multiple barriers of treatment that will address all drinking water treatment objectives noted above with respect to the corrosiveness of the water supply.

Exceedances of Chlorination Byproducts

Issue: Levels of trihalomethanes (THMs) and haloacetic acids (HAAs) in the water exceed the maximum acceptable concentrations given in Health Canada's Guidelines for Canadian Drinking Water Quality. These byproducts are found when chlorine interacts with organic material

present in water supplies, and are more prevalent in the summer than winter months.

Response: The City has been engaged with Northern Health since 2020 to propose adjustments to the process for determining chlorination requirements, to

reduce the minimum chlorination concentrations and the resulting concentrations of THMs and HAA. In line with that process, the City measures the levels of THMs and HAAs every three months, and will continue to do so as a condition of our operating permit with results made publically available via the Northern Health drinking water quality website. In 2023, the City worked closely with Northern Health to be able to reduce chlorination and resulting exceedances of byproducts, though exceedances were not fully eliminated.

A contributing factor to these exceedances has been the increase of

chlorination required during the use of our secondary water source at Shawatlan Lake as well as higher turbidity and organic materials present at that source. It is hoped that following the return to the City's primary supply at Woodworth Lake in 2023, that chlorination and associated byproducts may be reduced. Over the longer term, the addition of a secondary form of treatment with the establishment of a new treatment facility will also address this issue. Multiple treatment barriers will reduce the system's current reliance on chlorination, reducing overall byproduct levels.

Public Notifications

2023 Water Quality Advisories/Boil Notices

The following Water Quality Advisories/Notices occurred in the 2023 period.

- Boil Water Notice – October 18th – November 8th** – A Boil Water Notice was in effect due to the high number of open construction sites on water mains in the community . It was downgraded to an Advisory
- November 8th**, which remained in effect as a precautionary measure.
- Water Quality Advisory – November 8th – December 18th, 2023** – All advisories were lifted after the City concluded works that had the potential to impact quality, specifically those occurring around our reservoir.

Notification Process

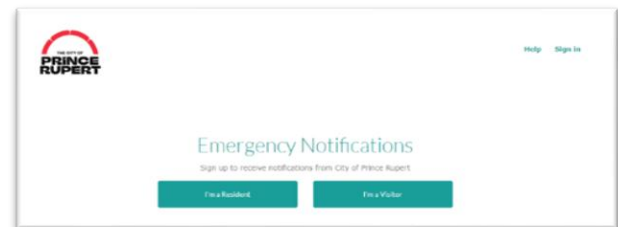
In a drinking water quality concern or emergency, as per the City's Emergency Water Plan, notice is placed on the home page of the City's website at princerupert.ca alongside a larger media and public notification effort. Notice is also sent out through the City's local Emergency Alert Service. Community members can register for emergency alerts online at <https://princerupert.connectrocket.com/>.



(Pictured Above: The City's website is one of many communications tools we use to notify the public regarding water quality

Emergency Response

Public water systems can be the victims of various types of emergencies from either natural or man-made causes. Some potential emergencies can be averted or have their impact greatly minimized by advance preparation and sound infrastructure planning. Key to emergency planning is the recognition of the need for a certain amount of redundancy in both physical and human resources. In terms of physical resources, Prince Rupert is extremely fortunate to have a secondary source of water at Shawatlan Lake. In 2009, Prince Rupert's main water source was cut off for a considerable time period when the pipeline from Woodworth Lake was heavily damaged by a landslide. In many communities, this would certainly have qualified as a disaster. In this case however, the Public Works department was utilizing the pumping system already in place at the Shawatlan Lake water source. That system has double power-



(Pictured Above: Head to the Emergency Alert site at: <https://princerupert.connectrocket.com/> to sign up directly for the City's emergency alerts)

source redundancy, with BC Hydro power as the primary electrical source, backed up by a diesel-powered generator.

In terms of human resources and advanced planning, the City has recently updated the Emergency Water Plan, which guides emergency response for City personnel and provides notice templates to ensure that communication is consistent and includes relevant precautionary measures that may come into effect, depending on the scenario. A

draft of this updated plan was provided to Northern Health and finalized in 2022. Following the Local State of Emergency in the Winter of 2022, the City is also now working with Emergency Management BC to build out a more robust plan for the future.

In the case of any serious emergency, the Prince Rupert Public Works Department will follow the Emergency Water Plan, working hand-in-hand with all other City departments, local Emergency Services, the Provincial Emergency Program (PEP), the Provincial Ministry of Health through

the Northern Health Authority, and other utilities and organizations as required. Additionally, City Council would be informed in a timely manner regarding all pertinent aspects of the problem as will the general public through the City's website at www.princerupert.ca and all other available media. As noted above, the City has also instituted a smartphone application and landline push notification system which has successfully targeted emergency communications to residents.

Water System Improvements

Annual Maintenance

In 2023, the City of Prince Rupert conducted major planned and unplanned water service infrastructure improvements. Capital water works replacements were completed in various locations around town, including major replacements in the following areas:

Major Capital Repairs and Works:

200 Block of 1st Avenue East – 220 M of repairs

900 Block of Frederick St – 70 M of repairs

1800-1900 Block of 7th Avenue East – 105 M of repairs

1400 Block of Kootenay Avenue – 78 M of repairs

Crestview and Prince Rupert Blvd – 250 M of repairs, with broader replacement scheduled for 2024

Infrastructure Investments

In terms of large-scale infrastructure replacement, the City began construction on a new

dam early in 2020, with construction completion in Fall of 2022, and reconnection to the Woodworth Lake water supply in February 2023. This is the second phase of the water supply project, with the first phase being construction of an access road and replacement and burial of an extended length of supply pipe. In addition, the Operations Department completed a portion of work on a pre-planned SCADA improvement Study to improve technological monitoring capacity of the City's water system, which now will be amended as new plans for a treatment facility proceed.

Full replacement of the Woodworth Dam and extension of the access road to the dam provides a number of advantages, including:

- Improved ability to access the dam for operation, maintenance and surveillance;
- A significantly longer design life than the rehabilitated existing Woodworth Dam, which may require high repair costs or replacement in the future.
- Improved access for emergency response.
- Elimination of existing concrete and abutment deficiencies.
- Updated spillway capacity.



(**Pictured Above:** A major water break on Frederick St took significant resourcing over the summer to complete repairs).

- Improved debris removal capability.
- Opportunity to install improved communications systems.
- Accessibility across the top of the dam for maintenance, inspection and future repairs.
- Erosion control to the downstream side of the spillway based on the design of a long spillway

The third and final phase, which may be broken down further into two projects, involves replacement of one of the submarine lines carrying potable water beneath the harbour from the water supply to the community, and the development of a new water treatment facility. The City has selected a contractor to complete the submarine line portion of this project. As previously mentioned, our water treatment project is currently on hold while major improvements to water supply lines are completed.

Summary

The City of Prince Rupert continues to prioritize the replacement of aged water supply infrastructure located across the harbour at the dam site. In 2018, work initiated in 2016-2017 was completed to renew and bury our water supply line and build an associated access road. Greater security and water quality certainty has been achieved through burying the supply line, currently subject to falling trees and landslides. Additionally, an access road will permit quality checks in all weather conditions, and ease of access in case of any incident or emergency. Dam

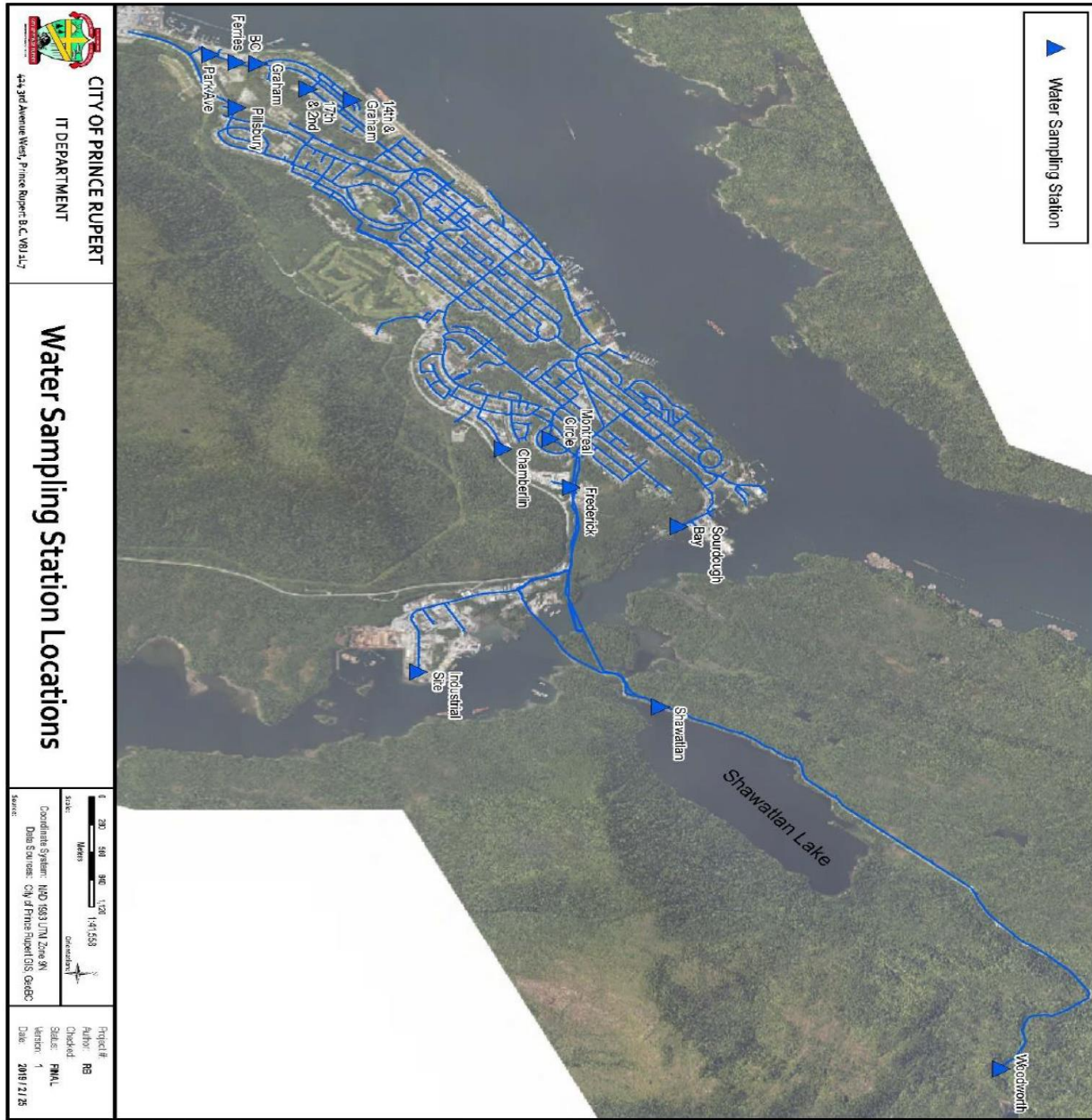
completion occurred in Fall of 2022, which secures the City's water supply for generations to come, and enabled the City to return to its primary water supply at Woodworth Lake in early 2023. Improvements in turbidity readings were notable throughout 2023 since returning to the primary water supply. Work to secure the additional funds needed to implement water treatment is commencing in 2024, with the date for mandated treatment adjusted to January 2025 in the current permit.

Contact

For Additional Information, contact:

Jordan Schmidt, General Manager, Operations Department
(250) 624 6795 ext. 228
jordan.schmidt@princerupert.ca

Appendix A



Appendix B

PERMIT TO OPERATE A Drinking Water System with 301-10000 Connections

System Name: Prince Rupert CWS
Physical Location: 424 3rd Avenue West
Prince Rupert BC

Owner Name: City Of Prince Rupert

Conditions of Permit

Permitted to Operate: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

- >Maintain a minimum of 20 water bacteriology samples per month unless the Environmental Health Officer requests a greater frequency.
- >Maintain a minimum of 1 water protozoology (Giardia and Cryptosporidium) sample per month, unless the Environmental Health Officer requests greater frequency.
- >Minimum chlorine residual of 0.2 ppm shall be maintained within the distribution system and monitored daily.
- >Submit water chemistry data every 6 months, unless the Environmental Health Officer requests a greater frequency.
- >An up-to-date Emergency Response plan shall be maintained.
- >Operator must be trained and certified to the level specified by the Environmental Operators Certification Program.
- >Monitor water quality parameters in accordance with the Giardia Treatment Monitoring Plan and maintain a sufficient free available chlorine concentration to achieve at least a 3-log inactivation of Giardia cysts.
- >By 01 Nov 2023 (Adjusted from 01 Jan 2022), proposed water treatment that: a) meets the 3-2-1-0 treatment objectives given in the Drinking Water Treatment Objectives (Microbiological) for Surface Water Supplies in British Columbia guidelines, b) includes corrective measure(s) for reducing corrosion of lead-containing materials at residential sites and c) will reduce levels of trihalomethanes and haloacetic acids to below their respective maximum acceptable concentrations given in the Guidelines for Canadian Drinking Water Quality. The proposal must be in the form of construction permit application(s) to the public health engineer.
- >By 01 January 2025 (adjusted from 01 Jan 2024) implement water treatment that a)meets the 4-3-2-1-0 treatment objectives given in the Drinking Water Treatment Objectives (Microbiological) for Surface Water Supplies in British Columbia guidelines, b) includes corrective measure(s) for reducing corrosion of lead-containing materials at residential sites and c) will reduce levels of trihalomethanes and haloacetic acids to below their respective maximum acceptable concentrations given in the Guidelines for Canadian Drinking Water Quality.
- >After implementation of corrective measure(s) for reducing corrosion of lead-containing materials at residential sites, conduct sampling for lead and copper levels to investigate the effectiveness of the measure(s) used to control corrosion. Sampling is to be conducted in accordance with the "option 1 (two-tier protocol)" given in Health Canada's Guidance on Controlling Corrosion in Drinking Water Distribution Systems. The concentration of lead needs to be less than or equal to 0.015 mg/L in at least 90% of the samples collected at residential sites.
- >Inspect raw water pipe screen, grate and dam face quarterly for a period of 3 years (until January 2026) to assess raw water impacts from the accumulation of algae or other materials near the intake

1-Jul-1992

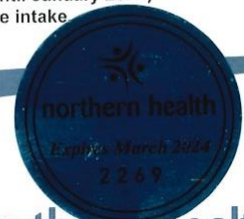
Effective Permit Date

5-May-2023

Permit Revised Date

This permit must be displayed in a conspicuous place and is non-transferable

[Signature]
Environmental Health Officer



northern health
the northern way of caring

Appendix C

See following pages for 2023 Water Test Results.

ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23J023

RECEIVED: 04-Oct-2023

Project: Drinking Water

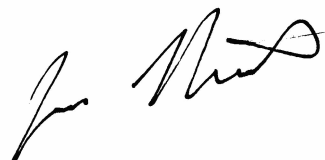
Project Number: -

Project Manager: Public Works Department

REPORTED: 05-Oct-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N23J023

LAB #	N23J023-01
SAMPLED DATE	04-Oct-23
SAMPLED TIME	15:35
SAMPLE ID	1800 7th East

MRL Units**CDWG****Microbiological Parameters (Water)**

Total Coliforms	1 CFU/100 mL	MAC = None Detected (<1)	<1
E. coli	1 CFU/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23J023

Bacteriological Parameters Comments

Lab Number **N23J023-01** (Sample ID: "1800 7th East") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
CFU/100 mL	Colony Forming Units per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
Terrace BC, V8G 4T2
php@northernhealth.ca

Project: NHA

Project Number: -

Project Manager: Public Health Protection

Work Order: N23K023

RECEIVED: 04-Nov-2023

REPORTED: 05-Nov-2023

Lab Number: N23K023-01

System Name: Prince Rupert CWS

Site Name: Frederick Station

Sample Date/Time: 04-Nov-2023 10:15

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Laboratory Manager

Northern Laboratories (2010) Ltd.

Address: 530 3rd Avenue West Prince Rupert, BC V8J 1L8

Phone: 250.627.1906 • Fax: 250.627.8214 • www.norlabsltd.com • info@norlabsltd.com

ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
Terrace BC, V8G 4T2
php@northernhealth.ca

Project: NHA

Project Number: -

Project Manager: Public Health Protection

Work Order: N23K023

RECEIVED: 04-Nov-2023

REPORTED: 05-Nov-2023

Lab Number: N23K023-02

System Name: Prince Rupert CWS

Site Name: Montreal Circle Reservoir

Sample Date/Time: 04-Nov-2023 10:29

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Laboratory Manager



Hyperion Research Ltd.

1008 Allowance Ave. SE, Medicine Hat, AB T1A 3G8

Telephone (888) 529-0847 Fax (403) 5290852 hyperion@hyperionlab.ca


CALA
 Testing
 Accreditation No. A3538
To:

City of Prince Rupert, Public Works
 424-3 Ave W
 Prince Rupert BC
 V8J 1L7
 (250) 627-1781
 water@princerupert.ca

Sample Date: 11-Jan-23**Sample Type:** Raw**LIMS:****Volume Filtered (L):** 250.8**Rec'd within 96h?:** No**Arrival Temp <20 °C?:** Yes**Project #:****Upload to DB?:****Field pH:****Field Temp °C:****Field Turb (NTU):****Sample Location:**

Shawatlans Lake

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.40 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample only.

Comments:**Analyst:**

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-01-16 12:40:00 PM
 Sample Temp. on arrival °C: 8.2
 Lab ID: **63037**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-01-16 2:00:00 PM
 Concentration Analyst: KB
 IMS Lot No: 01319552
 Vol Used (uL): 100
 Pellet Vol (mL): 0.4
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-01-17 11:40:00 AM
 Staining Analyst: PW
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 250.8

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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Sample Date: 13-Feb-23**Sample Type:** Raw**LIMS:****Volume Filtered (L):** 323**Rec'd within 96h?:** Yes**Arrival Temp <20 °C?:** Yes**Project #:****Upload to DB?:****Field pH:****Field Temp °C:****Field Turb (NTU):****Sample Location:**

Woodwards Lake

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	1	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.31 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.3 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample only.

Comments:

Processing Data

Date/Time Received: 15-Feb-23 12:05:00 PM
 Sample Temp. on arrival °C: 7.1
 Lab ID: **63090**
 Filter Type: Filta-Max
 Date/Time Conc: 15-Feb-23 2:15:00 PM
 Concentration Analyst: CW
 IMS Lot No: 1234724
 Vol Used (uL): 100
 Pellet Vol (mL): 0.5
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 16-Feb-23 11:20:00 AM
 Staining Analyst: CW
 Microscope Analyst: PW
 Sample Equivalent Volume (L): 323.0

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.

Analyst:

Peter M. Wallis, Ph.D.



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 V8J 1L7
 (250) 627-1781
 water@princerupert.ca

Sample Date: 08-Mar-23

Sample Type: Raw

LIMS:
Volume Filtered (L): 250.8

Rec'd within 96h?: Yes

Arrival Temp <20 °C?: Yes

Project #:
Upload to DB?:
Field pH:
Field Temp °C: 2.2

Field Turb (NTU):
Sample Location:

Shawatlands

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.40 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample only.

Comments:
Analyst:

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-03-10 10:10:00 AM
 Sample Temp. on arrival °C: 2.2
 Lab ID: **63126**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-03-10 1:15:00 PM
 Concentration Analyst: KB
 IMS Lot No: 012344724
 Vol Used (uL): 100
 Pellet Vol (mL): 0.3
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-03-13 11:15:00 AM
 Staining Analyst: CW
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 250.8

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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 water@princerupert.ca

Sample Date: 18-Apr-23

Sample Type: Raw

LIMS:
Volume Filtered (L): 250.8

Rec'd within 96h?: No

Arrival Temp <20 °C?: Yes

Project #:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:

Shawatlands Lake

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	1	0

Detection Limit: 0.40 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.4 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample only.

Comments:
Analyst:

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-04-24 12:30:00 PM
 Sample Temp. on arrival °C: 16
 Lab ID: **63209**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-04-24 1:30:00 PM
 Concentration Analyst: CW
 IMS Lot No: 01134407
 Vol Used (uL): 100
 Pellet Vol (mL): 0.5
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-04-25 11:15:00 AM
 Staining Analyst: CW
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 250.8

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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Sample Date: 18-May-23

Sample Type: Raw

LIMS:
Volume Filtered (L): 244.34

Rec'd within 96h?: Yes

Arrival Temp <20 °C?: Yes

Project #:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:

Wood Worth Lake

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	1	0
DAPI-/Probably Alive	1	0

Detection Limit: 0.41 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.8 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample only.

Comments:
Analyst:

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-05-23 10:40:00 AM
 Sample Temp. on arrival °C: 18.5
 Lab ID: **63333**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-05-23 1:30:00 PM
 Concentration Analyst: AN/CW
 IMS Lot No: 01134407
 Vol Used (uL): 100
 Pellet Vol (mL): 0.4
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-05-24 11:15:00 AM
 Staining Analyst: TS
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 244.3

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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 water@princerupert.ca

Sample Date: 19-Jun-23
Sample Type: Raw
LIMS:
Volume Filtered (L): 402.8
Rec'd within 96h?: No
Arrival Temp <20 °C?: No

Project #:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:
 Shawatlands Lake

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.25 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample only.

Comments:**Analyst:**

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-06-26 10:10:00 AM
 Sample Temp. on arrival °C: 20.7
 Lab ID: **63431**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-06-26 11:20:00 AM
 Concentration Analyst: KR/AN
 IMS Lot No: 2648595
 Vol Used (uL): 100
 Pellet Vol (mL): 0.4
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-06-27 11:50:00 AM
 Staining Analyst: KR
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 402.8

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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 (250) 627-1781
 water@princerupert.ca

Sample Date: 13-Jul-23

Sample Type: Raw

LIMS:
Volume Filtered (L): 250.8

Rec'd within 96h?: No

Arrival Temp <20 °C?: Yes

Project #:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:

Shawatlands (Woodworth Lake)

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.40 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample as received only.

Comments:
Analyst:

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-07-19 12:50:00 PM
 Sample Temp. on arrival °C: 19.8
 Lab ID: **63495**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-07-19 3:10:00 PM
 Concentration Analyst: KR/AN
 IMS Lot No: 2574084
 Vol Used (uL): 100
 Pellet Vol (mL): 0.3
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-07-20 11:30:00 AM
 Staining Analyst: KR
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 250.8

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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 (250) 627-1781
 water@princerupert.ca

Sample Date: 11-Aug-23

Sample Type: Raw

LIMS:
Volume Filtered (L): 250.8

Rec'd within 96h?: No

Arrival Temp <20 °C?: No

Project #:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:

Shawatland Lake (Woodworth Lake)

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.40 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample as received only.

Comments:
Analyst:

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-08-16 1:00:00 PM
 Sample Temp. on arrival °C: 22.4
 Lab ID: **63566**
 Filter Type: Filta-Max
 Date/Time Conc: 2023-08-16 3:10:00 PM
 Concentration Analyst: KS/KR
 IMS Lot No: 2574084
 Vol Used (uL): 100
 Pellet Vol (mL): 0.3
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-08-17 11:30:00 AM
 Staining Analyst: KR/AN
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 250.8

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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 water@princerupert.ca

Sample Date: 14-Sep-23**Sample Type:** Raw**LIMS:****Volume Filtered (L):** 252**Rec'd within 96h?:** No**Arrival Temp <20 °C?:** Yes**Project #:****Upload to DB?:****Field pH:****Field Temp °C:****Field Turb (NTU):****Sample Location:**

Shawatlans (Woodworth Lake)

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	1	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.40 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.4 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample as received only.

Comments: Sample past holding time.

Processing Data

Date/Time Received: 25-Sep-23 12:35:00 PM
 Sample Temp. on arrival °C: 17
 Lab ID: **63639**
 Filter Type: Filta-Max
 Date/Time Conc: 25-Sep-23 2:15:00 PM
 Concentration Analyst: CW
 IMS Lot No: 2574084
 Vol Used (uL): 100
 Pellet Vol (mL): 0.3
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 26-Sep-23 11:20:00 AM
 Staining Analyst: CW
 Microscope Analyst: PW/CW
 Sample Equivalent Volume (L): 252.0

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.

Analyst:

Peter M. Wallis, Ph.D.



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 (250) 627-1781
 water@princerupert.ca

Sample Date: 03-Oct-23
Sample Type: Raw
LIMS:
Volume Filtered (L): 250.8
Rec'd within 96h?: Yes
Arrival Temp <20 °C?: Yes

Project #:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:
 Woodworth Lake

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.40 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample as received only.

Comments:
Analyst:

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-10-05 12:20:00 PM
 Sample Temp. on arrival °C: 12.9
 Lab ID: **63665**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-10-06 11:10:00 AM
 Concentration Analyst: KR
 IMS Lot No: 2574084
 Vol Used (uL): 100
 Pellet Vol (mL): 0.5
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-10-10 11:15:00 AM
 Staining Analyst: CW
 Microscope Analyst: PW
 Sample Equivalent Volume (L): 250.8

Method 1623 Quality Control Data

	Lab Water Spike 2021-22		PT (blind) 2017-22	
	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



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 (250) 627-1781
 water@princerupert.ca

Sample Date: 08-Nov-23**Sample Type:** Raw**LIMS:****Volume Filtered (L):** 294.1**Rec'd within 96h?:** Yes**Arrival Temp <20 °C?:** Yes**Project #:****Upload to DB?:****Field pH:****Field Temp °C:****Field Turb (NTU):****Sample Location:**

Shawatlands site(woodworth lake)

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.34 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample as received only.

Comments:**Analyst:**

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-11-10 12:30:00 PM
 Sample Temp. on arrival °C: 7.2
 Lab ID: **63731**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-11-10 2:50:00 PM
 Concentration Analyst: EB/CW
 IMS Lot No: 2574084
 Vol Used (uL): 100
 Pellet Vol (mL): 0.3
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-11-14 11:10:00 AM
 Staining Analyst: KR
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 294.1

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.



Hyperion Research Ltd.

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www.hyperionlab.ca


CALA
 Testing
 Accreditation No. A3538

To:

City of Prince Rupert, Public Works
 424-3 Ave W
 Prince Rupert BC
 V8J 1L7
 (250) 627-1781
 water@princerupert.ca

Sample Date: 06-Dec-23**Sample Type:** Raw**LIMS:****Volume Filtered (L):** 268.28**Rec'd within 96h?:** No**Arrival Temp <20 °C?:** Yes**Project #:****Upload to DB?:****Field pH:****Field Temp °C:****Field Turb (NTU):****Sample Location:**

Shawatlans (Woodworth Lake)

The methodology used to produce this report conforms to USEPA Method 1623. Based on the validation data, the method is fit for its intended use. Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025:2017 standard.

Raw Counts in Sample Equivalent Volume

# CYSTS/OOCYSTS	<i>Giardia</i>	<i>Crypto.</i>
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.37 cysts or oocysts/100L

The detection limit is calculated assuming a minimum of 1 cyst or oocyst observed in the Sample Equivalent Volume

RESULTS

***Giardia* 0.0 cysts/100 L**
***Cryptosporidium* 0.0 oocysts/100 L**

- A value of '0' really means below the detection limit
- These results apply to this sample as received only.

Comments:
Analyst:

Peter M. Wallis, Ph.D.

Processing Data

Date/Time Received: 2023-12-27 12:15:00 PM
 Sample Temp. on arrival °C: 9.2
 Lab ID: **63810**
 Filter Type: Filt-Max
 Date/Time Conc: 2023-12-27 1:00:00 PM
 Concentration Analyst: TS
 IMS Lot No: 2574084
 Vol Used (uL): 100
 Pellet Vol (mL): 0.4
 IMS System: DynaBeads GC Combo
 Resusp Vol (uL): 100
 MAb Conjugate: EasyStainCY3
 Monoclonal Antibody Lot No: C104G203
 Control G: 4
 Control C: 4
 Date/Time Stained: 2023-12-28 11:40:00 AM
 Staining Analyst: PM
 Microscope Analyst: KW
 Sample Equivalent Volume (L): 268.3

Method 1623 Quality Control Data

Lab Water Spike 2021-22 PT (blind) 2017-22

	% Recovery	RSD	% Recovery	RSD
<i>Giardia</i>	59.1	26.1	58.2	18.5
<i>Cryptosporidium</i>	53.6	32.3	53.2	26.2

These data indicate ongoing precision and recovery from spiked water samples.

ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
Terrace BC, V8G 4T2
php@northernhealth.ca

Project: NHA
Project Number: -
Project Manager: Public Health Protection

Work Order: N23K023

RECEIVED: 04-Nov-2023

REPORTED: 05-Nov-2023

Lab Number: N23K023-03
System Name: Prince Rupert CWS
Site Name: Sourdough Bay Flushing Stn
Sample Date/Time: 04-Nov-2023 10:45

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Laboratory Manager

ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
Terrace BC, V8G 4T2
php@northernhealth.ca

Project: NHA
Project Number: -
Project Manager: Public Health Protection

Work Order: N23K023

RECEIVED: 04-Nov-2023

REPORTED: 05-Nov-2023

Lab Number: N23K023-04

System Name: Prince Rupert CWS

Site Name: Pillsbury Station

Sample Date/Time: 04-Nov-2023 11:06

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23C051

RECEIVED: 13-Mar-2023

Project: Drinking Water

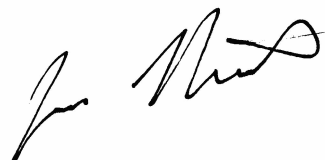
Project Number: -

Project Manager: Public Works Department

REPORTED: 14-Mar-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23C051

LAB #	N23C051-01
SAMPLED DATE	13-Mar-23
SAMPLED TIME	10:50
SAMPLE ID	14th Street

MRL Units

CDWG

Microbiological Parameters (Water)

Total Coliforms	1 MPN/100 mL	MAC = None Detected (<1)	<1
E. coli	1 MPN/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23C051

Bacteriological Parameters Comments

Lab Number **N23C051-01** (Sample ID: "14th Street") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
MPN/100 mL	Most Probable Number per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23I141

RECEIVED: 22-Sep-2023

Project: Drinking Water

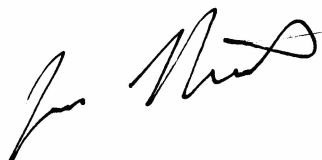
Project Number: -

Project Manager: Public Works Department

REPORTED: 28-Sep-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23I141

LAB #	N23I141-01
SAMPLED DATE	22-Sep-23
SAMPLED TIME	13:15
SAMPLE ID	1750 7th East

MRL Units

CDWG

Microbiological Parameters (Water)

Total Coliforms	1 MPN/100 mL	MAC = None Detected (<1)	<1
E. coli	1 MPN/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N231141

Bacteriological Parameters Comments

Lab Number **N231141-01** (Sample ID: "1750 7th East") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
MPN/100 mL	Most Probable Number per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23J023

RECEIVED: 04-Oct-2023

Project: Drinking Water

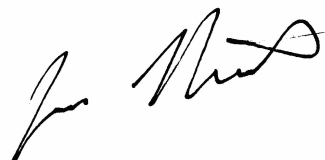
Project Number: -

Project Manager: Public Works Department

REPORTED: 05-Oct-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23J023

LAB #	N23J023-01
SAMPLED DATE	04-Oct-23
SAMPLED TIME	15:35
SAMPLE ID	1800 7th East

MRL Units

CDWG

Microbiological Parameters (Water)

Total Coliforms	1 CFU/100 mL	MAC = None Detected (<1)	<1
E. coli	1 CFU/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23J023

Bacteriological Parameters Comments

Lab Number **N23J023-01** (Sample ID: "1800 7th East") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
CFU/100 mL	Colony Forming Units per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23L047

RECEIVED: 07-Dec-2023

Project: Drinking Water

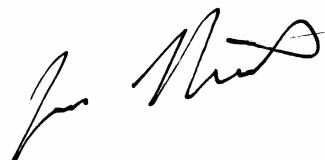
Project Number: -

Project Manager: Public Works Department

REPORTED: 08-Dec-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23L047

LAB #	N23L047-01	N23L047-02
SAMPLED DATE	07-Dec-23	07-Dec-23
SAMPLED TIME	00:00	00:00
SAMPLE ID	Upper End	Lower #2

MRL Units

CDWG

Field Data (Water)

Chlorine Residual (field)	0.01 mg/L	-	3.23	2.60
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Microbiological Parameters (Water)

Total Coliforms	1 MPN/100 mL	MAC = None Detected (<1)	<1	<1
E. coli	1 MPN/100 mL	MAC = None Detected (<1)	<1	<1

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23L047

Bacteriological Parameters Comments

Lab Number **N23L047-01** (Sample ID: "**Upper End**") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Lab Number **N23L047-02** (Sample ID: "**Lower #2**") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MPN/100 mL	Most Probable Number per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23L087

RECEIVED: 13-Dec-2023

Project: Drinking Water

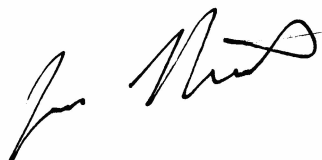
Project Number: -

Project Manager: Public Works Department

REPORTED: 15-Dec-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23L087

LAB #	N23L087-01	N23L087-02
SAMPLED DATE	13-Dec-23	13-Dec-23
SAMPLED TIME	16:30	16:30
SAMPLE ID	Upper #1 Montreal Circle	Lower #2

MRL Units

CDWG

Field Data (Water)

Chlorine Residual (field)	0.01 mg/L	-	2.30	1.99
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Microbiological Parameters (Water)

Total Coliforms	1 CFU/100 mL	MAC = None Detected (<1)	<1	<1
E. coli	1 CFU/100 mL	MAC = None Detected (<1)	<1	<1

ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N23L087**Bacteriological Parameters Comments**

Lab Number **N23L087-01** (Sample ID: "**Upper #1 Montreal Circle**") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Lab Number **N23L087-02** (Sample ID: "**Lower #2**") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
CFU/100 mL	Colony Forming Units per 100 mL
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23A036

RECEIVED: 09-Jan-2023

Project: Drinking Water

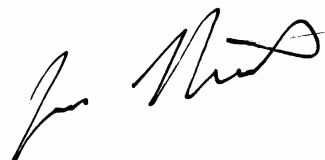
Project Number: -

Project Manager: Public Works Department

REPORTED: 10-Jan-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23A036

LAB #	N23A036-01
SAMPLED DATE	09-Jan-23
SAMPLED TIME	12:05
SAMPLE ID	1 Ave - New Pipe

MRL Units

CDWG

Microbiological Parameters (Water)

Total Coliforms	1 CFU/100 mL	MAC = None Detected (<1)	<1
E. coli	1 CFU/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N23A036**Bacteriological Parameters Comments**

Lab Number **N23A036-01** (Sample ID: "1 Ave - New Pipe") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
CFU/100 mL	Colony Forming Units per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23F068

RECEIVED: 13-Jun-2023

Project: Drinking Water

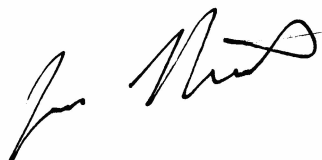
Project Number: -

Project Manager: Public Works Department

REPORTED: 14-Jun-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23F068

LAB #	N23F068-01
SAMPLED DATE	13-Jun-23
SAMPLED TIME	13:00
SAMPLE ID	1st Ave Watermain (Sea Sport)

MRL Units

CDWG

Microbiological Parameters (Water)

Total Coliforms	1 MPN/100 mL	MAC = None Detected (<1)	<1
E. coli	1 MPN/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N23F068**Bacteriological Parameters Comments**

Lab Number **N23F068-01** (Sample ID: "**1st Ave Watermain (Sea Sport)**") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
MPN/100 mL	Most Probable Number per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23I155

RECEIVED: 26-Sep-2023

Project: Drinking Water

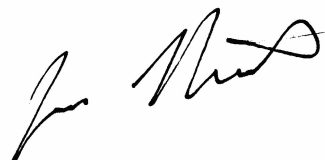
Project Number: -

Project Manager: Public Works Department

REPORTED: 28-Sep-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23I155

LAB #	N23I155-01
SAMPLED DATE	26-Sep-23
SAMPLED TIME	15:35
SAMPLE ID	1428
	Kootenay

MRL Units

CDWG

Microbiological Parameters (Water)

Total Coliforms	1 MPN/100 mL	MAC = None Detected (<1)	<1
E. coli	1 MPN/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N231155**Bacteriological Parameters Comments**

Lab Number **N231155-01** (Sample ID: "1428 Kootenay") contained **<1 Total Coliforms** and **E. coli** per 100mL. Based solely on these results this water sample is bacteriologically safe for drinking, according to Health Canada's guidelines.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
MPN/100 mL	Most Probable Number per 100 mL
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
Terrace BC, V8G 4T2
php@northernhealth.ca

Project: NHA

Project Number: -

Project Manager: Public Health Protection

Work Order: N23K037

RECEIVED: 07-Nov-2023

REPORTED: 09-Nov-2023

Lab Number: N23K037-01

System Name: Prince Rupert CWS

Site Name: Montreal Circle Reservoir

Sample Date/Time: 07-Nov-2023 9:45

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Laboratory Manager

ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
Terrace BC, V8G 4T2
php@northernhealth.ca

Project: NHA

Project Number: -

Project Manager: Public Health Protection

Work Order: N23K037

RECEIVED: 07-Nov-2023

REPORTED: 09-Nov-2023

Lab Number: N23K037-02

System Name: Prince Rupert CWS

Site Name: Sourdough Bay Flushing Stn

Sample Date/Time: 07-Nov-2023 10:15

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

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Laboratory Manager

Northern Laboratories (2010) Ltd.

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ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
Terrace BC, V8G 4T2
php@northernhealth.ca

Work Order: N23K037

RECEIVED: 07-Nov-2023

Project: NHA
Project Number: -
Project Manager: Public Health Protection

REPORTED: 09-Nov-2023

Lab Number: N23K037-03

System Name: Prince Rupert CWS

Site Name: Frederick Station

Sample Date/Time: 07-Nov-2023 9:05

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

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Laboratory Manager

ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
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php@northernhealth.ca

Work Order: N23K037

RECEIVED: 07-Nov-2023

Project: NHA

Project Number: -

Project Manager: Public Health Protection

REPORTED: 09-Nov-2023

Lab Number: N23K037-04

System Name: Prince Rupert CWS

Site Name: Pillsbury Station

Sample Date/Time: 07-Nov-2023 10:45

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

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ANALYTICAL REPORT

NHA - NW HSDA
3412 Kalum St
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php@northernhealth.ca

Work Order: N23K061

RECEIVED: 10-Nov-2023

Project: NHA
Project Number: -
Project Manager: Public Health Protection

REPORTED: 11-Nov-2023

Lab Number: N23K061-01

System Name: Prince Rupert CWS

Site Name: Sourdough Bay Flushing Stn

Sample Date/Time: 10-Nov-2023 8:30

Analyte:	Result:	Units:	CDWG	Notes
Microbiological Parameters				
Total Coliforms	<1	CFU/100 mL	MAC = None Detected (<1)	
Background Bacteria, Non-Coliform	<1	CFU/100 mL	-	
E. coli	<1	CFU/100 mL	MAC = None Detected (<1)	

Sampler Contact Info:

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23B028

RECEIVED: 07-Feb-2023

Project: Drinking Water

Project Number: -

Project Manager: Public Works Department

REPORTED: 31-Mar-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.

Hugh Booth For Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23B028

LAB #	N23B028-01	N23B028-02	N23B028-03	N23B028-04
SAMPLED DATE	07-Feb-23	07-Feb-23	07-Feb-23	07-Feb-23
SAMPLED TIME	10:17	10:40	09:45	09:38
SAMPLE ID	Montreal Circle	Pillsbury	Sourdough Bay	Frederick
	MRL	Units	CDWG	

General Parameters (Water)

pH	1.0	pH units	7.0-10.5	5.8	5.6	5.8	5.8
Alkalinity (total, as CaCO ₃)	1	mg/L	-	2	2	3	2
Conductivity	1.0	uS/cm	-	25.6	25.6	27.0	25.0
Colour	1	PtCo units	AO <= 15	17	17	19	16
Turbidity	0.05	NTU	OG < 1	0.73	0.74	0.57	0.78
Solids, Total Dissolved / TDS	1.0	mg/L	AO <= 500	26	26	27	26
Carbon, Total Organic	0.50	mg/L	-	3.39	3.99	3.74	3.84

Calculated Parameters (Water)

Nitrate (as N)	0.10	mg/L	MAC = 10	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO ₃)	0.500	mg/L	-	8.09	8.14	8.66	7.78

Anions (Water)

Chloride	1.0	mg/L	AO <= 250	5.2	5.5	5.5	5.3
Fluoride	0.05	mg/L	MAC = 1.5	<0.10	<0.10	<0.10	<0.10
Nitrite (as N)	0.01	mg/L	MAC = 1	<0.01	<0.01	<0.01	<0.01
Nitrate + Nitrite (as N)	0.10	mg/L	MAC = 10	<0.10	<0.10	<0.10	<0.10
Sulfate	1.0	mg/L	AO <= 500	1.4	1.4	1.4	1.5

Total Metals (Water)

Aluminum, total	0.0050	mg/L	OG < 0.1	0.107	0.104	0.0996	0.109
Antimony, total	0.00020	mg/L	MAC = 0.006	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic, total	0.00050	mg/L	MAC = 0.01	<0.00050	<0.00050	<0.00050	<0.00050
Barium, total	0.0050	mg/L	MAC = 1	0.0066	0.0068	0.0069	0.0065
Beryllium, total	0.00010	mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth, total	0.00010	mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Boron, total	0.0500	mg/L	MAC = 5	<0.0500	<0.0500	<0.0500	<0.0500
Cadmium, total	0.000010	mg/L	MAC = 0.005	<0.000010	<0.000010	<0.000010	<0.000010
Calcium, total	0.20	mg/L	-	2.76	2.78	3.00	2.66
Chromium, total	0.00050	mg/L	MAC = 0.05	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	0.00010	mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Copper, total	0.00040	mg/L	AO = 1 MAC = 2	0.146	0.0540	0.0754	0.00386
Iron, total	0.010	mg/L	AO <= 0.3	0.133	0.133	0.150	0.134

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23B028

LAB #			N23B028-01	N23B028-02	N23B028-03	N23B028-04
SAMPLED DATE			07-Feb-23	07-Feb-23	07-Feb-23	07-Feb-23
SAMPLED TIME			10:17	10:40	09:45	09:38
SAMPLE ID			Montreal Circle	Pillsbury	Sourdough Bay	Frederick
	MRL Units	CDWG				
Total Metals (continued)						
Lead, total	0.00020 mg/L	MAC = 0.005	0.00025	0.00031	0.00034	<0.00020
Lithium, total	0.00010 mg/L	-	0.00020	0.00018	0.00019	0.00018
Magnesium, total	0.010 mg/L	-	0.287	0.290	0.279	0.275
Manganese, total	0.00020 mg/L	AO ≤ 0.02 MAC = 0.12	0.00612	0.00544	0.00785	0.00647
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Nickel, total	0.00040 mg/L	-	<0.00040	<0.00040	<0.00040	<0.00040
Phosphorus, total	0.050 mg/L	-	<0.050	<0.050	<0.050	<0.050
Potassium, total	0.10 mg/L	-	0.34	0.35	0.34	0.34
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	1.0 mg/L	-	1.0	1.0	1.0	<1.0
Silver, total	0.000050 mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, total	0.10 mg/L	AO ≤ 200	0.87	0.86	0.85	0.85
Strontium, total	0.0010 mg/L	MAC = 7	0.0113	0.0109	0.0113	0.0112
Sulfur, total	3.0 mg/L	-	<3.0	<3.0	<3.0	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020	<0.000020	<0.000020	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020	<0.00020	<0.00020	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	<0.000020	<0.000020	<0.000020	<0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Zinc, total	0.0040 mg/L	AO ≤ 5	0.0115	0.0064	<0.0040	0.0061
Zirconium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23B028

LAB #	N23B028-05	-	-	-
SAMPLED DATE	09-Feb-23	-	-	-
SAMPLED TIME	13:00	-	-	-
SAMPLE ID	Woodworth Lake	-	-	-

MRL Units

CDWG

General Parameters (Water)

pH	1.0 pH units	7.0-10.5	6.5
Alkalinity (total, as CaCO ₃)	1 mg/L	-	6
Conductivity	1.0 uS/cm	-	21.5
Colour	1 PtCo units	AO ≤ 15	42
Turbidity	0.05 NTU	OG < 1	0.85
Solids, Total Dissolved / TDS	1.0 mg/L	AO ≤ 500	69
Carbon, Total Organic	0.50 mg/L	-	3.76

Calculated Parameters (Water)

Nitrate (as N)	0.10 mg/L	MAC = 10	<0.10
Hardness, Total (as CaCO ₃)	0.500 mg/L	-	8.11

Anions (Water)

Chloride	1.0 mg/L	AO ≤ 250	2.0
Fluoride	0.05 mg/L	MAC = 1.5	<0.10
Nitrite (as N)	0.01 mg/L	MAC = 1	<0.01
Nitrate + Nitrite (as N)	0.10 mg/L	MAC = 10	<0.10
Sulfate	1.0 mg/L	AO ≤ 500	1.4

Total Metals (Water)

Aluminum, total	0.0050 mg/L	OG < 0.1	0.115
Antimony, total	0.00020 mg/L	MAC = 0.006	<0.00020
Arsenic, total	0.00050 mg/L	MAC = 0.01	<0.00050
Barium, total	0.0050 mg/L	MAC = 1	0.0063
Beryllium, total	0.00010 mg/L	-	<0.00010
Bismuth, total	0.00010 mg/L	-	<0.00010
Boron, total	0.0500 mg/L	MAC = 5	<0.0500
Cadmium, total	0.000010 mg/L	MAC = 0.005	<0.000010
Calcium, total	0.20 mg/L	-	2.77
Chromium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Cobalt, total	0.00010 mg/L	-	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.0117
Iron, total	0.010 mg/L	AO ≤ 0.3	0.151

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23B028

LAB #	N23B028-05	-	-	-
SAMPLED DATE	09-Feb-23	-	-	-
SAMPLED TIME	13:00	-	-	-
SAMPLE ID	Woodworth Lake	-	-	-

	MRL	Units	CDWG	
Total Metals (continued)				
Lead, total	0.00020	mg/L	MAC = 0.005	<0.00020
Lithium, total	0.00010	mg/L	-	0.00018
Magnesium, total	0.010	mg/L	-	0.287
Manganese, total	0.00020	mg/L	AO ≤ 0.02 MAC = 0.12	0.00858
Mercury, total	0.000010	mg/L	MAC = 0.001	<0.000010
Molybdenum, total	0.00010	mg/L	-	<0.00010
Nickel, total	0.00040	mg/L	-	<0.00040
Phosphorus, total	0.050	mg/L	-	<0.050
Potassium, total	0.10	mg/L	-	0.35
Selenium, total	0.00050	mg/L	MAC = 0.05	<0.00050
Silicon, total	1.0	mg/L	-	1.0
Silver, total	0.000050	mg/L	-	<0.000050
Sodium, total	0.10	mg/L	AO ≤ 200	0.88
Strontium, total	0.0010	mg/L	MAC = 7	0.0113
Sulfur, total	3.0	mg/L	-	<3.0
Tellurium, total	0.00050	mg/L	-	<0.00050
Thallium, total	0.000020	mg/L	-	<0.000020
Thorium, total	0.00010	mg/L	-	<0.00010
Tin, total	0.00020	mg/L	-	<0.00020
Titanium, total	0.0050	mg/L	-	<0.0050
Tungsten, total	0.0010	mg/L	-	<0.0010
Uranium, total	0.000020	mg/L	MAC = 0.02	<0.000020
Vanadium, total	0.0050	mg/L	-	<0.0050
Zinc, total	0.0040	mg/L	AO ≤ 5	0.0187
Zirconium, total	0.00010	mg/L	-	<0.00010

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23B028

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
pH units	pH units
PtCo units	Platinum Colbalt colour units
uS/cm	Micro Siemens per centimeter
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
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water@princerupert.ca

Work Order: N23D009

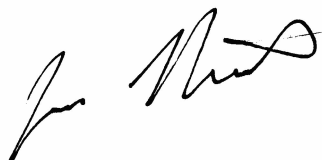
RECEIVED: 04-Apr-2023

Project: Drinking Water
Project Number: Woodworth Dam
Project Manager: Public Works Department

REPORTED: 03-May-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23D009

LAB #	N23D009-01
SAMPLED DATE	04-Apr-23
SAMPLED TIME	10:30
SAMPLE ID	WD

	MRL	Units	CDWG	
General Parameters (Water)				
pH	1.0	pH units	7.0-10.5	6.6
Alkalinity (total, as CaCO ₃)	1	mg/L	-	7
Conductivity	1.0	uS/cm	-	22.6
Colour	1	PtCo units	AO ≤ 15	34
Turbidity	0.05	NTU	OG < 1	0.58
Solids, Total Dissolved / TDS	1.0	mg/L	AO ≤ 500	25
Carbon, Total Organic	0.50	mg/L	-	3.85
Carbon, Dissolved Organic	0.50	mg/L	-	3.72
Ammonia (total as N)	0.03	mg/L	-	0.04
Nitrogen, Total Kjeldahl	0.050	mg/L	-	0.396
Tannin and Lignin	0.20	mg/L	-	0.63

Calculated Parameters (Water)

Nitrate (as N)	0.10	mg/L	MAC = 10	<0.10
Nitrogen, organic	0.0500	mg/L	-	0.359
Hardness, Total (as CaCO ₃)	0.500	mg/L	-	8.89

Anions (Water)

Chloride	1.0	mg/L	AO ≤ 250	2.8
Fluoride	0.05	mg/L	MAC = 1.5	<0.10
Nitrite (as N)	0.01	mg/L	MAC = 1	<0.01
Nitrate + Nitrite (as N)	0.10	mg/L	MAC = 10	<0.10
Sulfate	1.0	mg/L	AO ≤ 500	1.4

Total Metals (Water)

Aluminum, total	0.0050	mg/L	OG < 0.1	0.126
Antimony, total	0.00020	mg/L	MAC = 0.006	<0.00020
Arsenic, total	0.00050	mg/L	MAC = 0.01	<0.00050
Barium, total	0.0050	mg/L	MAC = 1	0.0070
Beryllium, total	0.00010	mg/L	-	<0.00010
Bismuth, total	0.00010	mg/L	-	<0.00010
Boron, total	0.0500	mg/L	MAC = 5	<0.0500
Cadmium, total	0.000010	mg/L	MAC = 0.005	0.000043
Calcium, total	0.20	mg/L	-	2.99
Chromium, total	0.00050	mg/L	MAC = 0.05	<0.00050

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23D009

LAB #	N23D009-01
SAMPLED DATE	04-Apr-23
SAMPLED TIME	10:30
SAMPLE ID	WD

	MRL Units	CDWG	
Total Metals (continued)			
Cobalt, total	0.00010 mg/L	-	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.00463
Iron, total	0.010 mg/L	AO ≤ 0.3	0.147
Lead, total	0.00020 mg/L	MAC = 0.005	0.00022
Lithium, total	0.00010 mg/L	-	0.00018
Magnesium, total	0.010 mg/L	-	0.346
Manganese, total	0.00020 mg/L	AO ≤ 0.02 MAC = 0.12	0.00553
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010
Nickel, total	0.00040 mg/L	-	0.00056
Phosphorus, total	0.050 mg/L	-	<0.050
Potassium, total	0.10 mg/L	-	0.46
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Silicon, total	1.0 mg/L	-	<1.0
Silver, total	0.000050 mg/L	-	<0.000050
Sodium, total	0.10 mg/L	AO ≤ 200	1.38
Strontium, total	0.0010 mg/L	MAC = 7	0.0119
Sulfur, total	3.0 mg/L	-	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	<0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050
Zinc, total	0.0040 mg/L	AO ≤ 5	0.0117
Zirconium, total	0.00010 mg/L	-	<0.00010

Microbiological Parameters (Water)

Total Coliforms	1 MPN/100 mL	MAC = None Detected (<1)	16
E. coli	1 MPN/100 mL	MAC = None Detected (<1)	<1

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23D009

LAB #	N23D009-01
SAMPLED DATE	04-Apr-23
SAMPLED TIME	10:30
SAMPLE ID	WD

MRL Units

CDWG

Microbiological Parameters (continued)

Heterotrophic Plate Count (48 Hr @ 35°C)	-	10
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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23D009

Bacteriological Parameters Comments

Lab Number **N23D009-01** (Sample ID: "WD") contained one or more **(16) Total Coliforms** per 100mL. According to Health Canada's guidelines, corrective action should be taken. Please call your local Health Unit (Environmental Health department) for more information.

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
CFU/mL	Colony Forming Units per mL
mg/L	Milligrams per Litre
MPN/100 mL	Most Probable Number per 100 mL
NTU	Nephelometric Turbidity Units
pH units	pH units
PtCo units	Platinum Colbalt colour units
uS/cm	Micro Siemens per centimeter
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
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Work Order: N23E078

RECEIVED: 11-May-2023

Project: Drinking Water

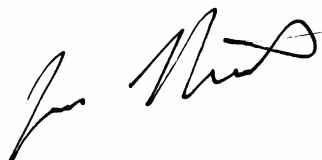
Project Number: -

Project Manager: Public Works Department

REPORTED: 04-Jul-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23E078

LAB #	N23E078-01
SAMPLED DATE	11-May-23
SAMPLED TIME	10:30
SAMPLE ID	Shawatlans Lake

MRL Units

CDWG

General Parameters (Water)

pH	1.0 pH units	7.0-10.5	6.7
Alkalinity (total, as CaCO ₃)	1 mg/L	-	7
Conductivity	1.0 uS/cm	-	23.4
Colour	1 PtCo units	AO ≤ 15	34
Turbidity	0.05 NTU	OG < 1	0.46
Solids, Total Dissolved / TDS	1.0 mg/L	AO ≤ 500	25
Carbon, Total Organic	0.50 mg/L	-	3.18

Calculated Parameters (Water)

Nitrate (as N)	0.10 mg/L	MAC = 10	<0.10
Hardness, Total (as CaCO ₃)	0.500 mg/L	-	8.16

Anions (Water)

Chloride	1.0 mg/L	AO ≤ 250	2.3
Fluoride	0.05 mg/L	MAC = 1.5	<0.10
Nitrite (as N)	0.01 mg/L	MAC = 1	<0.01
Nitrate + Nitrite (as N)	0.10 mg/L	MAC = 10	<0.10
Sulfate	1.0 mg/L	AO ≤ 500	1.3

Total Metals (Water)

Aluminum, total	0.0050 mg/L	OG < 0.1	0.0948
Antimony, total	0.00020 mg/L	MAC = 0.006	<0.00020
Arsenic, total	0.00050 mg/L	MAC = 0.01	<0.00050
Barium, total	0.0050 mg/L	MAC = 1	0.0064
Beryllium, total	0.00010 mg/L	-	<0.00010
Bismuth, total	0.00010 mg/L	-	<0.00010
Boron, total	0.0500 mg/L	MAC = 5	<0.0500
Cadmium, total	0.000010 mg/L	MAC = 0.005	<0.000010
Calcium, total	0.20 mg/L	-	2.78
Chromium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Cobalt, total	0.00010 mg/L	-	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.00402
Iron, total	0.010 mg/L	AO ≤ 0.3	0.113
Lead, total	0.00020 mg/L	MAC = 0.005	<0.00020

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23E078

LAB # N23E078-01
 SAMPLED DATE 11-May-23
 SAMPLED TIME 10:30
 SAMPLE ID Shawatlans Lake

MRL Units

CDWG

Total Metals (continued)

Lithium, total	0.00010 mg/L	-	0.00012
Magnesium, total	0.010 mg/L	-	0.295
Manganese, total	0.00020 mg/L	AO ≤ 0.02 MAC = 0.12	0.00424
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010
Nickel, total	0.00040 mg/L	-	<0.00040
Phosphorus, total	0.050 mg/L	-	<0.050
Potassium, total	0.10 mg/L	-	0.36
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Silicon, total	1.0 mg/L	-	1.0
Silver, total	0.000050 mg/L	-	<0.000050
Sodium, total	0.10 mg/L	AO ≤ 200	0.93
Strontium, total	0.0010 mg/L	MAC = 7	0.0125
Sulfur, total	3.0 mg/L	-	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050
Zinc, total	0.0040 mg/L	AO ≤ 5	<0.0040
Zirconium, total	0.00010 mg/L	-	<0.00010

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23E078

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
pH units	pH units
PtCo units	Platinum Colbalt colour units
uS/cm	Micro Siemens per centimeter
	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23E071

RECEIVED: 10-May-2023

Project: Drinking Water

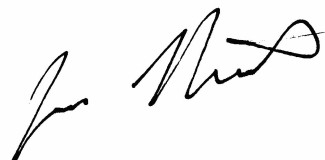
Project Number: -

Project Manager: Public Works Department

REPORTED: 04-Jul-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23E071

LAB #	N23E071-01	N23E071-02	N23E071-03	N23E071-04
SAMPLED DATE	10-May-23	10-May-23	10-May-23	10-May-23
SAMPLED TIME	14:45	14:30	15:50	15:50
SAMPLE ID	Montreal Circle	Frederick Station	Sourdough Bay	Pillsbury Station
MRL Units	CDWG			

General Parameters (Water)

pH	1.0 pH units	7.0-10.5	5.8	5.9	6.0	5.8
Alkalinity (total, as CaCO ₃)	1 mg/L	-	3	3	3	3
Conductivity	1.0 uS/cm	-	25.9	26.0	27.2	26.4
Colour	1 PtCo units	AO <= 15	15	15	18	26
Turbidity	0.05 NTU	OG < 1	0.42	0.45	0.47	0.45
Solids, Total Dissolved / TDS	1.0 mg/L	AO <= 500	27	27	27	27
Carbon, Total Organic	0.50 mg/L	-	3.28	3.49	3.33	2.72

Calculated Parameters (Water)

Nitrate (as N)	0.10 mg/L	MAC = 10	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO ₃)	0.500 mg/L	-	8.06	8.76	9.03	8.62

Anions (Water)

Chloride	1.0 mg/L	AO <= 250	5.0	4.9	4.7	4.4
Fluoride	0.05 mg/L	MAC = 1.5	<0.10	<0.10	<0.10	<0.10
Nitrite (as N)	0.01 mg/L	MAC = 1	<0.01	<0.01	<0.01	<0.01
Nitrate + Nitrite (as N)	0.10 mg/L	MAC = 10	<0.10	<0.10	<0.10	<0.10
Sulfate	1.0 mg/L	AO <= 500	1.3	1.3	1.3	1.3

Total Metals (Water)

Aluminum, total	0.0050 mg/L	OG < 0.1	0.0896	0.0969	0.0901	0.0900
Antimony, total	0.00020 mg/L	MAC = 0.006	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic, total	0.00050 mg/L	MAC = 0.01	<0.00050	<0.00050	<0.00050	<0.00050
Barium, total	0.0050 mg/L	MAC = 1	0.0066	0.0071	0.0067	0.0065
Beryllium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Boron, total	0.0500 mg/L	MAC = 5	<0.0500	<0.0500	<0.0500	<0.0500
Cadmium, total	0.000010 mg/L	MAC = 0.005	<0.000010	<0.000010	<0.000010	<0.000010
Calcium, total	0.20 mg/L	-	2.77	3.02	3.15	2.97
Chromium, total	0.00050 mg/L	MAC = 0.05	0.00059	0.00128	<0.00050	<0.00050
Cobalt, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.105	0.00471	0.0779	0.0591
Iron, total	0.010 mg/L	AO <= 0.3	0.109	0.125	0.130	0.114
Lead, total	0.00020 mg/L	MAC = 0.005	0.00025	<0.00020	0.00034	0.00024

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23E071

LAB #	N23E071-01	N23E071-02	N23E071-03	N23E071-04
SAMPLED DATE	10-May-23	10-May-23	10-May-23	10-May-23
SAMPLED TIME	14:45	14:30	15:50	15:50
SAMPLE ID	Montreal Circle	Frederick Station	Sourdough Bay	Pillsbury Station

MRL Units

CDWG

Total Metals (continued)

Lithium, total	0.00010 mg/L	-	0.00011	0.00011	0.00010	0.00010
Magnesium, total	0.010 mg/L	-	0.278	0.296	0.282	0.287
Manganese, total	0.00020 mg/L	AO ≤ 0.02 MAC = 0.12	0.00387	0.00443	0.00432	0.00359
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Nickel, total	0.00040 mg/L	-	0.00055	0.00087	<0.00040	<0.00040
Phosphorus, total	0.050 mg/L	-	<0.050	<0.050	<0.050	<0.050
Potassium, total	0.10 mg/L	-	0.35	0.37	0.36	0.37
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	1.0 mg/L	-	1.0	1.1	1.1	1.1
Silver, total	0.000050 mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, total	0.10 mg/L	AO ≤ 200	0.89	0.96	0.93	0.95
Strontium, total	0.0010 mg/L	MAC = 7	0.0117	0.0126	0.0120	0.0123
Sulfur, total	3.0 mg/L	-	<3.0	<3.0	<3.0	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020	<0.000020	<0.000020	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020	<0.00020	<0.00020	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	<0.000020	<0.000020	<0.000020	<0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Zinc, total	0.0040 mg/L	AO ≤ 5	0.0149	0.0068	<0.0040	0.0074
Zirconium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010

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ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N23E071

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
pH units	pH units
PtCo units	Platinum Colbalt colour units
uS/cm	Micro Siemens per centimeter
	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23H077

RECEIVED: 15-Aug-2023

Project: Drinking Water

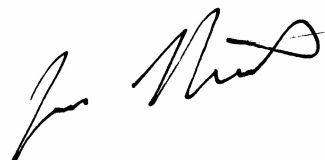
Project Number: -

Project Manager: Public Works Department

REPORTED: 11-Oct-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23H077

LAB #	N23H077-01	N23H077-02	N23H077-03	N23H077-04
SAMPLED DATE	14-Aug-23	15-Aug-23	15-Aug-23	15-Aug-23
SAMPLED TIME	15:30	09:30	10:00	11:30
SAMPLE ID	Woodworth Lake	Frederick Station	Sourdough Bay Flushing Stn.	Pillsbury Station

MRL Units

CDWG

General Parameters (Water)

pH	1.0 pH units	7.0-10.5	6.8	5.9	5.9	5.8
Alkalinity (total, as CaCO ₃)	1 mg/L	-	10 [1]	4	4	4
Conductivity	1.0 uS/cm	-	28.7	33.0	33.5	33.7
Colour	1 PtCo units	AO <= 15	40	13	15	15
Turbidity	0.05 NTU	OG < 1	0.68	0.45	0.48	0.44
Solids, Total Dissolved / TDS	1.0 mg/L	AO <= 500	28	31	31	31
Carbon, Total Organic	0.50 mg/L	-	3.56	4.00	4.64	4.27

Calculated Parameters (Water)

Nitrate (as N)	0.10 mg/L	MAC = 10	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO ₃)	0.500 mg/L	-	10.7	10.5	11.0	10.9

Anions (Water)

Chloride	1.0 mg/L	AO <= 250	2.0	6.6	6.0	5.7
Fluoride	0.05 mg/L	MAC = 1.5	<0.10	<0.10	<0.10	<0.10
Nitrite (as N)	0.01 mg/L	MAC = 1	<0.01	<0.01 [1]	<0.01 [1]	<0.01
Nitrate + Nitrite (as N)	0.10 mg/L	MAC = 10	<0.10	<0.10 [1]	<0.10 [1]	<0.10
Sulfate	1.0 mg/L	AO <= 500	1.7	1.7	1.7	1.7

Total Metals (Water)

Aluminum, total	0.0050 mg/L	OG < 0.1	0.0983	0.0798	0.0857	0.0865
Antimony, total	0.00020 mg/L	MAC = 0.006	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic, total	0.00050 mg/L	MAC = 0.01	<0.00050	<0.00050	<0.00050	<0.00050
Barium, total	0.0050 mg/L	MAC = 1	0.0089	0.0085	0.0089	0.0091
Beryllium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Boron, total	0.0500 mg/L	MAC = 5	<0.0500	<0.0500	<0.0500	<0.0500
Cadmium, total	0.000010 mg/L	MAC = 0.005	0.000013	<0.000010	<0.000010	<0.000010
Calcium, total	0.20 mg/L	-	3.71	3.64	3.81	3.81
Chromium, total	0.00050 mg/L	MAC = 0.05	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	0.00010 mg/L	-	0.00011	<0.00010	<0.00010	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.0146	0.00663	0.0117	0.0718
Iron, total	0.010 mg/L	AO <= 0.3	0.189	0.131	0.157	0.143

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23H077

LAB #			N23H077-01	N23H077-02	N23H077-03	N23H077-04
SAMPLED DATE			14-Aug-23	15-Aug-23	15-Aug-23	15-Aug-23
SAMPLED TIME			15:30	09:30	10:00	11:30
SAMPLE ID			Woodworth Lake	Frederick Station	Sourdough Bay Flushing Stn.	Pillsbury Station
	MRL Units	CDWG				
Total Metals (continued)						
Lead, total	0.00020 mg/L	MAC = 0.005	0.00024	<0.00020	0.00038	0.00066
Lithium, total	0.00010 mg/L	-	0.00018	0.00016	0.00017	0.00016
Magnesium, total	0.010 mg/L	-	0.354	0.341	0.351	0.345
Manganese, total	0.00020 mg/L	AO ≤ 0.02 MAC = 0.12	0.00926	0.00359	0.00550	0.00504
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Nickel, total	0.00040 mg/L	-	0.00045	<0.00040	<0.00040	<0.00040
Phosphorus, total	0.050 mg/L	-	<0.050	<0.050	<0.050	<0.050
Potassium, total	0.10 mg/L	-	0.44	0.42	0.43	0.43
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	1.0 mg/L	-	1.2	1.2	1.2	1.2
Silver, total	0.000050 mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, total	0.10 mg/L	AO ≤ 200	1.05	1.00	1.03	1.04
Strontium, total	0.0010 mg/L	MAC = 7	0.0157	0.0153	0.0153	0.0155
Sulfur, total	3.0 mg/L	-	<3.0	<3.0	<3.0	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020	<0.000020	<0.000020	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020	<0.00020	<0.00020	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	<0.000020	<0.000020	<0.000020	<0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Zinc, total	0.0040 mg/L	AO ≤ 5	0.0223	0.0089	<0.0040	0.0088
Zirconium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23H077

LAB #	N23H077-05	-	-	-
SAMPLED DATE	15-Aug-23	-	-	-
SAMPLED TIME	12:50	-	-	-
SAMPLE ID	Montreal Circle Reservoir	-	-	-

MRL Units

CDWG

General Parameters (Water)

pH	1.0 pH units	7.0-10.5	5.8
Alkalinity (total, as CaCO ₃)	1 mg/L	-	4
Conductivity	1.0 uS/cm	-	33.7
Colour	1 PtCo units	AO ≤ 15	13
Turbidity	0.05 NTU	OG < 1	0.45
Solids, Total Dissolved / TDS	1.0 mg/L	AO ≤ 500	31
Carbon, Total Organic	0.50 mg/L	-	4.01

Calculated Parameters (Water)

Nitrate (as N)	0.10 mg/L	MAC = 10	<0.10
Hardness, Total (as CaCO ₃)	0.500 mg/L	-	11.3

Anions (Water)

Chloride	1.0 mg/L	AO ≤ 250	6.1
Fluoride	0.05 mg/L	MAC = 1.5	<0.10
Nitrite (as N)	0.01 mg/L	MAC = 1	<0.01
Nitrate + Nitrite (as N)	0.10 mg/L	MAC = 10	<0.10
Sulfate	1.0 mg/L	AO ≤ 500	1.7

Total Metals (Water)

Aluminum, total	0.0050 mg/L	OG < 0.1	0.0855
Antimony, total	0.00020 mg/L	MAC = 0.006	<0.00020
Arsenic, total	0.00050 mg/L	MAC = 0.01	<0.00050
Barium, total	0.0050 mg/L	MAC = 1	0.0092
Beryllium, total	0.00010 mg/L	-	<0.00010
Bismuth, total	0.00010 mg/L	-	<0.00010
Boron, total	0.0500 mg/L	MAC = 5	<0.0500
Cadmium, total	0.000010 mg/L	MAC = 0.005	<0.000010
Calcium, total	0.20 mg/L	-	3.92
Chromium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Cobalt, total	0.00010 mg/L	-	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.183
Iron, total	0.010 mg/L	AO ≤ 0.3	0.154

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23H077

LAB #	N23H077-05	-	-	-
SAMPLED DATE	15-Aug-23	-	-	-
SAMPLED TIME	12:50	-	-	-
SAMPLE ID	Montreal Circle Reservoir	-	-	-

	MRL Units	CDWG	
Total Metals (continued)			
Lead, total	0.00020 mg/L	MAC = 0.005	0.00074
Lithium, total	0.00010 mg/L	-	0.00016
Magnesium, total	0.010 mg/L	-	0.370
Manganese, total	0.00020 mg/L	AO ≤ 0.02 MAC = 0.12	0.00522
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010
Nickel, total	0.00040 mg/L	-	0.00045
Phosphorus, total	0.050 mg/L	-	<0.050
Potassium, total	0.10 mg/L	-	0.46
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Silicon, total	1.0 mg/L	-	1.2
Silver, total	0.000050 mg/L	-	<0.000050
Sodium, total	0.10 mg/L	AO ≤ 200	1.08
Strontium, total	0.0010 mg/L	MAC = 7	0.0167
Sulfur, total	3.0 mg/L	-	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	<0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050
Zinc, total	0.0040 mg/L	AO ≤ 5	0.0144
Zirconium, total	0.00010 mg/L	-	<0.00010

Special Notes

1 = Sample was analyzed outside of the recommended holding time.

ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N23H077**Glossary of Terms**

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
pH units	pH units
PtCo units	Platinum Colbalt colour units
uS/cm	Micro Siemens per centimeter
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23J005

RECEIVED: 03-Oct-2023

Project: Drinking Water

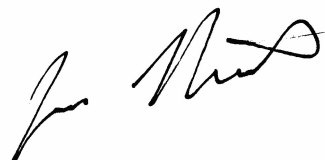
Project Number: -

Project Manager: Public Works Department

REPORTED: 14-Nov-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23J005

LAB #	N23J005-01	N23J005-02	N23J005-03	N23J005-04
SAMPLED DATE	03-Oct-23	03-Oct-23	03-Oct-23	03-Oct-23
SAMPLED TIME	09:21	09:52	10:39	11:15
SAMPLE ID	Frederick Station	Montreal Circle	Sourdough Bay	Pillsbury Station

MRL Units

CDWG

General Parameters (Water)

pH	1.0 pH units	7.0-10.5	5.9	5.8	5.8	5.9
Alkalinity (total, as CaCO ₃)	1 mg/L	-	3	3	4	3
Conductivity	1.0 uS/cm	-	32.2	31.5	32.4	32.3
Colour	1 PtCo units	AO ≤ 15	17	17	16	16
Turbidity	0.05 NTU	OG < 1	0.71	0.42	0.63	0.49
Solids, Total Dissolved / TDS	1.0 mg/L	AO ≤ 500	30	30	30	30
Carbon, Total Organic	0.50 mg/L	-	4.91	4.32	4.14	4.52

Calculated Parameters (Water)

Nitrate (as N)	0.10 mg/L	MAC = 10	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO ₃)	0.500 mg/L	-	10.1	9.98	10.7	9.97

Anions (Water)

Chloride	1.0 mg/L	AO ≤ 250	5.4	5.4	5.4	5.4
Fluoride	0.05 mg/L	MAC = 1.5	<0.10	<0.10	<0.10	<0.10
Nitrite (as N)	0.01 mg/L	MAC = 1	<0.01	<0.01	<0.01	<0.01
Nitrate + Nitrite (as N)	0.10 mg/L	MAC = 10	<0.10	<0.10	<0.10	<0.10
Sulfate	1.0 mg/L	AO ≤ 500	1.6	1.6	1.6	1.6

Total Metals (Water)

Aluminum, total	0.0050 mg/L	OG < 0.1	0.0930	0.0938	0.0888	0.0946
Antimony, total	0.00020 mg/L	MAC = 0.006	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic, total	0.00050 mg/L	MAC = 0.01	<0.00050	<0.00050	<0.00050	<0.00050
Barium, total	0.0050 mg/L	MAC = 1	0.0079	0.0083	0.0078	0.0079
Beryllium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Boron, total	0.0500 mg/L	MAC = 5	<0.0500	<0.0500	<0.0500	<0.0500
Cadmium, total	0.000010 mg/L	MAC = 0.005	<0.000010	<0.000010	<0.000010	<0.000010
Calcium, total	0.20 mg/L	-	3.52	3.48	3.74	3.46
Chromium, total	0.00050 mg/L	MAC = 0.05	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.00516	0.129	0.0366	0.0446
Iron, total	0.010 mg/L	AO ≤ 0.3	0.102	0.112	0.113	0.106
Lead, total	0.00020 mg/L	MAC = 0.005	<0.00020	0.00050	0.00032	0.00036

Northern Laboratories (2010) Ltd.

Address: 530 3rd Avenue West Prince Rupert, BC V8J 1L8

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23J005

LAB #	N23J005-01	N23J005-02	N23J005-03	N23J005-04
SAMPLED DATE	03-Oct-23	03-Oct-23	03-Oct-23	03-Oct-23
SAMPLED TIME	09:21	09:52	10:39	11:15
SAMPLE ID	Frederick Station	Montreal Circle	Sourdough Bay	Pillsbury Station

MRL Units

CDWG

Total Metals (continued)

Lithium, total	0.00010 mg/L	-	0.00015	0.00015	0.00014	0.00013
Magnesium, total	0.010 mg/L	-	0.314	0.313	0.324	0.322
Manganese, total	0.00020 mg/L	AO ≤ 0.02 MAC = 0.12	0.00290	0.00304	0.00318	0.00294
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	0.00011
Nickel, total	0.00040 mg/L	-	<0.00040	<0.00040	<0.00040	<0.00040
Phosphorus, total	0.050 mg/L	-	<0.050	<0.050	<0.050	<0.050
Potassium, total	0.10 mg/L	-	0.39	0.39	0.38	0.39
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	1.0 mg/L	-	1.2	1.2	1.2	1.2
Silver, total	0.000050 mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, total	0.10 mg/L	AO ≤ 200	1.02	1.00	0.92	1.04
Strontium, total	0.0010 mg/L	MAC = 7	0.0145	0.0143	0.0148	0.0147
Sulfur, total	3.0 mg/L	-	<3.0	<3.0	<3.0	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020	<0.000020	<0.000020	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020	<0.00020	<0.00020	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	<0.000020	<0.000020	<0.000020	<0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050
Zinc, total	0.0040 mg/L	AO ≤ 5	0.0066	0.0105	0.0051	0.0057
Zirconium, total	0.00010 mg/L	-	<0.00010	<0.00010	<0.00010	<0.00010

Northern Laboratories (2010) Ltd.

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23J005

LAB #	N23J005-05	-	-	-
SAMPLED DATE	03-Oct-23	-	-	-
SAMPLED TIME	09:30	-	-	-
SAMPLE ID	Woodworth Lake	-	-	-

MRL Units

CDWG

General Parameters (Water)

pH	1.0 pH units	7.0-10.5	6.8
Alkalinity (total, as CaCO ₃)	1 mg/L	-	9
Conductivity	1.0 uS/cm	-	26.6
Colour	1 PtCo units	AO <= 15	38
Turbidity	0.05 NTU	OG < 1	0.49
Solids, Total Dissolved / TDS	1.0 mg/L	AO <= 500	27
Carbon, Total Organic	0.50 mg/L	-	5.42

Calculated Parameters (Water)

Nitrate (as N)	0.10 mg/L	MAC = 10	<0.10
Hardness, Total (as CaCO ₃)	0.500 mg/L	-	10.4

Anions (Water)

Chloride	1.0 mg/L	AO <= 250	1.8
Fluoride	0.05 mg/L	MAC = 1.5	<0.10
Nitrite (as N)	0.01 mg/L	MAC = 1	<0.01
Nitrate + Nitrite (as N)	0.10 mg/L	MAC = 10	<0.10
Sulfate	1.0 mg/L	AO <= 500	1.6

Total Metals (Water)

Aluminum, total	0.0050 mg/L	OG < 0.1	0.0946
Antimony, total	0.00020 mg/L	MAC = 0.006	<0.00020
Arsenic, total	0.00050 mg/L	MAC = 0.01	<0.00050
Barium, total	0.0050 mg/L	MAC = 1	0.0079
Beryllium, total	0.00010 mg/L	-	<0.00010
Bismuth, total	0.00010 mg/L	-	<0.00010
Boron, total	0.0500 mg/L	MAC = 5	<0.0500
Cadmium, total	0.000010 mg/L	MAC = 0.005	0.000011
Calcium, total	0.20 mg/L	-	3.59
Chromium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Cobalt, total	0.00010 mg/L	-	<0.00010
Copper, total	0.00040 mg/L	AO = 1 MAC = 2	0.00818
Iron, total	0.010 mg/L	AO <= 0.3	0.103
Lead, total	0.00020 mg/L	MAC = 0.005	0.00036

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23J005

LAB #	N23J005-05	-	-	-
SAMPLED DATE	03-Oct-23	-	-	-
SAMPLED TIME	09:30	-	-	-
SAMPLE ID	Woodworth Lake	-	-	-

MRL Units

CDWG

Total Metals (continued)

Lithium, total	0.00010 mg/L	-	0.00014
Magnesium, total	0.010 mg/L	-	0.333
Manganese, total	0.00020 mg/L	AO <= 0.02 MAC = 0.12	0.00303
Mercury, total	0.000010 mg/L	MAC = 0.001	<0.000010
Molybdenum, total	0.00010 mg/L	-	<0.00010
Nickel, total	0.00040 mg/L	-	0.00043
Phosphorus, total	0.050 mg/L	-	<0.050
Potassium, total	0.10 mg/L	-	0.41
Selenium, total	0.00050 mg/L	MAC = 0.05	<0.00050
Silicon, total	1.0 mg/L	-	1.3
Silver, total	0.000050 mg/L	-	<0.000050
Sodium, total	0.10 mg/L	AO <= 200	1.01
Strontium, total	0.0010 mg/L	MAC = 7	0.0150
Sulfur, total	3.0 mg/L	-	<3.0
Tellurium, total	0.00050 mg/L	-	<0.00050
Thallium, total	0.000020 mg/L	-	<0.000020
Thorium, total	0.00010 mg/L	-	<0.00010
Tin, total	0.00020 mg/L	-	<0.00020
Titanium, total	0.0050 mg/L	-	<0.0050
Tungsten, total	0.0010 mg/L	-	<0.0010
Uranium, total	0.000020 mg/L	MAC = 0.02	<0.000020
Vanadium, total	0.0050 mg/L	-	<0.0050
Zinc, total	0.0040 mg/L	AO <= 5	0.0214
Zirconium, total	0.00010 mg/L	-	<0.00010

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ANALYTICAL REPORT**City of Prince Rupert - Drinking Water****Work Order:** N23J005**Glossary of Terms**

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
pH units	pH units
PtCo units	Platinum Colbalt colour units
uS/cm	Micro Siemens per centimeter
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23A050

RECEIVED: 10-Jan-2023

Project: Drinking Water

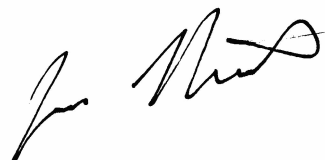
Project Number: -

Project Manager: Public Works Department

REPORTED: 30-Jan-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23A050

LAB #	N23A050-01
SAMPLED DATE	10-Jan-23
SAMPLED TIME	11:20
SAMPLE ID	Pillsbury Stn

	MRL	Units	CDWG	
Haloacetic Acids (Water)				
Monochloroacetic Acid	0.0020	mg/L	-	<0.0020
Monobromoacetic Acid	0.0020	mg/L	-	<0.0020
Dichloroacetic Acid	0.0020	mg/L	-	0.0784
Trichloroacetic Acid	0.0040	mg/L	-	0.108
Dibromoacetic Acid	0.0020	mg/L	-	<0.0020
Total Haloacetic Acids (HAA5)	0.00400	mg/L	MAC = 0.08	0.186
2-Bromopropionic Acid	70-130	[surr]	-	107%

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23A050

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23D044

RECEIVED: 12-Apr-2023

Project: Drinking Water

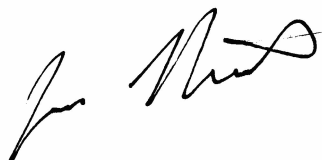
Project Number: -

Project Manager: Public Works Department

REPORTED: 04-Jul-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23D044

LAB #	N23D044-01
SAMPLED DATE	11-Apr-23
SAMPLED TIME	00:00
SAMPLE ID	Pillsbury Station

MRL Units	CDWG
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Haloacetic Acids (Water)

Monochloroacetic Acid	0.0020 mg/L	-	0.0046
Monobromoacetic Acid	0.0020 mg/L	-	<0.0020
Dichloroacetic Acid	0.0020 mg/L	-	0.0673
Trichloroacetic Acid	0.0100 mg/L	-	0.0914
Dibromoacetic Acid	0.0020 mg/L	-	<0.0020
Total Haloacetic Acids (HAA5)	0.0100 mg/L	MAC = 0.08	0.163
2-Bromopropionic Acid	70-130 [surr]	-	116%

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23D044

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23G005

RECEIVED: 04-Jul-2023

Project: Drinking Water

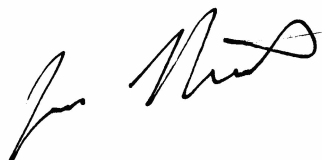
Project Number: -

Project Manager: Public Works Department

REPORTED: 21-Jul-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23G005

LAB #	N23G005-01
SAMPLED DATE	04-Jul-23
SAMPLED TIME	11:30
SAMPLE ID	Pillsbury Station

	MRL Units	CDWG	
Haloacetic Acids (Water)			
Monochloroacetic Acid	0.0020 mg/L	-	0.0025
Monobromoacetic Acid	0.0020 mg/L	-	<0.0020
Dichloroacetic Acid	0.0020 mg/L	-	0.0890
Trichloroacetic Acid	0.0200 mg/L	-	0.105
Dibromoacetic Acid	0.0020 mg/L	-	<0.0020
Total Haloacetic Acids (HAA5)	0.0200 mg/L	MAC = 0.08	0.197
2-Bromopropionic Acid	70-130 [surr]	-	<0.0200

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23G005

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23L113

RECEIVED: 19-Dec-2023

Project: Drinking Water

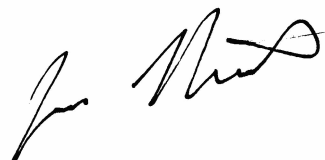
Project Number: -

Project Manager: Public Works Department

REPORTED: 09-Jan-2024

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23L113

LAB #	N23L113-01
SAMPLED DATE	19-Dec-23
SAMPLED TIME	09:30
SAMPLE ID	Pillsbury Stn

	MRL	Units	CDWG	
Haloacetic Acids (Water)				
Monochloroacetic Acid	0.0020	mg/L	-	0.0046
Monobromoacetic Acid	0.0020	mg/L	-	<0.0020
Dichloroacetic Acid	0.0020	mg/L	-	0.0728
Trichloroacetic Acid	0.0020	mg/L	-	0.0788
Dibromoacetic Acid	0.0020	mg/L	-	<0.0020
Total Haloacetic Acids (HAA5)	0.00200	mg/L	MAC = 0.08	0.156
2-Bromopropionic Acid	70-130	[surr]	-	103%

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23L113

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23F166

RECEIVED: 27-Jun-2023

Project: Drinking Water

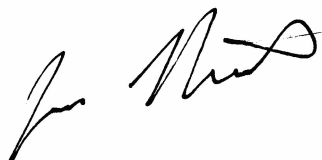
Project Number: -

Project Manager: Public Works Department

REPORTED: 21-Jul-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23F166

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23H010

RECEIVED: 01-Aug-2023

Project: Drinking Water

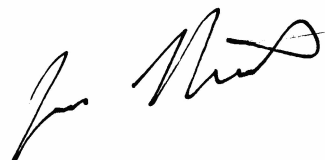
Project Number: -

Project Manager: Public Works Department

REPORTED: 11-Oct-2023

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23H010

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
water@princerupert.ca

Work Order: N23K041

RECEIVED: 07-Nov-2023

Project: Drinking Water

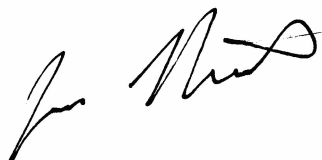
Project Number: -

Project Manager: Public Works Department

REPORTED: 09-Jan-2024

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Northern Laboratories (2010) Ltd.



Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water

Work Order: N23K041

Glossary of Terms

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
mg/L	Milligrams per Litre
MAC	Maximum Acceptable Concentration. Values above MAC are formatted with red text and solid outline.
AO	Aesthetic Objective (not health related). Values above AO are formatted with a dashed outline.
OG	Operational guideline (for treated water)

Standards / Guidelines Referenced

CDWG	Canadian Drinking Water Quality Guidelines (2019) https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf
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