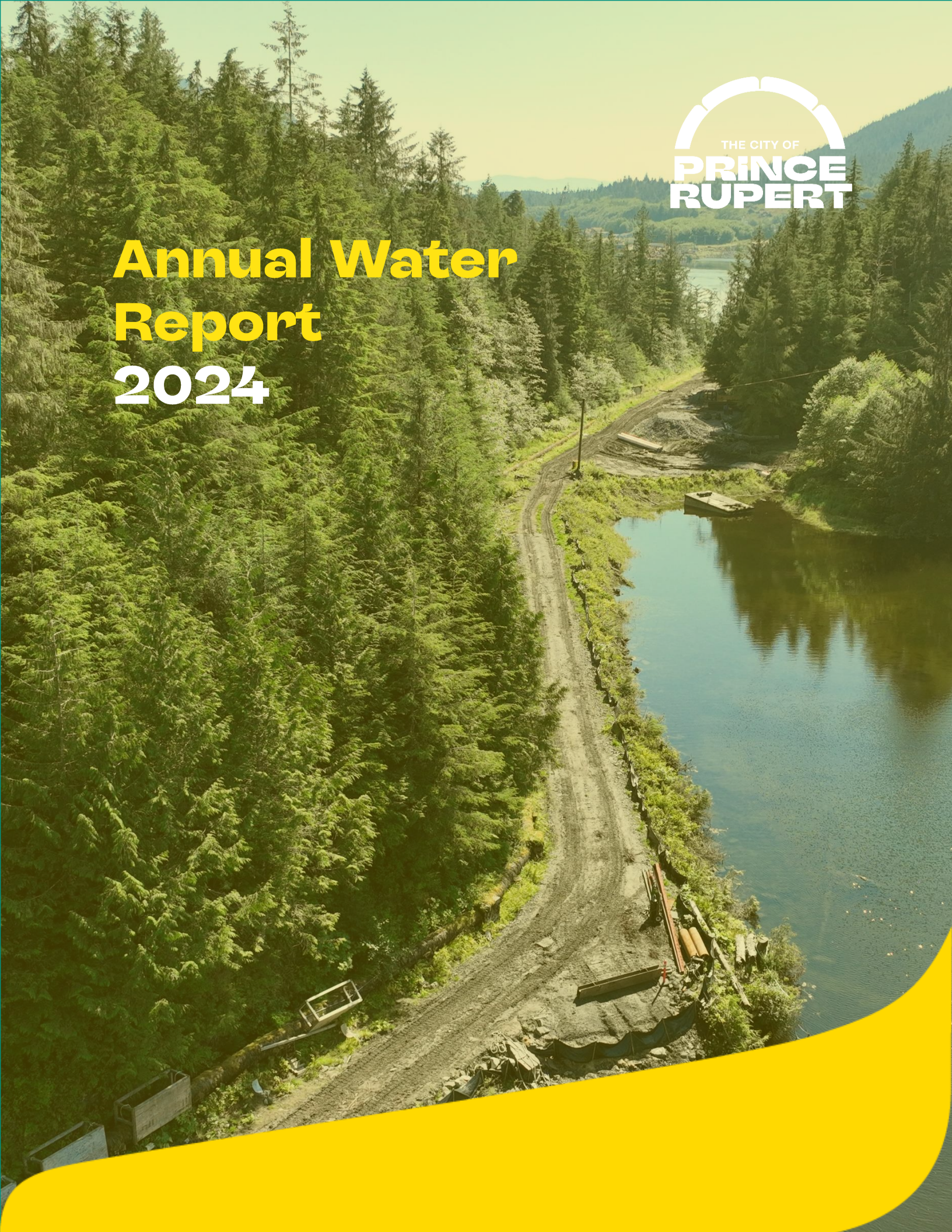


Annual Water Report 2024

Contents

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. Starting in 2024 and continuing into 2025 and beyond, 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.

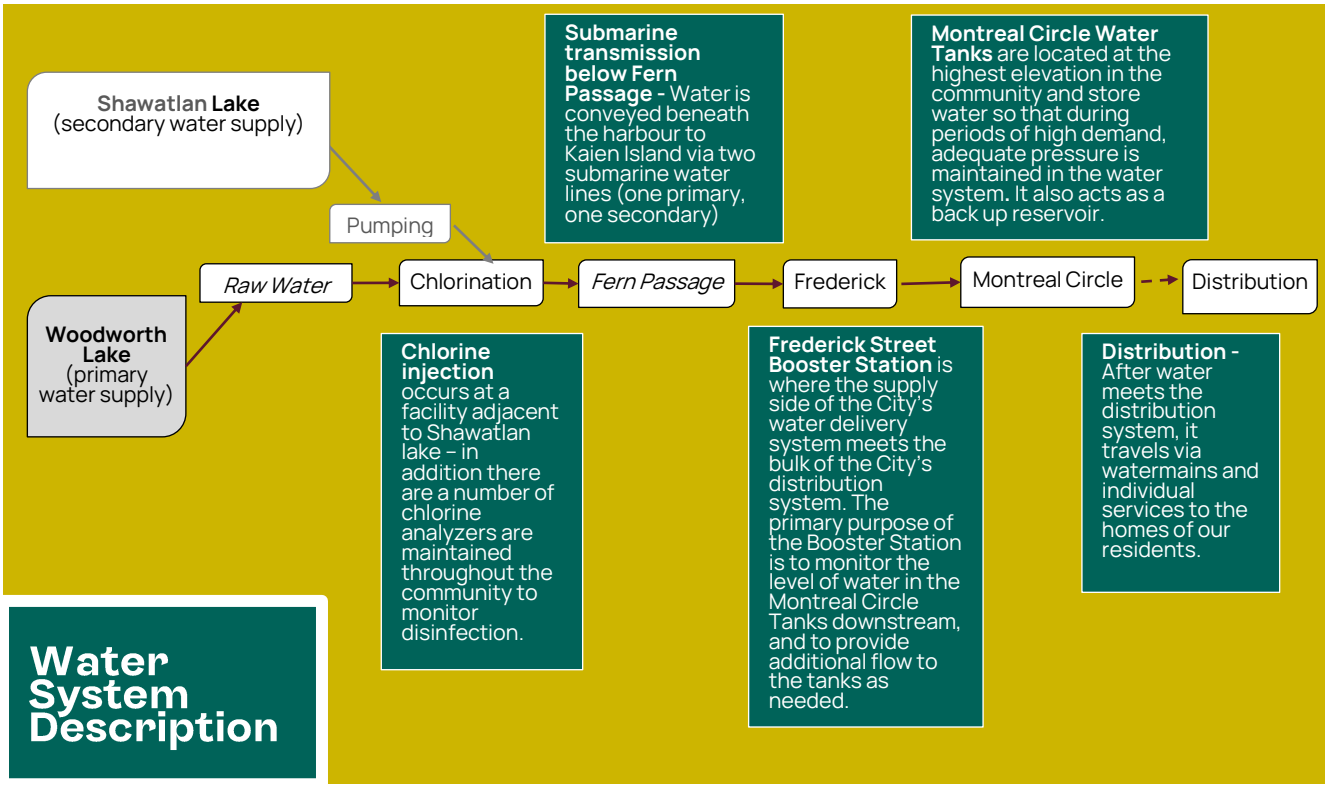
Drinking water can be a complex issue and much of the information provided in this report is technical in nature. If you have any questions or concerns about the information in this report, please feel free to contact the City's Operations Department.

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).

The following qualifications are held by staff:

Water Treatment – 1 Union Operator + 2 Managers

Water Distribution 2 – 5 Union Operators + 2 Managers

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.

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

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 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 2024, 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. The deadline for completion has been adjusted on the City's Operating Permit to January 2030.

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 2024, 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 Escherchia 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	No – we did have samples in September of 2024 that did not meet this standard. The City brought in an external consultant and conducted uni-directional flushing in the impacted areas to achieve appropriate results.
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 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 2024 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 2024 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 2024, the City continued to work closely with Northern Health to be able to reduce chlorination and resulting exceedances of byproducts, though exceedances were not fully eliminated.

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

2024 Water Quality Advisories/Boil Notices

The following Water Quality Advisories/Notices occurred in the 2024 period.

- **Boil Water Notice – July 19th – August 1st** – A Boil Water Notice was in effect due communications and generator equipment failure at our treatment facility.

- **Boil Water Notice – September 10th – October 11th –** Caused by bacterial exceedances, lifted following flushing and testing program

- **Boil Water Notice – October 26th - 28th** - Due to short term equipment failure at our treatment site.

- **Boil Water Notice – November 24th, 2024 to February 28th, 2025** - Due to combined factors, including power supply issues. Also, due to the installation of the new water supply main, an isolated section of pipe was identified where water could potentially stagnate. This water had the potential to be reintroduced to the water supply and corrective action was required and undertaken.

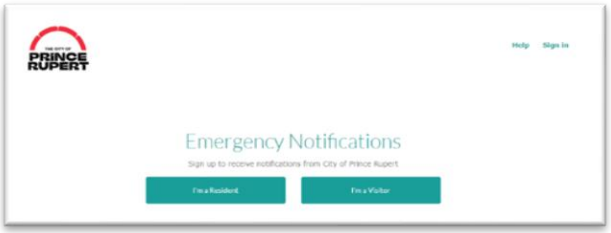
Notification Process

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



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

In terms of human resources and advanced planning, the City has an Emergency Water Plan that 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.

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 2024, 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:

Given focus on the BIG Project began 2024 but works were not completed, City crews focused primarily on break repairs (50 m total) in anticipation of larger capital replacements occurring as part of the BIG Project. The City also experienced a smaller number of major water main breaks in 2024 that would require major capital attention.

Major Capital Repair and Works:

Pipe connection between Overlook St and Rushbrook Ave – 30 M of replacement

1800-1900 block of 7th Avenue East - 174 M of replacement

Seal Cove Circle – 15 M of replacement

11th Ave East and Prince Rupert Blvd - 64 M of replacement

Infrastructure Investments

As noted in previous reports, the City has made major strides in upgrading water supply infrastructure through construction of a new dam, access road and burial of major supply line (Phase 1 and 2 of our water infrastructure renewal project). In 2024, the Operations and Information Technology Departments worked together on a SCADA tower installations to enhance the technological monitoring capacity of the City's water system.

(**Pictured Above:** SCADA towers are part of ongoing work to enhance communications security to our water supply).

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, and engineering and permitting works for this project were substantially completed in 2024.

In addition to the first phases of our water infrastructure project, the City has also taken on major renewal of water supply infrastructure in areas of the community that are considered high priority due to their likelihood and risk of failure. This work began in 2024 through replacement of the major supply line that carries water from the end point of the submarine line into the community along Frederick Street/Prince Rupert Blvd. The work on this line as well as design work for priority corridors went on throughout 2024. In 2025, the City is now seeing the BIG (Big Infrastructure Gap) project move into residential neighbourhoods, beginning with Crestview drive and then moving into other east side areas.

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

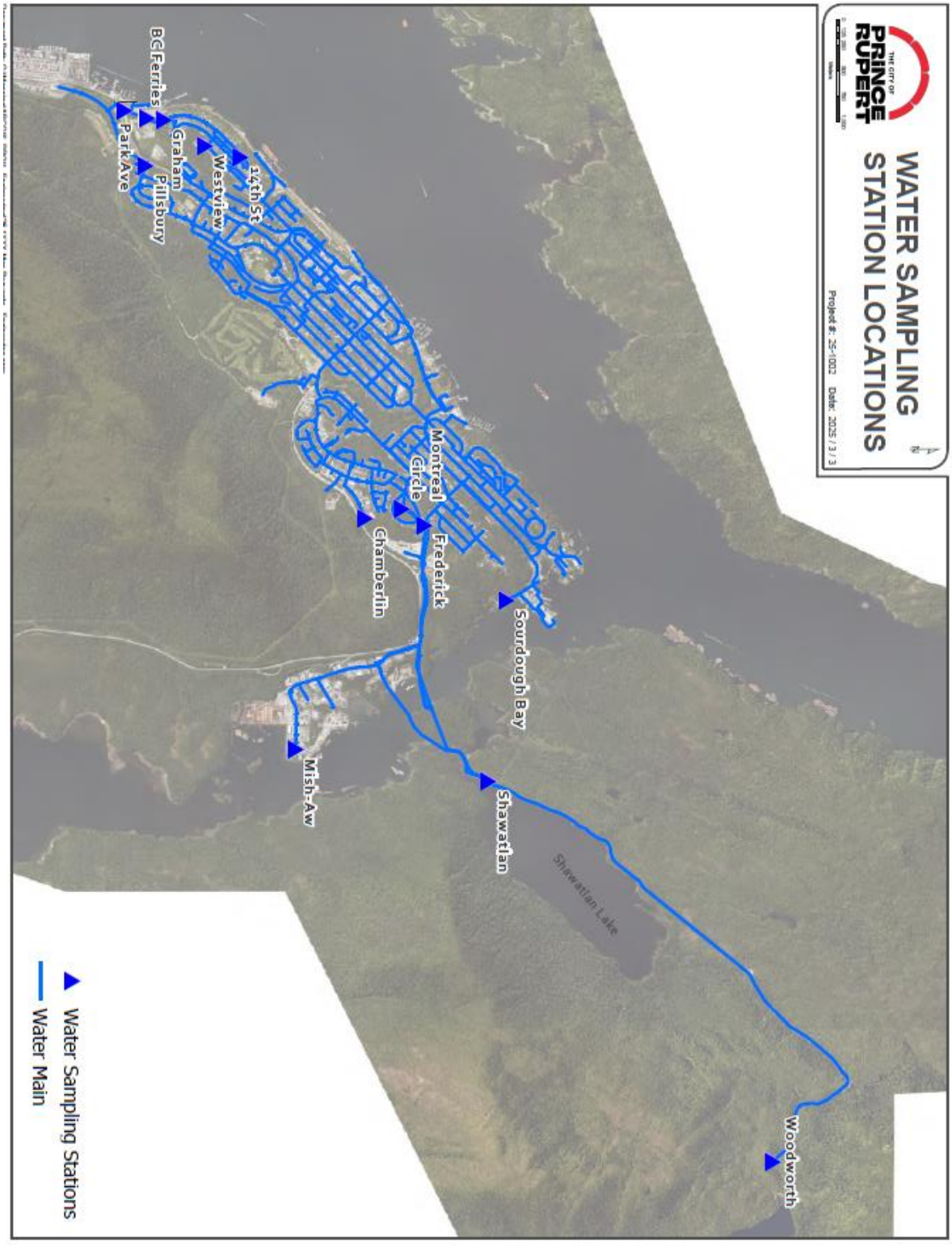
initiated in 2016-2017 was completed to renew and bury our water supply line and build an associated access road. Greater security and water quality certainty has been achieved through burying the supply line, currently subject to falling trees and landslides. Additionally, an access road will permit 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 2023-2024 since returning to the primary water supply. Work to secure the additional funds needed to implement water treatment is began in 2024-2025 with the date for mandated treatment adjusted to January 2030 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


THE CITY OF PRINCE RUPERT
WATER SAMPLING STATION LOCATIONS
Project #: 25-1002 Date: 2025 / 3 / 3
BC Ferries
Park Ave
Graham
Pillsbury
Westview
14th St
Montreal Circle
Chamberlin
Frederick
Sourdough Bay
Mish-Aw
Shawatlan
Shawatlan Lake
Woodworth
Water Sampling Stations
Water Main

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

Environmental Health Officer

5-May-2023
Permit Revised Date

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

northern health
Expiry: March 2024
2269

northern health
the northern way of caring

10-411-7011 (LC - Appr. - 06/11pc)

>By 01 Jan 2028 (Adjusted from 01 Nov 2023, originally 01 Jan 2021), 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 Jan 2030 (adjusted from 01 Jan 2025, originally 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

Environmental Health Officer

20-Oct-2023
Permit Revised Date

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

northern health
Expires March 2024
2361

northern health
the northern way of caring

Appendix C

See following pages for 2024 Water Test Results.

Sample Range Report

Northern Health - Northwest Health Service Delivery Area

Facility Name: Prince Rupert CWS
Facility Type: WS1A
Date Range: Jan 1 2024 to Dec 16 2024
Date Created: Dec 16 2024 **Advisory remains in place on this water supply: Boil Water Notice**

Operator Jordan Schmidt
424 - 3rd Avenue West
Prince Rupert, BC V8J 1L7

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
Montreal Circle Reservoir, Prince Rupert	1-2-2024	L1	L1	
	1-9-2024	L1	L1	
	1-16-2024	L1	L1	
	1-23-2024	L1	L1	
	1-30-2024	L1	L1	
	2-6-2024	L1	L1	
	2-13-2024	L1	L1	
	2-20-2024	L1	L1	
	2-27-2024	L1	L1	
	3-5-2024	L1	L1	
	3-12-2024	L1	L1	
	3-20-2024	L1	L1	
	3-26-2024	L1	L1	
	4-2-2024	L1	L1	
	4-9-2024	L1	L1	
	4-16-2024	L1	L1	
	4-23-2024	L1	L1	
	4-30-2024	L1	L1	
	5-7-2024	L1	L1	
	5-14-2024	L1	L1	
	5-21-2024	L1	L1	
	5-28-2024	L1	L1	
	6-4-2024	L1	L1	
	6-18-2024	L1	L1	
	6-25-2024	L1	L1	
	7-2-2024	L1	L1	
	7-9-2024	L1	L1	
	7-10-2024	L1	L1	
	7-16-2024	L1	L1	
	7-22-2024	L1	L1	
	7-23-2024	L1	L1	
	7-30-2024	L1	L1	
	8-6-2024	L1	L1	
	8-13-2024	L1	L1	
	8-20-2024	L1	L1	

	8-27-2024	L1	L1	
	9-3-2024	L1	L1	
	9-10-2024	L1	L1	
	9-17-2024	L1	L1	
	9-24-2024	L1	L1	
	9-26-2024	L1	L1	
	10-1-2024	L1	L1	
	10-2-2024	L1	L1	
	10-8-2024	L1	L1	
	10-15-2024	L1	L1	
	10-22-2024	L1	L1	
	10-29-2024	L1	L1	
	11-5-2024	L1	L1	
	11-12-2024	L1	L1	
	11-19-2024	L1	L1	
	11-26-2024	L1	L1	
	12-3-2024	L1	L1	
	12-10-2024	L1	L1	
	Total Positive :	**0**	**0**	**0**
Park Avenue Flushing Station,				
	1-30-2024	L1	L1	
	2-27-2024	L1	L1	
	3-26-2024	L1	L1	
	4-30-2024	L1	L1	
	5-28-2024	L1	L1	
	6-25-2024	L1	L1	
	7-10-2024	L1	L1	
	7-22-2024	L1	L1	
	7-23-2024	L1	L1	
	7-30-2024	L1	L1	
	8-27-2024	140 B54	L1	
	9-3-2024	**1 B1**	**L1**	
	9-6-2024	**5 B206**	**L1**	
	9-23-2024	L1	L1	
	9-24-2024	L1	L1	
	9-26-2024	L1	L1	
	10-2-2024	L1	L1	
	10-29-2024	L1	L1	
	11-26-2024	L1	L1	
	Total Positive :	**3**	**0**	**0**
Pillsbury Station, Pillsbury Avenue, At Park Avenue, Prince Rupert				
	1-2-2024	L1	L1	
	1-9-2024	L1	L1	
	1-16-2024	L1	L1	
	1-23-2024	L1	L1	
	1-30-2024	L1	L1	
	2-6-2024	L1	L1	

2-13-2024	L1	L1	
2-20-2024	L1	L1	
2-27-2024	L1	L1	
3-5-2024	L1	L1	
3-12-2024	L1	L1	
3-20-2024	L1	L1	
3-26-2024	L1	L1	
4-2-2024	L1	L1	
4-9-2024	L1	L1	
4-16-2024	L1	L1	
4-23-2024	L1	L1	
4-30-2024	L1	L1	
5-7-2024	L1	L1	
5-14-2024	L1	L1	
5-21-2024	L1	L1	
5-28-2024	L1	L1	
6-4-2024	L1	L1	
6-18-2024	L1	L1	
6-25-2024	L1	L1	
7-2-2024	L1	L1	
7-9-2024	L1	L1	
7-10-2024	L1	L1	
7-16-2024	L1	L1	
7-22-2024	L1	L1	
7-23-2024	L1	L1	
7-30-2024	L1	L1	
8-6-2024	L1	L1	
8-13-2024	L1	L1	
8-20-2024	L1	L1	
8-27-2024	L1	L1	
9-3-2024	L1	L1	
9-10-2024	L1	L1	
9-17-2024	L1	L1	
9-24-2024	L1	L1	
9-26-2024	2	L1	
10-1-2024	L1	L1	
10-2-2024	L1	L1	
10-4-2024	L1	L1	
10-7-2024	L1	L1	
10-8-2024	L1	L1	
10-11-2024	L1	L1	
10-15-2024	L1	L1	
10-22-2024	L1	L1	
10-29-2024	L1	L1	
11-5-2024	L1	L1	
11-12-2024	L1	L1	
11-19-2024	L1	L1	
11-26-2024	L1	L1	
12-3-2024	L1	L1	
12-10-2024	L1	L1	
Total Positive :	**1**	**0**	**0**

Graham Avenue
Cul-de-sac Flushing

Station,				
	1-31-2024	L1	L1	
	2-27-2024	L1	L1	
	3-26-2024	L1	L1	
	4-30-2024	L1	L1	
	5-28-2024	L1	L1	
	6-25-2024	L1	L1	
	7-10-2024	L1	L1	
	7-22-2024	L1 B1	L1	
	7-23-2024	L1	L1	
	7-30-2024	L1	L1	
	8-27-2024	L1	L1	
	9-24-2024	L1	L1	
	9-26-2024	L1	L1	
	10-2-2024	L1	L1	
	10-29-2024	L1	L1	
	11-26-2024	L1	L1	
	Total Positive :	**0**	**0**	**0**
2nd Ave W. Flushing Station, Intersection of 2nd Ave W and 17th Street				
	1-30-2024	L1	L1	
	2-27-2024	L1	L1	
	3-26-2024	L1	L1	
	4-30-2024	L1	L1	
	5-28-2024	L1	L1	
	6-25-2024	L1	L1	
	7-10-2024	L1	L1	
	7-22-2024	L1	L1	
	7-23-2024	L1	L1	
	7-30-2024	L1	L1	
	8-27-2024	L1 B41	L1	
	8-29-2024	4	L1	
	8-29-2024	**1**	**L1**	
	9-3-2024	**2**	**L1**	
	9-6-2024	**1 B10**	**L1**	
	9-23-2024	L1 B2	L1	
	9-24-2024	1 B1	L1	
	9-26-2024	**1 B3**	**L1**	
	10-2-2024	L1	L1	
	10-4-2024	L1	L1	
	10-7-2024	L1	L1	
	10-8-2024	L1	L1	
	10-11-2024	L1	L1	
	10-29-2024	L1	L1	
	11-26-2024	L1	L1	
	Total Positive :	**6**	**0**	**0**
Sourdough Bay Flushing Stn, Seal Cove, Prince Rupert				

1-2-2024	L1	L1
1-9-2024	L1	L1
1-16-2024	L1	L1
1-23-2024	L1	L1
1-30-2024	L1	L1
2-6-2024	L1	L1
2-13-2024	L1	L1
2-20-2024	L1	L1
2-27-2024	L1	L1
3-5-2024	L1	L1
3-6-2024	L1	L1
3-12-2024	L1	L1
3-20-2024	L1	L1
3-26-2024	L1	L1
4-2-2024	L1	L1
4-9-2024	L1	L1
4-16-2024	L1	L1
4-23-2024	L1	L1
4-30-2024	L1	L1
5-7-2024	L1	L1
5-14-2024	L1	L1
5-21-2024	L1	L1
5-28-2024	L1	L1
6-4-2024	L1	L1
6-18-2024	L1	L1
6-25-2024	L1	L1
7-2-2024	L1	L1
7-9-2024	L1	L1
7-10-2024	L1	L1
7-16-2024	L1	L1
7-22-2024	L1	L1
7-23-2024	L1	L1
7-30-2024	L1	L1
8-6-2024	L1	L1
8-13-2024	11 B10	L1
8-14-2024	L1	L1
8-20-2024	L1	L1
8-27-2024	L1	L1
9-3-2024	L1	L1
9-10-2024	L1	L1
9-17-2024	L1	L1
9-24-2024	L1	L1
9-26-2024	L1	L1
10-1-2024	L1	L1
10-2-2024	L1	L1
10-8-2024	L1	L1
10-15-2024	L1	L1
10-22-2024	L1	L1
10-29-2024	L1	L1
11-5-2024	L1	L1
11-12-2024	L1	L1
11-19-2024	L1	L1
11-26-2024	L1	L1
12-3-2024	L1	L1
12-10-2024	L1	L1

Total Positive :	**1**	**0**	**0**

Frederick Station,
Prince Rupert, BC

1-2-2024	L1	L1
1-9-2024	L1	L1
1-16-2024	L1	L1
1-23-2024	L1	L1
1-30-2024	L1	L1
2-6-2024	L1	L1
2-13-2024	L1	L1
2-20-2024	L1	L1
2-27-2024	L1	L1
3-5-2024	L1	L1
3-12-2024	L1	L1
3-20-2024	L1	L1
3-26-2024	L1	L1
4-2-2024	L1	L1
4-9-2024	L1	L1
4-16-2024	L1	L1
4-23-2024	L1	L1
4-30-2024	L1	L1
5-7-2024	L1	L1
5-14-2024	L1	L1
5-21-2024	L1	L1
5-28-2024	L1	L1
6-4-2024	L1	L1
6-18-2024	L1	L1
6-25-2024	L1	L1
7-2-2024	L1	L1
7-9-2024	L1	L1
7-10-2024	L1	L1
7-16-2024	L1	L1
7-22-2024	L1	L1
7-23-2024	L1	L1
7-30-2024	2	L1
8-1-2024	L1	L1
8-6-2024	L1	L1
8-13-2024	L1	L1
8-20-2024	L1	L1
8-27-2024	L1	L1
9-3-2024	L1 B1	L1
9-10-2024	L1	L1
9-17-2024	L1	L1
9-24-2024	L1	L1
9-26-2024	L1	L1
10-1-2024	L1	L1
10-2-2024	L1	L1
10-8-2024	L1	L1
10-15-2024	L1	L1
10-22-2024	L1	L1
10-29-2024	L1	L1
11-5-2024	L1	L1
11-12-2024	L1	L1

	11-19-2024	L1	L1	
	11-26-2024	L1	L1	
	12-3-2024	L1	L1	
	12-10-2024	L1	L1	
	Total Positive :	1	0	0
BC Ferries Water Service.				
	1-30-2024	L1	L1	
	2-27-2024	L1	L1	
	3-26-2024	L1	L1	
	4-30-2024	L1	L1	
	5-28-2024	L1	L1	
	6-25-2024	L1	L1	
	7-10-2024	L1	L1	
	7-22-2024	L1	L1	
	7-23-2024	L1	L1	
	7-30-2024	L1	L1	
	8-27-2024	L1	L1	
	9-24-2024	L1	L1	
	9-26-2024	L1	L1	
	10-2-2024	L1	L1	
	10-29-2024	L1	L1	
	11-26-2024	L1	L1	
	Total Positive :	0	0	0

Result Values: **E - estimated** **L - less than** **G - greater than**

Samples that contain total coliform:	12	4.08% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliform:	6	
Number of samples that contain total coliform in last 30 days:	0/20	
Total number of samples:	294	

Comments:

Environmental Health Officer
Dec 16 2024

FOR FURTHER INFORMATION PLEASE CALL: NW EHO 6 (250) 631-4222

Definitions:

- Total Coliforms: total coliforms are organisms that are found all around us in the environment (ie on plants, animals and humans). They may or may not be harmful. Northern Health uses these organisms as indicator organisms. If total coliforms are found in the water, that indicates to the Environmental Health Officer (EHO) that other organisms may also be present.
- Fecal Coliforms: bacterial contamination from human or animal waste (feces).

- Escherichia coli: bacterial contamination from human or animal waste (feces).

Codes:

- A: means not tested; likely sample is too long in transit to the lab.
- B# (number) or BG: means the number of non-coliform background bacteria colonies. High numbers (>200) may indicate deteriorating water quality
- CFU: colony forming units
- E. Coli: means Escherichia coli.
- EST: means estimated count.
- L1: means less than 1 (<1) – essentially 0. Satisfactory.
- OG: means overgrowth of bacterial colonies; not possible to count coliform bacteria – unsatisfactory.
- R: means not tested; resample is likely required
- T: means not tested; likely sample is too long in transit to the lab.
- TNTC: means too numerous to countSimilar to OG – unsatisfactory.

Hyperion Research Ltd.

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

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

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: 03-Jan-24
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	*Giardia*	*Crypto.*
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:

Processing Data

Date/Time Received:	2024-01-05 12:30:00 PM
Sample Temp. on arrival °C:	9.1
Lab ID:	**64011**
Filter Type:	Filta-Max
Date/Time Conc:	2024-01-05 2:05:00 PM
Concentration Analyst:	YO
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:	2024-01-08 11:00:00 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
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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.

Hyperion Research Ltd.

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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: 05-Feb-24
Sample Type: Raw
LIMS:
Volume Filtered (L): 256.5
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	*Giardia*	*Crypto.*
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.39 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:

Processing Data

Date/Time Received:	2024-02-09 12:15:00 PM
Sample Temp. on arrival °C:	11.1
Lab ID:	**64062**
Filter Type:	Filta-Max
Date/Time Conc:	2024-02-09 1:45:00 PM
Concentration Analyst:	YO
IMS Lot No:	2649152
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:	2024-02-12 11:30:00 AM
Staining Analyst:	CW
Microscope Analyst:	KW
Sample Equivalent Volume (L):	256.5

Method 1623 Quality Control Data

	Lab Water Spike 2021-22		PT (blind) 2017-22	
	% Recovery	RSD	% Recovery	RSD
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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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Telephone (888) 529-0847 Fax (403) 5290852 hyperion@hyperionlab.ca

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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-Mar-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 250.8
Rec'd within 96h?: Yes
Arrival Temp <20° C?: Yes

Project # or PO:
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	*Giardia*	*Crypto.*
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:

Processing Data

Date/Time Received:	2024-03-08 12:25:00 PM
Sample Temp. on arrival °C:	5.2
Lab ID:	**64109**
Filter Type:	Filta-Max
Date/Time Conc:	2024-03-08 2:00:00 PM
Concentration Analyst:	CW
IMS Lot No:	2649152
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:	2024-03-11 11:00:00 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
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	53.6	32.3	53.2	26.2

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

Analyst:

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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: 15-Apr-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 250.8
Rec'd within 96h?: Yes
Arrival Temp <20° C?: Yes

Project # or PO:
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	*Giardia*	*Crypto.*
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 1.59 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:

Processing Data

Date/Time Received:	2024-04-17 12:15:00 PM
Sample Temp. on arrival °C:	11.4
Lab ID:	**64180**
Filter Type:	Filta-Max
Date/Time Conc:	2024-04-18 1:00:00 PM
Concentration Analyst:	CW
IMS Lot No:	2649152
Vol Used (uL):	25
Pellet Vol (mL):	2.0
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:	2024-04-19 11:15:00 AM
Staining Analyst:	CW
Microscope Analyst:	KW
Sample Equivalent Volume (L):	62.7

Method 1623 Quality Control Data

	Lab Water Spike 2021-22		PT (blind) 2017-22	
	% Recovery	RSD	% Recovery	RSD
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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.

Hyperion Research Ltd.

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

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: 22-May-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 250.8
Rec'd within 96h?: Yes
Arrival Temp <20° C?: Yes

Project # or PO: N24E145-01A
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	*Giardia*	*Crypto.*
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:

Processing Data

Date/Time Received:	2024-05-24 12:50:00 PM
Sample Temp. on arrival °C:	10.2
Lab ID:	**64282**
Filter Type:	Filta-Max
Date/Time Conc:	2024-05-24 2:00:00 PM
Concentration Analyst:	QT
IMS Lot No:	2649152
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:	2024-05-27 11:25:00 AM
Staining Analyst:	TS
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
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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.

Hyperion Research Ltd.
1008 Allowance Ave. SE, Medicine Hat, AB T1A 3G8
Telephone (888) 529-0847 Fax (403) 5290852 hyperion@hyperionlab.ca
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: 13-Jun-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 323
Rec'd within 96h?: No
Arrival Temp <20° C?: Yes

Project # or PO:
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	*Giardia*	*Crypto.*
DAPI+/empty: Probably Dead	0	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	**0.0**	**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:

Processing Data

Date/Time Received:	2024-06-19 12:20:00 PM
Sample Temp. on arrival °C:	17.8
Lab ID:	**64382**
Filter Type:	Filta-Max
Date/Time Conc:	2024-06-19 3:30:00 PM
Concentration Analyst:	QT
IMS Lot No:	2872261
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:	2024-06-20 11:05:00 AM
Staining Analyst:	KR
Microscope Analyst:	KW
Sample Equivalent Volume (L):	323.0

Method 1623 Quality Control Data

	Lab Water Spike 2021-22		PT (blind) 2017-22	
	% Recovery	RSD	% Recovery	RSD
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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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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: 17-Jul-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 250.8
Rec'd within 96h?: No
Arrival Temp <20° C?: No

Project # or PO:
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	*Giardia*	*Crypto.*
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:

Processing Data

Date/Time Received:	2024-07-22 10:10:00 AM
Sample Temp. on arrival °C:	23.2
Lab ID:	**64518**
Filter Type:	Filta-Max
Date/Time Conc:	2024-07-22 11:30:00 AM
Concentration Analyst:	QT/KR
IMS Lot No:	2934427
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:	2024-07-23 11:30:00 AM
Staining Analyst:	QT
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
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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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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: 19-Aug-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 101.1
Rec'd within 96h?: Yes
Arrival Temp <20° C?: No

Project # or PO:
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	*Giardia*	*Crypto.*
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 3.96 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:

Processing Data

Date/Time Received:	2024-08-23 12:50:00 PM
Sample Temp. on arrival °C:	21.9
Lab ID:	**64649**
Filter Type:	Filta-Max
Date/Time Conc:	2024-08-23 2:40:00 PM
Concentration Analyst:	KR/QT
IMS Lot No:	2872261
Vol Used (uL):	25
Pellet Vol (mL):	2.0
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:	2024-08-26 11:30:00 AM
Staining Analyst:	QT
Microscope Analyst:	KW
Sample Equivalent Volume (L):	25.3

Method 1623 Quality Control Data

	Lab Water Spike 2021-22		PT (blind) 2017-22	
	% Recovery	RSD	% Recovery	RSD
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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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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: 18-Sep-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 259.9
Rec'd within 96h?: No
Arrival Temp <20° C?: Yes

Project # or PO:
Upload to DB?:
Field pH:
Field Temp ° C:
Field Turb (NTU):
Sample Location:
Shawatlan Pump house

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	*Giardia*	*Crypto.*
DAPI+/empty: Probably Dead	1	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.57 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	**0.6**	**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:

Processing Data

Date/Time Received:	2024-09-23 10:45:00 AM
Sample Temp. on arrival °C:	18
Lab ID:	**64751**
Filter Type:	Filta-Max
Date/Time Conc:	2024-09-23 3:45:00 PM
Concentration Analyst:	EB
IMS Lot No:	2872261
Vol Used (uL):	67
Pellet Vol (mL):	0.8
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:	2024-09-24 11:00:00 AM
Staining Analyst:	CW
Microscope Analyst:	KW
Sample Equivalent Volume (L):	174.1

Method 1623 Quality Control Data

	Lab Water Spike 2021-22		PT (blind) 2017-22	
	% Recovery	RSD	% Recovery	RSD
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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.

Hyperion Research Ltd.
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Telephone (888) 529-0847 Fax (403) 5290852 hyperion@hyperionlab.ca
www.hyperionlab.ca

CALA Testing Accreditation No. A3538

To:

City of Prince Rupert, Public W
424-3 Ave W
Prince Rupert BC

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

Sample Date: 22-Oct-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 250.8
Rec'd within 96h?: Yes
Arrival Temp <20 °C?: Yes

Project # or PO:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:
Shawatlan Pump House Station

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	*Giardia*	*Crypto.*
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:

Processing Data

Date/Time Received:	2024-10-25 12:45:00 PM
Sample Temp. on arrival °C:	10.3
Lab ID:	**64896**
Filter Type:	Filta-Max
Date/Time Conc:	2024-10-25 3:15:00 PM
Concentration Analyst:	CW
IMS Lot No:	2919832
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:	2024-10-28 11:30:00 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
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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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Telephone (888) 529-0847 Fax (403) 5290852 hyperion@hyperionlab.ca

www.hyperionlab.ca

CALA Testing Accreditation No. A3538

To:

City of Prince Rupert
424-3 Ave W
Prince Rupert BC

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

Sample Date: 20-Nov-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 250.8
Rec'd within 96h?: No
Arrival Temp <20 °C?: Yes

Project # or PO:
Upload to DB?:
Field pH:
Field Temp °C:
Field Turb (NTU):
Sample Location:
Woodworth Lake(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	*Giardia*	*Crypto.*
DAPI+/empty: Probably Dead	0	0
DAPI-/Probably Alive	0	0

Detection Limit: 0.80 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:

Processing Data

Date/Time Received:	2024-11-26 1:30:00 PM
Sample Temp. on arrival °C:	4.1
Lab ID:	**64990**
Filter Type:	Filta-Max
Date/Time Conc:	2024-11-27 11:15:00 AM
Concentration Analyst:	CW
IMS Lot No:	2919832
Vol Used (uL):	50
Pellet Vol (mL):	1.0
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:	2024-11-28 11:00:00 AM
Staining Analyst:	CW
Microscope Analyst:	KW
Sample Equivalent Volume (L):	125.4

Method 1623 Quality Control Data

	Lab Water Spike 2021-22		PT (blind) 2017-22	
	% Recovery	RSD	% Recovery	RSD
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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.

Hyperion Research Ltd.

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

www.hyperionlab.ca

CALA Testing Accreditation No. A3538

To:

City of Prince Rupert
424-3 Ave W
Prince Rupert BC

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

Sample Date: 12-Dec-24
Sample Type: Raw
LIMS:
Locater Code:
Volume Filtered (L): 250.8
Rec'd within 96h?: No
Arrival Temp <20 °C?: Yes

Project # or PO:
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	*Giardia*	*Crypto.*
DAPI+/empty: Probably Dead	2	0
DAPI-/Probably Alive	2	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	**1.6**	**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: This sample arrived late on Dec 24 so it had to wait until Dec 27. It was already a week over the Method 1623 holding time but we processed it anyway as soon as we could.

Processing Data

Date/Time Received:	24-Dec-24 1:00:00 PM
Sample Temp. on arrival °C:	14.4
Lab ID:	**641076**
Filter Type:	Filta-Max
Date/Time Conc:	27-Dec-24 10:05:00 AM
Concentration Analyst:	EB
IMS Lot No:	2919832
Vol Used (uL):	100
Pellet Vol (mL):	0.1
IMS System:	DynaBeads GC Combo
Resusp Vol (uL):	100
MAb Conjugate:	EasyStainCY3
Monoclonal Antibody Lot No:	C10G203
Control G:	4
Control C:	4
Date/Time Stained:	27-Dec-24 1:45:00 PM
Staining Analyst:	KS
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
Giardia	59.1	26.1	58.2	18.5
Cryptosporidium	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.

ANALYTICAL REPORT

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

Project: Drinking Water
Project Number: -
Project Manager: Public Works Department

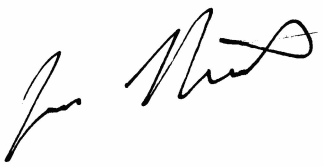
Work Order: N24A002

RECEIVED: 02-Jan-2024

REPORTED: 10-Mar-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:** N24A002

LAB #				N24A002-01	N24A002-02	N24A002-03	N24A002-04
SAMPLED DATE				02-Jan-24	02-Jan-24	02-Jan-24	02-Jan-24
SAMPLED TIME				08:30	09:45	10:45	09:10
SAMPLE ID				Frederick Stn	Sourdough Bay Stn	Pillsbury Stn	Montreal Circle
	MRL	*Units*	*CDWG*				
General Parameters (Water)							
pH	*1.0*	*pH units*	*7.0-10.5*	**6.0**	**6.0**	**5.9**	**5.9**
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	**3**	**4**	**3**	**3**
Conductivity	*1.0*	*uS/cm*	-	**26.9**	**28.2**	**27.6**	**27.6**
Colour	*1*	*PtCo units*	*AO <= 15*	**17**	**17**	**15**	**17**
Turbidity	*0.05*	*NTU*	*OG < 1*	**0.50**	**0.83**	**0.87**	**1.18**
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**27**	**28**	**28**	**28**
Carbon, Total Organic	*0.50*	*mg/L*	-	**4.08**	**4.08**	**3.95**	**3.91**
Calculated Parameters (Water)							
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**8.89**	**9.45**	**8.88**	**8.90**
Anions (Water)							
Chloride	*1.0*	*mg/L*	*AO <= 250*	**4.3**	**5.4**	**5.1**	**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*	**1.6**	**1.5**	**1.4**	**1.6**
Total Metals (Water)							
Aluminum, total	*0.0050*	*mg/L*	*OG < 0.1*	**0.103**	**0.0959**	**0.0996**	**0.135**
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*	**0.0064**	**0.0067**	**0.0070**	**0.0074**
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*	-	**3.03**	**3.27**	**3.05**	**3.04**
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	**0.00017**
Copper, total	*0.00040*	*mg/L*	*AO = 1* *MAC = 2*	**0.00553**	**0.0656**	**0.0282**	**0.217**
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	**0.161**	**0.160**	**0.152**	**0.313**

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

City of Prince Rupert - Drinking Water **Work Order:** N24A002

LAB #				N24A002-01	N24A002-02	N24A002-03	N24A002-04
SAMPLED DATE				02-Jan-24	02-Jan-24	02-Jan-24	02-Jan-24
SAMPLED TIME				08:30	09:45	10:45	09:10
SAMPLE ID				Frederick Stn	Sourdough Bay Stn	Pillsbury Stn	Montreal Circle
	MRL	*Units*	*CDWG*				
Total Metals (continued)							
Lead, total	*0.00020*	*mg/L*	*MAC = 0.005*	<0.00020	**0.00045**	**0.00024**	**0.00079**
Lithium, total	*0.00010*	*mg/L*	-	**0.00013**	**0.00014**	**0.00013**	**0.00014**
Magnesium, total	*0.010*	*mg/L*	-	**0.316**	**0.309**	**0.305**	**0.318**
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02* *MAC = 0.12*	**0.00933**	**0.00612**	**0.00652**	**0.0253**
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*	-	**0.38**	**0.38**	**0.38**	**0.38**
Selenium, total	*0.00050*	*mg/L*	*MAC = 0.05*	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	*1.0*	*mg/L*	-	**1.1**	**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*	**1.02**	**0.99**	**0.99**	**0.99**
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0124**	**0.0129**	**0.0125**	**0.0127**
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*	**0.0062**	<0.0040	**0.0102**	**0.0129**
Zirconium, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010	<0.00010	<0.00010

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24A002

LAB #				**N24A002-05**	-	-	-
SAMPLED DATE				**02-Jan-24**	-	-	-
SAMPLED TIME				**13:30**	-	-	-
SAMPLE ID				**Woodworth Lake**	-	-	-
	MRL	***Units***	***CDWG***				
General Parameters (Water)							
pH	*1.0*	*pH units*	*7.0-10.5*	**6.6**			
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	**8**			
Conductivity	*1.0*	*uS/cm*	-	**23.5**			
Colour	*1*	*PtCo units*	*AO <= 15*	**40**			
Turbidity	*0.05*	*NTU*	*OG < 1*	**1.38**			
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**25**			
Carbon, Total Organic	*0.50*	*mg/L*	-	**4.10**			
Calculated Parameters (Water)							
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	<0.10			
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**8.59**			
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*	**1.3**			
Total Metals (Water)							
Aluminum, total	*0.0050*	*mg/L*	*OG < 0.1*	**0.116**			
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*	<0.000010			
Calcium, total	*0.20*	*mg/L*	-	**2.93**			
Chromium, total	*0.00050*	*mg/L*	*MAC = 0.05*	<0.00050			
Cobalt, total	*0.00010*	*mg/L*	-	**0.00014**			
Copper, total	*0.00040*	*mg/L*	*AO = 1* *MAC = 2*	**0.00855**			
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	**0.220**			

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24A002

LAB #			**N24A002-05**	-	-	-
SAMPLED DATE			**02-Jan-24**	-	-	-
SAMPLED TIME			**13:30**	-	-	-
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*	-	**0.00013**		
Magnesium, total	*0.010*	*mg/L*	-	**0.307**		
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02* *MAC = 0.12*	**0.0182**		
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*	-	**1.1**		
Silver, total	*0.000050*	*mg/L*	-	<0.000050		
Sodium, total	*0.10*	*mg/L*	*AO <= 200*	**0.96**		
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0124**		
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*	**0.0185**		
Zirconium, total	*0.00010*	*mg/L*	-	<0.00010		

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24A002

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

ANALYTICAL REPORT

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

Project: Drinking Water
Project Number: -
Project Manager: Public Works Department

Work Order: N24D095

RECEIVED: 16-Apr-2024

REPORTED: 02-Aug-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.

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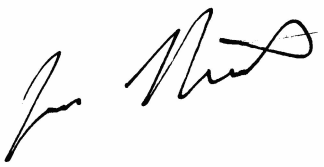

Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24D095

LAB #				**N24D095-01**	**N24D095-02**	**N24D095-03**	**N24D095-04**
SAMPLED DATE				**16-Apr-24**	**16-Apr-24**	**16-Apr-24**	**16-Apr-24**
SAMPLED TIME				**09:51**	**10:16**	**10:52**	**11:29**
SAMPLE ID				**Frederick Stn**	**Montreal Circle**	**Sourdough Bay Flushing Stn**	**Pillsbury Stn**
	MRL	***Units***	***CDWG***				
General Parameters (Water)							
pH	*1.0*	*pH units*	*7.0-10.5*	**5.5**	**5.1**	**5.8**	**5.4**
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	**2**	**2**	**4**	**3**
Conductivity	*1.0*	*uS/cm*	-	**28.5**	**28.5**	**32.1**	**30.6**
Colour	*1*	*PtCo units*	*AO <= 15*	**16**	**16**	**17**	**13**
Turbidity	*0.05*	*NTU*	*OG < 1*	**0.48**	**0.51**	**0.43**	**0.51**
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**28**	**28**	**30**	**29**
Carbon, Total Organic	*0.50*	*mg/L*	-	**4.33**	**3.46**	**3.66**	**3.24**
Calculated Parameters (Water)							
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**8.41**	**8.42**	**10.2**	**8.53**
Anions (Water)							
Chloride	*1.0*	*mg/L*	*AO <= 250*	**4.5**	**4.4**	**4.4**	**4.8**
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**	**1.4**	**1.4**
Total Metals (Water)							
Aluminum, total	*0.0050*	*mg/L*	*OG < 0.1*	**0.0914**	**0.0916**	**0.0826**	**0.0852**
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*	**0.0065**	**0.0066**	**0.0065**	**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*	-	**2.91**	**2.91**	**3.66**	**2.96**
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*	**0.00524**	**0.150**	**0.0574**	**0.0387**
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	**0.145**	**0.172**	**0.159**	**0.138**

ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
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Project: Drinking Water
Project Number: -
Project Manager: Public Works Department

Work Order: N24F070

RECEIVED: 11-Jun-2024

REPORTED: 02-Aug-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.

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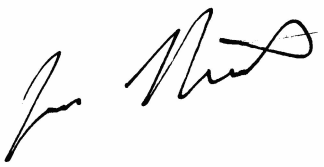

Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24F070

LAB #				**N24F070-01**
SAMPLED DATE				**11-Jun-24**
SAMPLED TIME				**13:00**
SAMPLE ID				**Pillsbury Station**
	MRL	***Units***	***CDWG***	
Haloacetic Acids (Water)				
Monochloroacetic Acid	*0.0020*	*mg/L*	-	**0.0085**
Monobromoacetic Acid	*0.0020*	*mg/L*	-	<0.0020
Dichloroacetic Acid	*0.0020*	*mg/L*	-	**0.0850**
Trichloroacetic Acid	*0.0020*	*mg/L*	-	**0.0573**
Dibromoacetic Acid	*0.0020*	*mg/L*	-	<0.0020
Total Haloacetic Acids (HAA5)	*0.00200*	*mg/L*	*MAC = 0.08*	**0.151**
2-Bromopropionic Acid	*70-130*	*[surr]*	-	*111%*

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24F070

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

ANALYTICAL REPORT

City of Prince Rupert
424 3rd Avenue West
Prince Rupert, BC V8J 1L7
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Project: Drinking Water
Project Number: -
Project Manager: Public Works Department

Work Order: N24H009

RECEIVED: 06-Aug-2024

REPORTED: 09-Sep-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.

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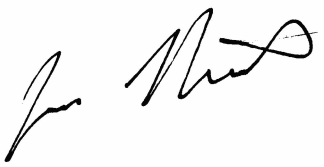

Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24H009

LAB #				**N24H009-01**	**N24H009-02**	**N24H009-03**	**N24H009-04**
SAMPLED DATE				**06-Aug-24**	**06-Aug-24**	**06-Aug-24**	**06-Aug-24**
SAMPLED TIME				**09:00**	**11:00**	**12:00**	**09:30**
SAMPLE ID				**Frederick Station**	**Sourdough Bay Flushing Station**	**Pillsbury Station**	**Montreal Circle Reservoir**
	MRL	***Units***	***CDWG***				
Haloacetic Acids (Water)							
Monochloroacetic Acid	*0.0020*	*mg/L*	-	**0.0069**	**0.0070**	**0.0071**	**0.0072**
Monobromoacetic Acid	*0.0020*	*mg/L*	-	<0.0020	<0.0020	<0.0020	<0.0020
Dichloroacetic Acid	*0.0020*	*mg/L*	-	**0.103**	**0.119**	**0.116**	**0.114**
Trichloroacetic Acid	*0.0020*	*mg/L*	-	**0.0599**	**0.0712**	**0.0704**	**0.0643**
Dibromoacetic Acid	*0.0020*	*mg/L*	-	<0.0020	<0.0020	<0.0020	<0.0020
Total Haloacetic Acids (HAA5)	*0.00200*	*mg/L*	*MAC = 0.08*	**0.170**	**0.197**	**0.194**	**0.185**
2-Bromopropionic Acid	*70-130*	*[surr]*	-	*100%*	*107%*	*107%*	*116%*

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24H009

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

City of Prince Rupert - Drinking Water **Work Order:** N24D095

LAB #				N24D095-01	N24D095-02	N24D095-03	N24D095-04
SAMPLED DATE				16-Apr-24	16-Apr-24	16-Apr-24	16-Apr-24
SAMPLED TIME				09:51	10:16	10:52	11:29
SAMPLE ID				Frederick Stn	Montreal Circle	Sourdough Bay Flushing Stn	Pillsbury Stn
	MRL	*Units*	*CDWG*				
Total Metals (continued)							
Lead, total	*0.00020*	*mg/L*	*MAC = 0.005*	<0.00020	**0.00046**	**0.00040**	**0.00032**
Lithium, total	*0.00010*	*mg/L*	-	**0.00011**	**0.00012**	**0.00012**	**0.00011**
Magnesium, total	*0.010*	*mg/L*	-	**0.275**	**0.276**	**0.269**	**0.271**
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02* *MAC = 0.12*	**0.00519**	**0.00816**	**0.00467**	**0.00433**
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**	**0.33**	**0.34**	**0.33**
Selenium, total	*0.00050*	*mg/L*	*MAC = 0.05*	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	*1.0*	*mg/L*	-	**1.1**	**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*	**0.94**	**0.93**	**0.94**	**1.02**
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0122**	**0.0120**	**0.0126**	**0.0120**
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*	**0.0060**	**0.0092**	<0.0040	**0.0092**
Zirconium, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010	<0.00010	<0.00010

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24D095

LAB #				**N24D095-05**	-	-	-
SAMPLED DATE				**16-Apr-24**	-	-	-
SAMPLED TIME				**11:00**	-	-	-
SAMPLE ID				**Woodworth Lake**	-	-	-
	MRL	***Units***	***CDWG***				
General Parameters (Water)							
pH	*1.0*	*pH units*	*7.0-10.5*	**6.4**			
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	**8**			
Conductivity	*1.0*	*uS/cm*	-	**24.0**			
Colour	*1*	*PtCo units*	*AO <= 15*	**37**			
Turbidity	*0.05*	*NTU*	*OG < 1*	**0.83**			
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**25**			
Carbon, Total Organic	*0.50*	*mg/L*	-	**3.91**			
Calculated Parameters (Water)							
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	<0.10			
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**8.30**			
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*	**1.4**			
Total Metals (Water)							
Aluminum, total	*0.0050*	*mg/L*	*OG < 0.1*	**0.142**			
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*	**0.0072**			
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*	**0.000014**			
Calcium, total	*0.20*	*mg/L*	-	**2.87**			
Chromium, total	*0.00050*	*mg/L*	*MAC = 0.05*	<0.00050			
Cobalt, total	*0.00010*	*mg/L*	-	**0.00024**			
Copper, total	*0.00040*	*mg/L*	*AO = 1* *MAC = 2*	**0.0318**			
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	**0.472**			

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24D095

LAB #				**N24D095-05**	-	-	-
SAMPLED DATE				**16-Apr-24**	-	-	-
SAMPLED TIME				**11:00**	-	-	-
SAMPLE ID				**Woodworth Lake**	-	-	-
	MRL	***Units***	***CDWG***				
Total Metals (continued)							
Lead, total	*0.00020*	*mg/L*	*MAC = 0.005*	**0.00041**			
Lithium, total	*0.00010*	*mg/L*	-	**0.00011**			
Magnesium, total	*0.010*	*mg/L*	-	**0.271**			
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02* *MAC = 0.12*	**0.0409**			
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*	-	**0.00044**			
Phosphorus, total	*0.050*	*mg/L*	-	<0.050			
Potassium, total	*0.10*	*mg/L*	-	**0.32**			
Selenium, total	*0.00050*	*mg/L*	*MAC = 0.05*	<0.00050			
Silicon, total	*1.0*	*mg/L*	-	**1.1**			
Silver, total	*0.000050*	*mg/L*	-	<0.000050			
Sodium, total	*0.10*	*mg/L*	*AO <= 200*	**0.92**			
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0118**			
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*	**0.0257**			
Zirconium, total	*0.00010*	*mg/L*	-	<0.00010			

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24D095

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

ANALYTICAL REPORT

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

Project: Drinking Water
Project Number: -
Project Manager: Public Works Department

Work Order: N24G004

RECEIVED: 02-Jul-2024

REPORTED: 02-Aug-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.

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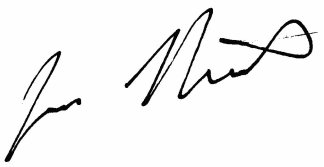

Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24G004

LAB #				**N24G004-01**	**N24G004-02**	**N24G004-03**	**N24G004-04**
SAMPLED DATE				**02-Jul-24**	**02-Jul-24**	**02-Jul-24**	**02-Jul-24**
SAMPLED TIME				**09:00**	**10:00**	**09:35**	**11:00**
SAMPLE ID				**Frederick Stn**	**Montreal Circle**	**Sourdough Bay Flushing Stn**	**Pillsbury Stn**
	MRL	***Units***	***CDWG***				
General Parameters (Water)							
pH	*1.0*	*pH units*	*7.0-10.5*	**5.2**	**5.1**	**5.1**	**5.0**
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	**3**	**3**	**2**	**3**
Conductivity	*1.0*	*uS/cm*	-	**30.9**	**30.3**	**30.8**	**30.6**
Colour	*1*	*PtCo units*	*AO <= 15*	**19**	**18**	**18**	**17**
Turbidity	*0.05*	*NTU*	*OG < 1*	**0.47**	**0.50**	**0.42**	**0.38**
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**30**	**29**	**29**	**29**
Carbon, Total Organic	*0.50*	*mg/L*	-	**5.66**	**5.36**	**5.17**	**5.37**
Calculated Parameters (Water)							
Total Trihalomethanes	*0.00400*	*mg/L*	*MAC = 0.1*	**0.0881**	**0.115**	**0.129**	**0.133**
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**10.1**	**10.5**	**10.8**	**10.8**
Anions (Water)							
Chloride	*1.0*	*mg/L*	*AO <= 250*	**3.5**	**3.9**	**4.5**	**4.0**
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*	**0.0884**	**0.0912**	**0.106**	**0.0871**
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*	**0.0082**	**0.0080**	**0.0082**	**0.0080**
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*	-	**3.54**	**3.63**	**3.61**	**3.74**
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*	**0.00693**	**0.186**	**0.0339**	**0.0564**

City of Prince Rupert - Drinking Water **Work Order:** N24G004

LAB #				N24G004-01	N24G004-02	N24G004-03	N24G004-04
SAMPLED DATE				02-Jul-24	02-Jul-24	02-Jul-24	02-Jul-24
SAMPLED TIME				09:00	10:00	09:35	11:00
SAMPLE ID				Frederick Stn	Montreal Circle	Sourdough Bay Flushing Stn	Pillsbury Stn
	MRL	*Units*	*CDWG*				
Total Metals (continued)							
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	**0.197**	**0.172**	**0.166**	**0.157**
Lead, total	*0.00020*	*mg/L*	*MAC = 0.005*	<0.00020	**0.00047**	**0.00035**	**0.00023**
Lithium, total	*0.00010*	*mg/L*	-	**0.00013**	**0.00013**	**0.00019**	**0.00013**
Magnesium, total	*0.010*	*mg/L*	-	**0.317**	**0.358**	**0.422**	**0.347**
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02 MAC = 0.12*	**0.00597**	**0.00502**	**0.00439**	**0.00398**
Mercury, total	*0.000010*	*mg/L*	*MAC = 0.001*	<0.000010	<0.000010	<0.000010	**0.000014**
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*	-	**0.38**	**0.39**	**0.47**	**0.40**
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**	**1.1**	**1.2**
Silver, total	*0.000050*	*mg/L*	-	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, total	*0.10*	*mg/L*	*AO <= 200*	**0.94**	**0.99**	**1.17**	**1.00**
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0139**	**0.0143**	**0.0141**	**0.0146**
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*	**0.0081**	**0.0141**	<0.0040	**0.0047**
Zirconium, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010	<0.00010	<0.00010
Volatile Organic Compounds (VOC) (Water)							
Bromodichloromethane	*0.0010*	*mg/L*	-	<0.0010	<0.0010	<0.0010	<0.0010
Bromoform	*0.0010*	*mg/L*	-	<0.0010	<0.0010	<0.0010	<0.0010
Chloroform	*0.0010*	*mg/L*	-	**0.0881**	**0.115**	**0.129**	**0.133**
Dibromochloromethane	*0.0010*	*mg/L*	-	<0.0010	<0.0010	<0.0010	<0.0010
Toluene-d8	*70-130*	*[surr]*	-	*79%*	*81%*	*77%*	*77%*

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24G004

LAB #				**N24G004-01**	**N24G004-02**	**N24G004-03**	**N24G004-04**
SAMPLED DATE				**02-Jul-24**	**02-Jul-24**	**02-Jul-24**	**02-Jul-24**
SAMPLED TIME				**09:00**	**10:00**	**09:35**	**11:00**
SAMPLE ID				**Frederick Stn**	**Montreal Circle**	**Sourdough Bay Flushing Stn**	**Pillsbury Stn**
	MRL	***Units***	***CDWG***				
Volatile Organic Compounds (VOC) (continued)							
4-Bromofluorobenzene	*70-130*	*[surr]*	-	*69% [1]*	*80%*	*68% [1]*	*69% [1]*

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ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24G004

Special Notes

1 = Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

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

ANALYTICAL REPORT

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

Project: Drinking Water
Project Number: -
Project Manager: Public Works Department

Work Order: N24I090

RECEIVED: 17-Sep-2024

REPORTED: 15-Oct-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.

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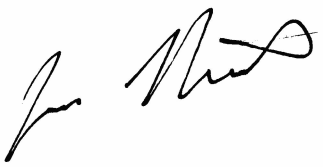

Jesse Newton
Laboratory Manager

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24I090

LAB #				**N24I090-01**	**N24I090-02**	**N24I090-03**	**N24I090-04**
SAMPLED DATE				**17-Sep-24**	**17-Sep-24**	**17-Sep-24**	**17-Sep-24**
SAMPLED TIME				**09:00**	**11:00**	**10:30**	**13:00**
SAMPLE ID				**Frederick Stn**	**Montreal Circle**	**Sourdough Bay Flushing Stn**	**Pillsbury Stn**
	MRL	***Units***	***CDWG***				
General Parameters (Water)							
pH	*1.0*	*pH units*	*7.0-10.5*	**4.3**	**4.2**	**4.4**	**4.1**
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	<1	<1	<1	<1
Conductivity	*1.0*	*uS/cm*	-	**33.6**	**34.4**	**36.6**	**35.0**
Colour	*1*	*PtCo units*	*AO <= 15*	**22**	**23**	**21**	**18**
Turbidity	*0.05*	*NTU*	*OG < 1*	**0.85**	**0.69**	**0.56**	**0.56**
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**31**	**32**	**33**	**32**
Carbon, Total Organic	*0.50*	*mg/L*	-	**5.98**	**5.69**	**5.33**	**6.17**
Calculated Parameters (Water)							
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	<0.10	<0.10	<0.10	<0.10
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**11.2**	**11.1**	**12.8**	**11.2**
Anions (Water)							
Chloride	*1.0*	*mg/L*	*AO <= 250*	**6.5**	**7.0**	**7.1**	**6.0**
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**	**1.2**	**1.3**	**1.2**
Total Metals (Water)							
Aluminum, total	*0.0050*	*mg/L*	*OG < 0.1*	**0.109**	**0.110**	**0.0962**	**0.107**
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*	**0.0090**	**0.0089**	**0.0092**	**0.0090**
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*	-	**3.88**	**3.87**	**4.55**	**3.93**
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*	**0.00690**	**0.228**	**0.0733**	**0.0853**
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	**0.218**	**0.214**	**0.220**	**0.235**

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24I090

				N24I090-01	N24I090-02	N24I090-03	N24I090-04
LAB #							
SAMPLED DATE				17-Sep-24	17-Sep-24	17-Sep-24	17-Sep-24
SAMPLED TIME				09:00	11:00	10:30	13:00
SAMPLE ID				Frederick Stn	Montreal Circle	Sourdough Bay Flushing Stn	Pillsbury Stn
	MRL	***Units***	***CDWG***				
Total Metals (continued)							
Lead, total	*0.00020*	*mg/L*	*MAC = 0.005*	<0.00020	**0.00059**	**0.00048**	**0.00042**
Lithium, total	*0.00010*	*mg/L*	-	**0.00015**	**0.00015**	**0.00016**	**0.00014**
Magnesium, total	*0.010*	*mg/L*	-	**0.355**	**0.355**	**0.358**	**0.347**
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02* *MAC = 0.12*	**0.00651**	**0.00582**	**0.00470**	**0.00550**
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	**0.00133**	**0.00040**	<0.00040
Phosphorus, total	*0.050*	*mg/L*	-	<0.050	<0.050	<0.050	<0.050
Potassium, total	*0.10*	*mg/L*	-	**0.43**	**0.43**	**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*	**0.93**	**0.93**	**0.91**	**0.94**
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0154**	**0.0152**	**0.0163**	**0.0156**
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*	**0.0093**	**0.0179**	<0.0040	**0.0072**
Zirconium, total	*0.00010*	*mg/L*	-	<0.00010	<0.00010	<0.00010	<0.00010

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24I090

LAB #			**N24I090-05**	-	-	-
SAMPLED DATE			**17-Sep-24**	-	-	-
SAMPLED TIME			**13:37**	-	-	-
SAMPLE ID			**Shawatlans Lake**	-	-	-
	MRL	***Units***	***CDWG***			
General Parameters (Water)						
pH	*1.0*	*pH units*	*7.0-10.5*	**5.2**		
Alkalinity (total, as CaCO3)	*1*	*mg/L*	-	**7**		
Conductivity	*1.0*	*uS/cm*	-	**26.8**		
Colour	*1*	*PtCo units*	*AO <= 15*	**64**		
Turbidity	*0.05*	*NTU*	*OG < 1*	**0.68**		
Solids, Total Dissolved / TDS	*1.0*	*mg/L*	*AO <= 500*	**27**		
Carbon, Total Organic	*0.50*	*mg/L*	-	**5.96**		
Calculated Parameters (Water)						
Nitrate (as N)	*0.10*	*mg/L*	*MAC = 10*	<0.10		
Hardness, Total (as CaCO3)	*0.500*	*mg/L*	-	**11.0**		
Anions (Water)						
Chloride	*1.0*	*mg/L*	*AO <= 250*	**1.6**		
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*	**1.2**		
Total Metals (Water)						
Aluminum, total	*0.0050*	*mg/L*	*OG < 0.1*	**0.123**		
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*	**0.0088**		
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*	-	**3.81**		
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*	**0.00399**		
Iron, total	*0.010*	*mg/L*	*AO <= 0.3*	**0.227**		

ANALYTICAL REPORT

City of Prince Rupert - Drinking Water **Work Order:** N24I090

LAB #			**N24I090-05**	-	-	-
SAMPLED DATE			**17-Sep-24**	-	-	-
SAMPLED TIME			**13:37**	-	-	-
SAMPLE ID			**Shawatlans Lake**	-	-	-
	MRL	***Units***	***CDWG***			
Total Metals (continued)						
Lead, total	*0.00020*	*mg/L*	*MAC = 0.005*	<0.00020		
Lithium, total	*0.00010*	*mg/L*	-	**0.00015**		
Magnesium, total	*0.010*	*mg/L*	-	**0.358**		
Manganese, total	*0.00020*	*mg/L*	*AO <= 0.02* *MAC = 0.12*	**0.00698**		
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*	-	**0.43**		
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*	**0.94**		
Strontium, total	*0.0010*	*mg/L*	*MAC = 7*	**0.0152**		
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:** N24I090

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