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## WATER TREATMENT PLANT & DISTRIBUTION SYSTEM

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## Operations Performance Annual Report 2024

Facility Numbers 529 & 155

## OVERVIEW

Port Hardy, with a population of 4,132 residents and over 5,000 connected to the infrastructure is located at the northern end of Vancouver Island. In May 2000 the water treatment plant was commissioned and established Port Hardy's reputation for having some of British Columbia's best water quality.

Port Hardy's source water is the Tsulquate River. The water from this river is tinted brown from tannins and other leachates. Port Hardy's Water Treatment Plant uses a Dissolved Air Flotation (DAF) system which is very effective in treating highly colored water. Treatment is achieved using ISOPAC 6 and Soda Ash to remove the color, particles, sediment and organics that are present. A filter aid, Hydrofloc 400 is added in trace amounts after the DAF treatment and prior to the filters to improve coagulation of fine particles. Filtration is done through a mixed media consisting silica sand and anthracite. Lime slurry, carbon dioxide and sodium hypochlorite are injected post filtration for alkalinity, pH adjustment and disinfection.

In 2020, the plant continued to produce a very high level of treatment providing excellent water quality to the District of Port Hardy.

## PERMIT TO OPERATE

The Port Hardy water treatment plant is a Level III facility as deemed by the Environmental Operators Certification Program (EOCP), certification number 529. The distribution system is a Level III system with a certification number of 155.

## CERTIFIED OPERATORS

The Operational Permit from Vancouver Island Health Authority Operational requires that a certified operator is employed to match the Water Treatment Plant Certification, a level III plant. The District currently employs a Level IV operator and two, Level III operators. The District also employs one Level III Water Distribution Operator.

Operator	Title	Certification
Joe Jewell	Utilities Supervisor	WT IV, WD III, WWT II, WWC II
Roland LeFort	Chief Operator	WWT III, WT III, WD I, WWC I
Cory Henschke	Operator	WWT I, WD II
Robert Cousins	Operator	WT III, WWT II
Patrick Traverse	Operator	WT I, WWT I
Owain Jewell	Operator	WD I
Mark Pottle	Operator In Training	Not Certified

## WATER TREATMENT PLANT

Throughout 2024, there were times where due to heavy rains and high river colour events, that the water treatment process was upset. In these events, the plant is taken offline and no water is pumped to the reservoir. Water is only pumped to the reservoirs once the treatment plant's process quality is restored. This will result in lower than desired reservoir levels but quality will not be compromised.

### CAPITAL PROJECTS

- High speed communication was installed at the water treatment plant this year
- Stantec Engineering has been retained to develop a plan on how to mitigate a broken treated water forcemain. A second raw water pump is also to be designed

### HIGHLIGHTS:

- No violations to permit in 2024
- 1497 ML of water were produced in 2024 down from 1585 ML in 2023
- Quarterly samples for THMs and HAAs all returned within acceptable limits
- All bacteriological testing came back within expected parameters
- A Stage 1 water use restriction as per Port Hardy Water Conservation Bylaw No. 06-2005. A Stage 2 was later implemented. No restrictions were in effect after October
- Several power outages occurred in 2024
- All flocculation and DAF tanks were taken offline for maintenance in January and February. Bearings were replaced and headers cleaned
- All DAF saturator pump check valves were replaced after a failure caused operational issues
- A new sodium hypochlorite generator cell was ordered early in 2024 to replace the existing. After several delays from the supplier the cell was installed in September
- Issues developed with the hypochlorite generator in November. Operators troubleshot the system back to a failed solenoid. The solenoid was replaced and rewired by the electrician
- An extended power outage occurred on the 20<sup>th</sup> for over 25 hours in some areas of town including the water treatment plant. Operators switched over to the diesel power generator and were able to keep the reservoir levels full and no disruption to service

## WATER DISTRIBUTION SYSTEM

In 2020, the District of Port Hardy commenced on a major upgrade to the water distribution system in the Storey's Beach area. A new 2000 cubic meter (m<sup>3</sup>) reservoir was constructed on Fort Rupert Road and 3000 meters of distribution pipe was replaced. The replacement distribution pipe was also increased in size from 150mm and 250mm to 300mm and 350mm. Additional hydrants were also installed ensuring a fire flow of 150 Litres/second where required. The Fort Rupert Reservoir site is equipped with backup power generation and chlorine disinfection booster pumps. The reservoir level is controlled by an altitude control valve which keeps the tank at a predetermined level within 1.5 meters. A rolling diaphragm pressure reducing valve is also installed on site to regulate the pressure in the event the reservoir is offline. The entire site can be monitored remotely from the water treatment.

### CAPITAL PROJECTS

- Drinking water fountains were installed at the skatepark, tennis court, dog park, Stink Creek Park and Storey's Beach Park
- Work commenced on a second replacement reservoir at the water treatment plant. The new 2.7 ML reservoir will replace the existing 2.0 ML. The build is expected to start in early 2025
- Water meters have been installed on three PRV stations in order to better track the flow of water through the distribution system. This information will be attainable in real time to operators to better understand where water breaks have occurred
- Pacific Flow Control was hired to install 4 new water main valves in the distribution system; two valves were installed on Park Drive and two on Highland Drive on both entrances to Cedar Heights Trailer Park. Existing valves in these areas would not close. A fifth valve is planned for early 2025 for the reservoir project

### ADDITIONAL HIGHLIGHTS:

- Fire hydrants were "B" Serviced this year
- Water main clearing continued to keep our infrastructure accessible
- Backflow preventors were all tested and serviced
- Emergency power generators were serviced and load bank tested
- A water leak was found at Fort Rupert Reservoir on January 17th on the hypochlorite injection point. A temporary repair was made to minimize the leak until a correct sized repair clamp arrives
- A large water break, approximately 200,000 per hour was found in the Bear Cove area January 17<sup>th</sup>. Because of the large volume of water, all available crew were dispatched to find the leak and determine if it was a main break or a large service. The leak was isolated and the property owner notified
- A service line leak was repaired on Dodd Place in May
- A large water leak was found in the Tacan site in September. This leak has existed to some degree for many years judging by the condition of the fitting. Chlorinated water was found in the ditchline 100 meters away and on the opposite side of the road from the source making it challenging to find. A 9% reduction in total production after repairs; water production at the treatment plant has been greatly reduced saving water and chemical consumption



*New Reservoir and Old Reservoir to be replaced*



*Broken Water Main at Fort Rupert Reservoir*





*Broken corporation stop found on Steel Road. Estimated leaking at*

## CROSS CONNECTION CONTROL

A formal Cross Connection Control program created by Maintenance Tracking Systems Inc (MTS) was presented to the District of Port Hardy in late 2010. Currently, backflow preventers are installed in all high risk areas of the treatment plants, sewage liftstations with a washdown hose, public sani dumps and public gardens. All District Backflow assemblies were tested and recertified by our certified operator.

## WATER WISE PROGRAM CONTINUATION

A total of 167 water meters are being read including commercial users and multi-family dwellings. All new homes and constructions will have meter setters installed as part of this program. Continuing public education around proposed metering/rate changes and general information on water wise initiatives was conducted and will be ongoing until all users are metered. In 2016, new watering restrictions as per Port Hardy Water Conservation Bylaw No. 06-2005 were adopted. As part of the water system upgrade in 2018, water meter setters were installed on all single-family dwellings on Beaver Harbour Road as new service lines were run to the property line.

Continuing from 2021, touch read meters have either been replaced or modified to be radio read meters. This has greatly reduced the amount of time required to read the meters for billing.

## WATERSHED PROTECTION PLAN

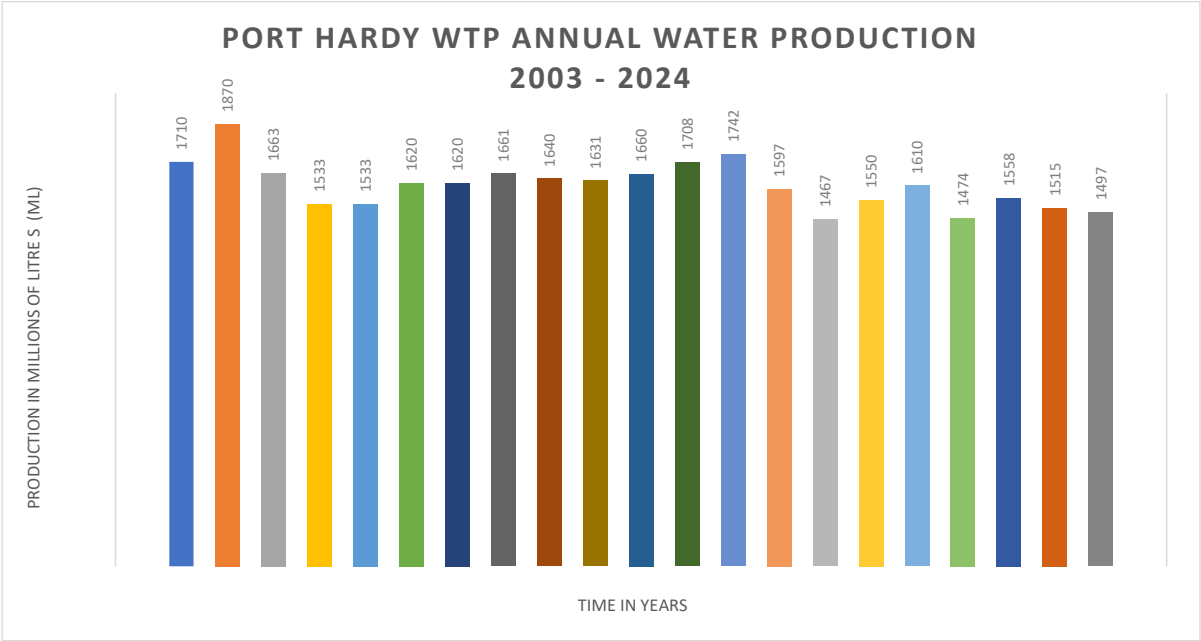
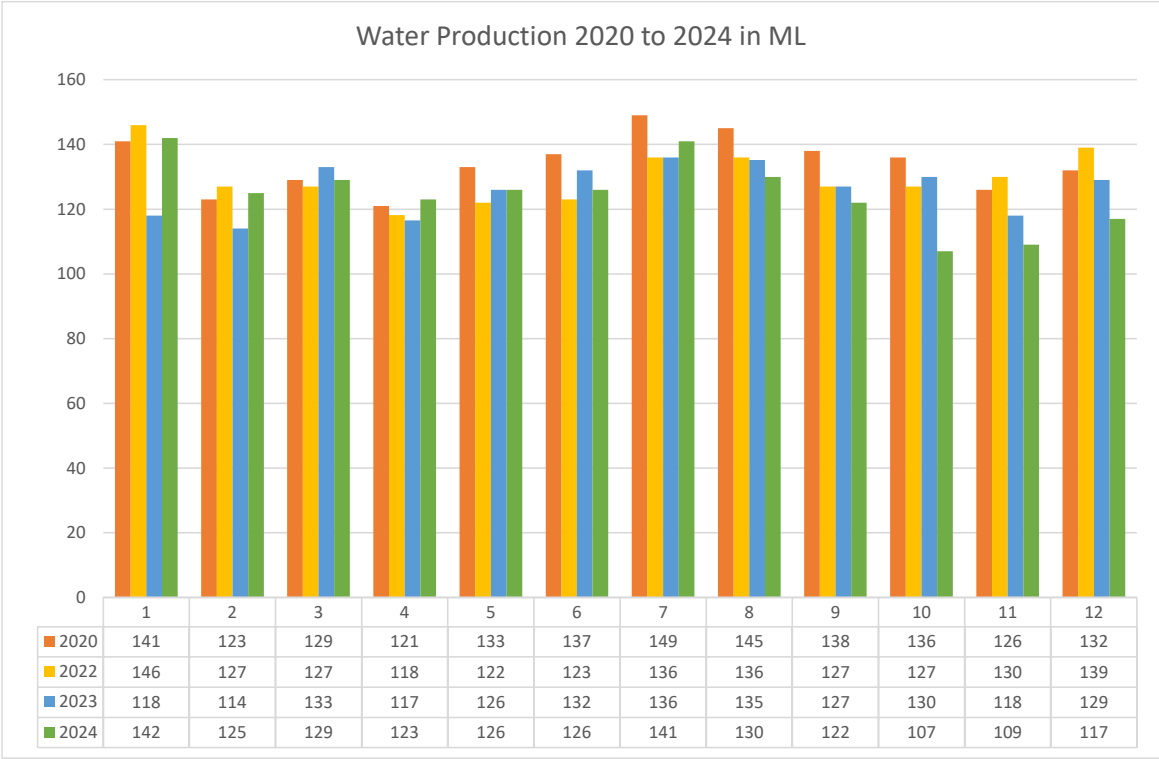
The District of Port Hardy has taken steps to implement a watershed protection plan. The purpose of this is to create a plan that guides users in the best management and preservation of the Tsulquate River and Kains Lake watershed as a drinking water source for the District of Port Hardy. The plan will develop a public awareness, identify stakeholders, increase knowledge and public awareness of the watershed and develop procedures for an emergency response.

## RAW AND TREATED WATER PRODUCTION

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Raw Water Pumped in ML	142	130	132	128	132	131	147	137	129	114	114	117	1552
Treated Water Production in ML	137	125	129	123	126	126	141	130	122	107	109	113	1486
Rainfall in mm	130	113	102	130	117.5	77.4	34.6	79.6	93	222.2	193.2	160.7	1453
Backwashes	36	34	32	36	38	34	36	33	34	38	32	36	419

## CHEMICAL USAGE

	January	February	March	April	May	June	July	August	September	October	November	December	Total
ISOPAC 6 Coagulant in kg	5988	5598	5102	5520	5085	5607	3661	4132	4795	6791	6099	5835	64213
Soda Ash in kg	1930	1680	1703	1725	1498	1612	431	931	1112	2088	1861	1839	18410
Filter Aid (LT20) in kg	0.79	0.74	0.75	0.70	0.68	0.68	0.73	0.69	0.65	0.59	0.60	0.61	8.20
Salt for Chlorine Generator in kg	680	680	560	700	600	980	1360	1040	1060	980	840	840	10320
Liquid Sodium Hypochlorite 12% in kg	0	0	0	0	66	0	0	0	0	0	0	0	66
Liquid Sodium Hypochlorite 6% in kg	0	0	0	0	0	120	120	120	120	120	120	0	720
Lime in kg	2113	1984	2354	2277	2281	2214	2574	2445	2404	2444	2514	2519	28125
Carbon Dioxide in kg	2471	2723	3025	10915	4117	3356	3361	3773	2961	2893	2890	3591	46076





# DISTRIBUTION WATER QUALITY AND BACTERIOLOGICAL RESULTS

January							February						
Bacteriological Sampling							Bacteriological Sampling						
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
01/08/24	Hospital	0.7	0.29	7.7	<1	<1	02/20/24	Hospital	0.6	0.19	7.7	<1	<1
01/08/24	Fort Rupert Reservoir	0.9	0.19	7.7	<1	<1	02/05/24	Fort Rupert Reservoir	0.7	0.15	7.6	<1	<1
01/08/24	Chatham Ave.	0.3	0.19	7.9	<1	<1	02/12/24	Chatham Ave.	0.2	0.20	8.1	<1	<1
01/02/24	Bear Cove Reservoir	0.6	0.22	7.7	<1	<1	02/05/24	Bear Cove Reservoir	0.6	0.18	7.7	<1	<1
01/02/24	Highway 19 PRV	0.8	0.36	7.8	<1	<1	02/05/24	Highway 19 PRV	0.8	0.16	7.6	<1	<1
01/08/24	Pioneer Inn	0.8	0.23	7.7	<1	<1	02/20/24	Pioneer Inn	0.7	0.04	7.6	<1	<1
01/02/24	Public Works Yard	0.5	0.17	7.9	<1	<1	02/05/24	Public Works Yard	0.7	0.17	7.6	<1	<1
01/15/24	Glen Lyon Restaurant	0.7	0.23	7.5	<1	<1	02/20/24	Glen Lyon Restaurant	0.8	0.23	7.7	<1	<1
01/15/24	Airport Inn	0.3	0.19	7.5	<1	<1	02/20/24	Airport Inn	0.4	0.16	7.6	<1	<1
01/15/24	Peel St Liftstation	0.7	0.17	7.5	<1	<1	02/12/24	Peel St Liftstation	0.4	0.10	7.5	<1	<1
01/02/24	B.C. Ferry	0.5	0.18	7.64	<1	<1	02/12/24	B.C. Ferry	0.4	0.18	7.5	<1	<1
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
01/15/24	Tsulquate River (Untreated)		0.38	6.5			02/12/24	Tsulquate River (Untreated)		0.55	5.8		
March							April						
Bacteriological Sampling							Bacteriological Sampling						
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
03/11/24	Hospital	0.6	0.15	7.6	<1	<1	04/02/24	Hospital	0.5	0.18	7.7	<1	<1
03/18/24	Fort Rupert Reservoir	0.7	0.20	7.7	<1	<1	04/15/24	Fort Rupert Reservoir	0.6	0.18	7.7	<1	<1
03/11/24	Chatham Ave.	0.3	0.17	8.2	<1	<1	04/08/24	Chatham Ave.	0.3	0.16	8.3	<1	<1
03/11/24	Bear Cove Reservoir	0.6	0.23	7.7	<1	<1	04/02/24	Bear Cove Reservoir	0.5	0.17	7.7	<1	<1
03/11/24	Highway 19 PRV	0.7	0.26	7.9	<1	<1	04/08/24	Highway 19 PRV	0.8	0.18	7.5	<1	<1
03/18/24	Pioneer Inn	0.7	0.16	7.7	<1	<1	04/15/24	Pioneer Inn	0.7	0.20	7.7	<1	<1
03/04/24	Public Works Yard	0.8	0.15	7.6	<1	<1	04/08/24	Public Works Yard	0.4	0.15	8.0	<1	<1
03/18/24	Glen Lyon Restaurant	0.7	0.21	7.7	<1	<1	04/15/24	Glen Lyon Restaurant	1.0	0.21	7.7	<1	<1
03/18/24	Airport Inn	0.4	0.11	7.5	<1	<1	04/08/24	Airport Inn	0.4	0.17	7.6	<1	<1
03/04/24	Peel St Liftstation	0.6	0.08	7.6	<1	<1	04/15/24	Peel St Liftstation	0.5	0.17	7.7	<1	<1
03/04/24	B.C. Ferry	0.5	0.17	7.5	<1	<1	04/02/24	B.C. Ferry	0.4	0.15	7.7	<1	<1
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
03/04/24	Tsulquate River (Untreated)		0.30	6.2			04/02/24	Tsulquate River (Untreated)		1.02	6.6		
May							June						
Bacteriological Sampling							Bacteriological Sampling						
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
05/06/24	Hospital	0.5	0.29	7.7	<1	<1	06/03/24	Hospital	0.6	0.18	7.7	<1	<1
05/13/24	Fort Rupert Reservoir	0.7	0.26	7.3	<1	<1	06/10/24	Fort Rupert Reservoir	0.7	0.17	7.6	<1	<1
05/13/24	Chatham Ave.	0.3	0.24	8.0	<1	<1	06/03/24	Chatham Ave.	0.4	0.17	8.1	<1	<1
05/06/24	Bear Cove Reservoir	0.5	0.35	7.6	<1	<1	06/03/24	Bear Cove Reservoir	0.5	0.33	7.8	<1	<1
05/21/24	Highway 19 PRV	0.6	0.33	7.6	<1	<1	06/17/24	Highway 19 PRV	0.8	0.21	8.0	<1	<1
05/13/24	Pioneer Inn	0.7	0.20	7.5	<1	<1	06/10/24	Pioneer Inn	0.6	0.19	7.8	<1	<1
05/06/24	Public Works Yard	0.3	0.21	8.1	<1	<1	06/03/24	Public Works Yard	0.5	0.21	7.9	<1	<1
05/21/24	Glen Lyon Restaurant	0.9	0.33	7.6	<1	<1	06/17/24	Glen Lyon Restaurant	0.8	0.27	7.8	<1	<1
05/13/24	Airport Inn	0.4	0.27	7.7	<1	<1	06/10/24	Airport Inn	0.3	0.20	7.7	<1	<1
05/21/24	Peel St Liftstation	0.5	0.23	7.6	<1	<1	06/17/24	Peel St Liftstation	0.4	0.20	7.7	<1	<1
05/13/24	B.C. Ferry	0.4	0.19	7.7	<1	<1	06/17/24	B.C. Ferry	0.5	0.18	7.6	<1	<1
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
05/21/24	Tsulquate River (Untreated)		0.59	6.8			06/17/24	Tsulquate River (Untreated)		0.44	6.8		

July							August						
Bacteriological Sampling							Bacteriological Sampling						
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
07/02/24	Hospital	0.6	0.19	7.8	<1	<1	08/06/24	Hospital	0.7	0.15	7.7	<1	<1
07/08/24	Fort Rupert Reservoir	0.5	0.18	7.6	<1	<1	12/08/24	Fort Rupert Reservoir	0.7	0.26	7.9	<1	<1
07/02/24	Chatham Ave.	0.3	0.22	8.2	<1	<1	08/06/24	Chatham Ave.	0.4	0.19	7.8	<1	<1
07/02/24	Bear Cove Reservoir	0.3	0.18	7.8	<1	<1	08/06/24	Bear Cove Reservoir	0.4	0.15	7.5	<1	<1
07/15/24	Highway 19 PRV	0.9	0.23	7.7	<1	<1	19/08/24	Highway 19 PRV	0.8	0.25	7.5	<1	<1
07/08/24	Pioneer Inn	0.7	0.23	7.8	<1	<1	12/08/24	Pioneer Inn	0.8	0.20	7.6	<1	<1
07/02/24	Public Works Yard	0.3	0.19	8.3	<1	<1	08/06/24	Public Works Yard	0.5	0.20	7.7	<1	<1
07/15/24	Glen Lyon Restaurant	0.8	0.23	7.7	<1	<1	19/08/24	Glen Lyon Restaurant	0.9	0.27	7.6	<1	<1
07/08/24	Airport Inn	0.6	0.18	7.7	<1	<1	12/08/24	Airport Inn	0.4	0.20	7.8	<1	<1
07/15/24	Peel St Liftstation	0.9	0.24	7.6	<1	<1	19/08/24	Peel St Liftstation	0.7	0.25	7.5	<1	<1
07/08/24	B.C. Ferry	0.4	0.20	7.9	<1	<1	12/08/24	B.C. Ferry	0.6	0.19	7.7	<1	<1
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
07/15/24	Tsulquate River (Untreated)		0.27	7.0			19/08/24	Tsulquate River (Untreated)		0.45	6.7		
September							October						
Bacteriological Sampling							Bacteriological Sampling						
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
03/09/24	Hospital	0.7	0.26	7.6	<1	<1	15/10/24	Hospital	0.6	0.16	7.7	<1	<1
09/09/24	Fort Rupert Reservoir	0.7	0.17	7.8	<1	<1	07/10/24	Fort Rupert Reservoir	0.3	0.24	7.5	<1	<1
03/09/24	Chatham Ave.	0.2	0.19	7.8	<1	<1	01/10/24	Chatham Ave.	0.2	0.20	8.0	<1	<1
16/09/24	Bear Cove Reservoir	0.4	0.21	7.7	<1	<1	01/10/24	Bear Cove Reservoir	0.2	0.19	7.7	<1	<1
03/09/24	Highway 19 PRV	0.9	0.22	7.5	<1	<1	01/10/24	Highway 19 PRV	0.6	0.22	7.7	<1	<1
09/09/24	Pioneer Inn	0.7	0.17	7.6	<1	<1	07/10/24	Pioneer Inn	0.6	0.23	7.6	<1	<1
03/09/24	Public Works Yard	0.3	0.20	7.9	<1	<1	07/10/24	Public Works Yard	0.6	0.21	7.5	<1	<1
16/09/24	Glen Lyon Restaurant	0.7	0.32	7.9	<1	<1	01/10/24	Glen Lyon Restaurant	0.5	0.21	7.7	<1	<1
09/09/24	Airport Inn	0.4	0.18	7.8	<1	<1	07/10/24	Airport Inn	0.4	0.27	7.6	<1	<1
16/09/24	Peel St Liftstation	0.7	0.22	7.7	<1	<1	15/10/24	Peel St Liftstation	0.5	0.18	7.6	<1	<1
09/09/24	B.C. Ferry	0.3	0.19	7.7	<1	<1	15/10/24	B.C. Ferry	0.3	0.18	7.7	<1	<1
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
16/09/24	Tsulquate River (Untreated)		0.49	7.0			15/10/24	Tsulquate River (Untreated)		0.68	6.4		
November							December						
Bacteriological Sampling							Bacteriological Sampling						
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
18/11/24	Hospital	0.7	0.17	7.7	<1	<1	09/12/24	Hospital	0.7	0.19	7.6	<1	<1
12/11/24	Fort Rupert Reservoir	0.6	0.02	7.5	<1	<1	09/12/24	Fort Rupert Reservoir	0.7	0.14	7.6	<1	<1
18/11/24	Chatham Ave.	0.3	0.14	7.8	<1	<1	02/12/24	Chatham Ave.	0.8	0.14	7.8	<1	<1
04/11/24	Bear Cove Reservoir	0.4	0.15	7.6	<1	<1	02/12/24	Bear Cove Reservoir	0.6	0.26	7.6	<1	<1
04/11/24	Highway 19 PRV	0.6	0.22	7.5	<1	<1	16/12/24	Highway 19 PRV	0.9	0.18	7.5	<1	<1
12/11/24	Pioneer Inn	0.7	0.16	7.4	<1	<1	09/12/24	Pioneer Inn	0.8	0.13	7.5	<1	<1
12/11/24	Public Works Yard	0.5	0.21	7.6	<1	<1	16/12/24	Public Works Yard	0.8	0.15	7.5	<1	<1
18/11/24	Glen Lyon Restaurant	0.6	0.21	7.6	<1	<1	16/12/24	Glen Lyon Restaurant	0.9	0.17	7.5	<1	<1
18/11/24	Airport Inn	0.1	0.15	7.6	<1	<1	16/12/24	Airport Inn	0.8	0.15	7.6	<1	<1
12/11/24	Peel St Liftstation	0.6	0.09	7.4	<1	<1	09/12/24	Peel St Liftstation	0.7	0.17	7.5	<1	<1
04/11/24	B.C. Ferry	0.4	0.16	7.6	<1	<1	02/12/24	B.C. Ferry	0.5	0.23	7.6	<1	<1
Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml	Sample Date	Sample Location	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Total Coliform CFU/100ml	E.Coli CFU/100ml
04/11/24	Tsulquate River (Untreated)		1.59	5.7			02/12/24	Tsulquate River (Untreated)		0.61	6.5		

January					February					March				
Distribution Sampling					Distribution Sampling					Distribution Sampling				
Location	Date	Free Chlorine mg/L	Turbidity NTU	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH
Chatham Avenue	01/02/24	0.4	0.40	7.9	Chatham Avenue	02/05/24	0.2	0.20	7.8	Chatham Avenue	03/04/24	0.3	0.07	8.0
	01/08/24	0.3	0.19	7.9		02/12/24	0.2	0.20	8.1		03/11/24	0.3	0.17	8.2
	01/15/24	0.3	0.15	7.8		02/20/24	0.2	0.16	8.1		03/18/24	0.3	0.15	7.9
	01/22/24	0.4	0.20	7.8		02/26/24	0.3	0.21	8.1		03/25/24	0.2	0.19	8.2
	01/29/24	0.2	0.22	7.9										
Peel Street Liftstation	01/02/24	0.6	0.20	7.6	Peel Street Liftstation	02/05/24	0.5	0.14	7.6	Peel Street Liftstation	03/04/24	0.6	0.08	7.6
	01/08/24	0.6	0.17	7.6		02/12/24	0.4	0.10	7.5		03/11/24	0.6	0.16	7.6
	01/15/24	0.7	0.17	7.5		02/20/24	0.5	0.18	7.6		03/18/24	0.5	0.24	7.5
	01/22/24	0.5	0.22	7.4		02/26/24	0.5	0.13	7.6		03/25/24	0.5	0.17	7.8
	01/29/24	0.5	0.18	7.6										
Airport Wastewater Treatment Plant	01/02/24	0.4	0.20	7.7	Airport Wastewater Treatment Plant	02/05/24	0.3	0.18	7.7	Airport Wastewater Treatment Plant	03/04/24	0.5	0.08	7.6
	01/08/24	0.3	0.17	7.7		02/12/24	0.2	0.29	7.6		03/11/24	0.4	0.05	7.7
	01/15/24	0.3	0.26	7.5		02/20/24	0.3	0.02	7.7		03/18/24	0.4	0.05	7.6
	01/22/24	0.3	0.29	7.5		02/26/24	0.3	0.19	7.7		03/25/24	0.4	0.32	7.8
	01/29/24	0.4	0.17	7.7										
Public Works Yard	01/02/24	0.5	0.17	7.9	Public Works Yard	02/05/24	0.7	0.17	7.6	Public Works Yard	03/04/24	0.8	0.15	7.6
	01/08/24	0.7	0.18	7.8		02/12/24	0.6	0.27	7.5		03/11/24	0.7	0.23	7.7
	01/15/24	0.8	0.07	7.6		02/20/24	0.6	0.22	7.7		03/18/24	0.6	0.26	7.8
	01/22/24	0.6	0.21	7.6		02/26/24	0.7	0.25	7.7		03/25/24	0.4	0.18	7.9
	01/29/24	0.5	0.26	7.6										
Eagleview School	01/02/24	0.2	0.22	8.2	Eagleview School	02/05/24	0.5	0.08	7.8	Eagleview School	03/04/24	0.5	0.19	7.9
	01/08/24	0.2	0.19	8.2		02/12/24	0.3	0.20	7.8		03/11/24	0.4	0.21	8.0
	01/15/24	0.5	0.25	7.7		02/20/24	0.3	0.20	8.0		03/18/24	0.4	0.19	8.2
	01/22/24	0.4	0.08	7.9		02/26/24	0.4	0.22	7.9		03/25/24	0.6	0.20	7.9
	01/29/24	0.4	0.13	7.8										
Bear Cove Reservoir	01/02/24	0.6	0.22	7.7	Bear Cove Reservoir	02/05/24	0.6	0.18	7.7	Bear Cove Reservoir	03/04/24	0.6	0.14	7.6
	01/08/24	0.5	0.19	7.7		02/12/24	0.5	0.07	7.5		03/11/24	0.6	0.23	7.7
	01/15/24	0.7	0.19	7.5		02/20/24	0.5	0.20	7.6		03/18/24	0.6	0.18	7.5
	01/22/24	0.6	0.21	7.5		02/26/24	0.4	0.15	7.6		03/25/24	0.5	0.18	7.6
	01/29/24	0.4	0.17	7.5										
Ferry Terminal	01/02/24	0.6	0.20	7.6	Ferry Terminal	02/05/24	0.5	0.13	7.6	Ferry Terminal	03/04/24	0.5	0.17	7.5
	01/08/24	0.5	0.19	7.7		02/12/24	0.4	0.18	7.5		03/11/24	0.5	0.15	7.6
	01/15/24	0.6	0.15	7.6		02/20/24	0.6	0.19	7.6		03/18/24	0.5	0.17	7.6
	01/22/24	0.5	0.17	7.5		02/26/24	0.5	0.17	7.6		03/25/24	0.4	0.35	7.7
	01/29/24	0.4	0.17	7.5										
Highway 19 PRV	01/02/24	0.8	0.36	7.8	Highway 19 PRV	02/05/24	0.8	0.16	7.6	Highway 19 PRV	03/04/24	0.8	0.20	7.5
	01/08/24	0.9	0.20	7.8		02/12/24	0.8	0.03	7.5		03/11/24	0.7	0.26	7.9
	01/15/24	0.8	0.09	7.6		02/20/24	0.8	0.13	7.7		03/18/24	0.6	0.23	7.7
	01/22/24	0.7	0.15	7.5		02/26/24	0.7	0.08	7.6		03/25/24	0.7	0.20	7.9
	01/29/24	0.7	0.17	7.5										
Average		0.5	0.19	7.7	Average		0.5	0.17	7.7	Average		0.5	0.18	7.8
Minimum		0.2	0.07	7.4	Minimum		0.2	0.02	7.5	Minimum		0.2	0.05	7.5
Maximum		0.9	0.40	8.2	Maximum		0.8	0.29	8.1	Maximum		0.8	0.35	8.2

April					May					June				
Distribution Sampling					Distribution Sampling					Distribution Sampling				
Location	Date	Free Chlorine (mg/L)	Turbidity (NTU)	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH
Chatham Avenue	04/02/24	0.2	0.15	8.2	Chatham Avenue	05/06/24	0.2	0.66	8.2	Chatham Avenue	06/03/24	0.4	0.17	8.1
	04/08/24	0.3	0.16	8.3		05/13/24	0.3	0.24	8.0		06/10/24	0.2	0.21	7.9
	04/15/24	0.4	0.20	7.9		05/21/24	0.2	0.19	8.0		06/17/24	0.2	0.18	7.9
	04/22/24	0.5	0.22	8.0		05/27/24	0.4	0.18	8.0		06/24/24	0.3	0.20	8.1
	04/29/24	0.3	0.24	8.0										
Peel Street Liftstation	04/02/24	0.5	0.19	7.7	Peel Street Liftstation	05/06/24	0.5	0.62	7.6	Peel Street Liftstation	06/03/24	0.5	0.19	7.8
	04/08/24	0.6	0.34	7.6		05/13/24	0.4	0.25	7.6		06/10/24	0.4	0.21	7.6
	04/15/24	0.5	0.17	7.7		05/21/24	0.5	0.23	7.6		06/17/24	0.4	0.20	7.7
	04/22/24	0.7	0.23	7.5		05/27/24	0.5	0.20	7.7		06/24/24	0.6	0.18	7.8
	04/29/24	0.6	0.19	7.7										
Airport Wastewater Treatment Plant	04/02/24	0.3	0.15	7.8	Airport Wastewater Treatment Plant	05/06/24	0.6	0.25	7.7	Airport Wastewater Treatment Plant	06/03/24	0.3	0.19	7.9
	04/08/24	0.4	0.21	7.7		05/13/24	0.3	0.25	7.8		06/10/24	0.2	0.18	7.7
	04/15/24	0.3	0.18	7.8		05/21/24	0.3	0.21	7.7		06/17/24	0.2	0.20	7.7
	04/22/24	0.5	0.21	7.6		05/27/24	0.4	0.24	7.8		06/24/24	0.3	0.25	7.8
	04/29/24	0.4	0.25	7.8										
Public Works Yard	04/02/24	0.5	0.19	7.7	Public Works Yard	05/06/24	0.3	0.21	8.1	Public Works Yard	06/03/24	0.5	0.21	7.9
	04/08/24	0.4	0.15	8.0		05/13/24	0.7	0.22	7.6		06/10/24	0.5	0.17	7.9
	04/15/24	0.7	0.25	7.8		05/21/24	0.9	0.25	7.7		06/17/24	0.4	0.15	8.2
	04/22/24	0.5	0.22	7.6		05/27/24	0.5	0.19	8.0		06/24/24	0.5	0.15	8.3
	04/29/24	0.4	0.20	8.0										
Eagleview School	04/02/24	0.5	0.16	7.9	Eagleview School	05/06/24	0.4	0.18	7.8	Eagleview School	06/03/24	0.3	0.21	8.2
	04/08/24	0.3	0.19	8.3		05/13/24	0.3	0.23	8.3		06/10/24	0.2	0.22	8.0
	04/15/24	0.3	0.19	8.3		05/21/24	0.3	0.20	7.9		06/17/24	0.2	0.29	8.3
	04/22/24	0.4	0.28	8.0		05/27/24	0.3	0.30	8.1		06/24/24	0.3	0.25	8.3
	04/29/24	0.3	0.22	8.1										
Bear Cove Reservoir	04/02/24	0.5	0.17	7.7	Bear Cove Reservoir	05/06/24	0.5	0.35	7.6	Bear Cove Reservoir	06/03/24	0.5	0.33	7.8
	04/08/24	0.5	0.26	7.6		05/13/24	0.4	0.20	7.5		06/10/24	0.4	0.16	7.6
	04/15/24	0.6	0.19	7.8		05/21/24	0.4	0.20	7.6		06/17/24	0.4	0.19	7.7
	04/22/24	0.7	0.21	7.5		05/27/24	0.5	0.20	7.8		06/24/24	0.4	0.16	7.7
	04/29/24	0.5	0.20	7.7										
Ferry Terminal	04/02/24	0.4	0.15	7.7	Ferry Terminal	05/06/24	0.5	0.25	7.6	Ferry Terminal	06/03/24	0.5	0.31	7.8
	04/08/24	0.7	0.22	7.5		05/13/24	0.4	0.19	7.7		06/10/24	0.4	0.20	7.4
	04/15/24	0.7	0.20	7.7		05/21/24	0.4	0.18	7.6		06/17/24	0.5	0.18	7.6
	04/22/24	0.6	0.22	7.4		05/27/24	0.4	0.28	7.8		06/24/24	0.5	0.18	7.7
	04/29/24	0.5	0.21	7.6										
Highway 19 PRV	04/02/24	0.7	0.19	7.7	Highway 19 PRV	05/06/24	0.8	0.30	7.7	Highway 19 PRV	06/03/24	0.7	0.31	7.6
	04/08/24	0.8	0.18	7.5		05/13/24	0.7	0.25	7.6		06/10/24	0.7	0.22	7.8
	04/15/24	0.9	0.23	7.7		05/21/24	0.6	0.33	7.6		06/17/24	0.8	0.21	8.0
	04/22/24	0.7	0.22	7.6		05/27/24	0.9	0.30	7.8		06/24/24	0.9	0.24	7.9
	04/29/24	0.8	0.23	7.9										
Average		0.5	0.21	7.8	Average		0.5	0.26	7.8	Average		0.4	0.21	7.9
Minimum		0.2	0.15	7.4	Minimum		0.2	0.18	7.5	Minimum		0.2	0.15	7.4
Maximum		0.9	0.34	8.3	Maximum		0.9	0.66	8.3	Maximum		0.9	0.33	8.3

July					August					September				
Distribution Sampling					Distribution Sampling					Distribution Sampling				
Location	Date	Free Chlorine mg/L	Turbidity NTU	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH
Chatham Avenue	07/02/24	0.3	0.22	8.2	Chatham Avenue	08/06/24	0.4	0.19	7.8	Chatham Avenue	03/09/24	0.2	0.19	7.8
	07/08/24	0.6	0.17	7.9		12/08/24	0.4	0.16	7.8		09/09/24	0.3	0.19	7.9
	07/15/24	0.6	0.19	8.0		17/08/24	0.4	0.25	7.8		16/09/24	0.3	0.29	8.1
	07/22/24	0.6	0.19	7.9		26/08/24	0.4	0.18	8.0		23/09/24	0.3	0.18	8.1
	07/29/24	0.5	0.30	8.0										
Peel Street Liftstation	07/02/24	0.6	0.20	7.8	Peel Street Liftstation	08/06/24	0.6	0.24	7.6	Peel Street Liftstation	03/09/24	0.5	0.21	7.7
	07/08/24	0.9	0.15	7.7		12/08/24	0.6	0.19	7.6		09/09/24	0.7	0.27	7.4
	07/15/24	0.9	0.24	7.6		19/08/24	0.7	0.25	7.5		16/09/24	0.7	0.22	7.7
	07/22/24	0.8	0.25	7.7		26/08/24	0.7	0.24	7.7		23/09/24	0.8	0.17	7.6
	07/29/24	0.6	0.18	7.7										
Airport Wastewater Treatment Plant	07/02/24	0.3	0.22	7.9	Airport Wastewater Treatment Plant	08/06/24	0.2	0.17	7.7	Airport Wastewater Treatment Plant	03/09/24	0.2	0.31	7.7
	07/08/24	0.5	0.23	7.8		12/08/24	0.2	0.22	7.7		09/09/24	0.3	0.22	7.7
	07/15/24	0.4	0.39	0.2		19/08/24	0.6	0.25	7.6		16/09/24	0.3	0.26	7.8
	07/22/24	0.4	0.24	7.7		26/08/24	0.3	0.23	7.7		23/09/24	0.3	0.17	7.7
	07/29/24	0.4	0.20	7.9										
Public Works Yard	07/02/24	0.3	0.19	8.3	Public Works Yard	08/06/24	0.5	0.20	7.7	Public Works Yard	03/09/24	0.3	0.20	7.9
	07/08/24	0.3	0.22	8.3		12/08/24	0.7	0.20	7.7		09/09/24	0.6	0.24	7.8
	07/15/24	0.6	0.21	7.9		19/08/24	0.5	0.28	7.7		16/09/24	0.2	0.21	8.1
	07/22/24	0.3	0.19	8.3		26/08/24	0.5	0.38	7.8		23/09/24	0.2	0.17	8.0
	07/29/24	0.6	0.53	7.8										
Eagleview School	07/02/24	0.3	0.19	8.2	Eagleview School	08/06/24	0.5	0.25	7.7	Eagleview School	03/09/24	0.4	0.24	7.8
	07/08/24	0.3	0.17	8.1		12/08/24	0.6	0.20	7.9		09/09/24	0.2	0.21	8.0
	07/15/24	0.29	0.25	7.98		19/08/24	0.2	0.24	8.0		16/09/24	0.4	0.28	8.0
	07/22/24	0.3	0.27	8.2		26/08/24	0.4	0.27	8.0		23/09/24	0.3	0.17	8.0
	07/29/24	0.5	0.35	7.9										
Bear Cove Reservoir	07/02/24	0.3	0.18	7.8	Bear Cove Reservoir	08/06/24	0.4	0.15	7.5	Bear Cove Reservoir	03/09/24	0.1	0.21	7.6
	07/08/24	0.5	0.19	7.7		12/08/24	0.5	0.22	7.6		09/09/24	0.4	0.14	7.7
	07/15/24	0.4	0.25	7.7		19/08/24	0.4	0.24	7.5		16/09/24	0.4	0.21	7.7
	07/22/24	0.4	0.22	7.7		26/08/24	0.3	0.20	7.7		23/09/24	0.6	0.16	7.6
	07/29/24	0.3	0.20	7.7										
Ferry Terminal	07/02/24	0.3	0.20	7.8	Ferry Terminal	08/06/24	0.3	0.15	7.5	Ferry Terminal	03/09/24	0.1	0.23	7.7
	07/08/24	0.4	0.20	7.9		12/08/24	0.6	0.19	7.7		09/09/24	0.3	0.19	7.7
	07/15/24	0.2	0.23	7.6		19/08/24	0.4	0.22	7.5		16/09/24	0.3	0.19	7.7
	07/22/24	0.5	0.26	7.6		26/08/24	0.5	0.25	7.6		23/09/24	0.8	0.19	7.6
	07/29/24	0.3	0.23	7.8										
Highway 19 PRV	07/02/24	0.8	0.19	7.7	Highway 19 PRV	08/06/24	0.8	0.20	7.6	Highway 19 PRV	03/09/24	0.9	0.22	7.5
	07/08/24	0.8	0.21	7.8		12/08/24	0.8	0.21	7.6		09/09/24	0.8	0.27	7.6
	07/15/24	0.9	0.23	7.7		19/08/24	0.8	0.25	7.5		16/09/24	0.8	0.24	7.9
	07/22/24	0.7	0.36	7.7		26/08/24	1.0	0.26	7.6		23/09/24	0.8	0.20	7.6
	07/29/24	0.8	0.23	7.7										
Average		0.5	0.23	7.7	Average		0.5	0.22	7.7	Average		0.4	0.21	7.8
Minimum		0.2	0.53	0.2	Minimum		0.2	0.38	7.5	Minimum		0.1	0.14	7.4
Maximum		0.9	0.53	8.3	Maximum		1.0	0.38	8.0	Maximum		0.9	0.31	8.1
October					November					December				
Distribution Sampling					Distribution Sampling					Distribution Sampling				
Location	Date	Free Chlorine mg/L	Turbidity NTU	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH	Location	Date	Free Chlorine mg/L	Turbidity NTU	pH
Chatham Avenue	01/10/24	0.2	0.20	8.0	Chatham Avenue	04/11/24	0.3	0.12	7.9	Chatham Avenue	02/12/24	0.8	0.14	7.8
	07/10/24	0.2	0.22	7.9		12/11/24	0.3	0.12	7.7		09/12/24	0.6	0.15	7.7
	15/10/24	0.1	0.20	8.3		18/11/24	0.3	0.14	7.8		16/12/24	0.7	0.14	7.7
	21/10/24	0.5	0.14	8.0		25/11/24	0.5	0.16	7.9		23/12/24	1.0	0.25	7.6
	28/10/24	0.2	0.19	7.9							30/12/24	0.7	0.16	7.7
Peel Street Liftstation	01/10/24	0.3	0.21	7.5	Peel Street Liftstation	04/11/24	0.6	0.15	7.6	Peel Street Liftstation	02/12/24	1.0	0.16	7.6
	07/10/24	0.7	0.19	7.5		12/11/24	0.6	0.09	7.4		09/12/24	0.7	0.17	7.5
	15/10/24	0.5	0.18	7.6		18/11/24	0.5	0.14	7.6		16/12/24	0.9	0.14	7.5
	21/10/24	0.5	0.11	7.6		25/11/24	0.7	0.15	7.6		23/12/24	1.2	0.13	7.3
	28/10/24	0.5	0.05	7.7							30/12/24	0.8	0.10	7.5
Airport Wastewater Treatment Plant	01/10/24	0.3	0.25	7.7	Airport Wastewater Treatment Plant	04/11/24	0.1	0.16	7.7	Airport Wastewater Treatment Plant	02/12/24	0.5	0.17	7.7
	07/10/24	0.3	0.21	7.6		12/11/24	0.2	0.13	7.5		09/12/24	0.4	0.15	7.6
	15/10/24	0.1	0.16	7.8		18/11/24	0.2	0.15	7.7		16/12/24	0.7	0.14	7.6
	21/10/24	0.2	0.14	7.7		25/11/24	0.3	0.16	7.7		23/12/24	0.9	0.95	7.6
	28/10/24	0.2	0.13	7.7							30/12/24	0.5	0.21	7.7
Public Works Yard	01/10/24	0.1	0.33	8.0	Public Works Yard	04/11/24	0.5	0.26	7.6	Public Works Yard	02/12/24	0.6	0.26	7.6
	07/10/24	0.6	0.27	7.5		12/11/24	0.5	0.21	7.6		09/12/24	0.7	0.13	7.6
	15/10/24	0.6	0.07	7.7		18/11/24	0.6	0.29	7.7		16/12/24	0.8	0.15	7.5
	21/10/24	0.6	0.24	7.6		25/11/24	0.7	0.20	7.6		23/12/24	0.3	0.13	7.9
	28/10/24	0.7	0.32	7.7							30/12/24	0.8	0.29	7.6
Eagleview School	01/10/24	0.4	0.35	7.8	Eagleview School	04/11/24	0.2	0.20	8.1	Eagleview School	02/12/24	0.1	0.23	8.1
	07/10/24	0.4	0.19	7.7		12/11/24	0.2	0.17	7.9		09/12/24	0.2	0.18	7.9
	15/10/24	0.3	0.13	7.8		18/11/24	0.4	0.23	7.8		16/12/24	0.3	0.19	7.8
	21/10/24	0.2	0.22	7.9		25/11/24	0.6	0.19	7.7		23/12/24	0.3	0.23	8.1
	28/10/24	0.6	0.17	7.8							30/12/24	0.4	0.19	7.8
Bear Cove Reservoir	01/10/24	0.2	0.19	7.7	Bear Cove Reservoir	04/11/24	0.4	0.15	7.6	Bear Cove Reservoir	02/12/24	0.6	0.26	7.6
	07/10/24	0.3	0.22	7.5		12/11/24	0.4	0.17	7.5		09/12/24	0.6	0.19	7.5
	15/10/24	0.2	0.13	7.7		18/11/24	0.4	0.17	7.6		16/12/24	0.6	0.14	7.5
	21/10/24	0.2	0.16	7.6		25/11/24	0.6	0.17	7.6		23/12/24	0.5	0.13	7.6
	28/10/24	0.3	0.15	7.7							30/12/24	0.4	0.23	7.6
Ferry Terminal	01/10/24	0.3	0.29	7.5	Ferry Terminal	04/11/24	0.4	0.16	7.6	Ferry Terminal	02/12/24	0.5	0.23	7.6
	07/10/24	0.2	0.20	7.5		12/11/24	0.3	0.15	7.5		09/12/24	0.6	0.14	7.5
	15/10/24	0.3	0.18	7.7		18/11/24	0.4	0.15	7.6		16/12/24	0.6	0.14	7.5
	21/10/24	0.2	0.16	7.6		25/11/24	0.6	0.14	7.6		23/12/24	0.5	0.18	7.5
	28/10/24	0.3	0.14	7.6							30/12/24	0.4	0.19	7.5
Highway 19 PRV	01/10/24	0.6	0.22	7.7	Highway 19 PRV	04/11/24	0.6	0.22	7.5	Highway 19 PRV	02/12/24	0.9	0.13	7.5
	07/10/24	0.7	0.44	7.6		12/11/24	0.8	0.24	7.4		09/12/24	0.8	0.18	7.5
	15/10/24	0.7	0.13	7.7		18/11/24	0.7	0.23	7.6		16/12/24	0.9	0.18	7.5
	21/10/24	0.7	0.18	7.6		25/11/24	0.7	0.20	7.7		23/12/24	0.7	0.32	7.5
	28/10/24	0.9	0.21	7.7							30/12/24	0.9	0.23	7.6
Average		0.4	0.05	7.7	Average		0.5	0.17	7.7	Average		0.6	0.20	7.6
Minimum		0.1	0.44	7.5	Minimum		0.1	0.09	7.4	Minimum		0.1	0.10	7.3
Maximum		0.9	0.44	8.3	Maximum		0.8	0.29	8.1	Maximum		1.2	0.95	8.1

# QUARTERLY THM/HAA RESULTS



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## Analytical Report

Bill To: District of Port Hardy	Project ID:	Lot ID: <b>1706199</b>
Water & Wastewater Division	Project Name: Quarter 1 - THM/HAA	Control Number:
8900 Park Drive	Project Location:	Date Received: Jan 11, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Jan 26, 2024
V0N 2P0	P.O.: 7989	Report Number: 2962822
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By:		
Company:		

Reference Number		1706199-1
Sample Date		January 09, 2024
Sample Time		NA
Sample Location		
Sample Description		Reservoir / 9.5 °C
Sample Matrix		Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	9.5	2.0		
Trichloroacetic Acid	µg/L	10.1	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	19.6	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	76	50-150		

## Analytical Report

Bill To: District of Port Hardy	Project ID:	Lot ID: <b>1706199</b>
Water & Wastewater Division	Project Name: Quarter 1 - THM/HAA	Control Number:
8900 Park Drive	Project Location:	Date Received: Jan 11, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Jan 26, 2024
V0N 2P0	P.O.: 7989	Report Number: 2962822
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By:		
Company:		

Reference Number		1706199-2
Sample Date		January 09, 2024
Sample Time		NA
Sample Location		
Sample Description		Chatham / 9.5 °C
Sample Matrix		Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	16.6	2.0		
Trichloroacetic Acid	µg/L	25.8	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	42.5	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	88	50-150		

## Analytical Report

Bill To: District of Port Hardy  
Water & Wastewater Division  
8900 Park Drive  
Port Hardy, BC, Canada  
V0N 2P0  
Attn: Joe Jewell  
Sampled By:  
Company:

Project ID:  
Project Name: Quarter 1 - THM/HAA  
Project Location:  
LSD:  
P.O.: 7989  
Proj. Acct. code:

Lot ID: **1706199**  
Control Number:  
Date Received: Jan 11, 2024  
Date Reported: Jan 26, 2024  
Report Number: 2962822  
Report Type: Final Report

Reference Number		1706199-3			
Sample Date		January 24, 2024			
Sample Time		NA			
Sample Location					
Sample Description		Reservoir			
Sample Matrix		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
VOC Screen - Water					
Bromodichloromethane	µg/L	1.2	0.5		
Bromoform	µg/L	<0.5	0.5		
Chloroform	µg/L	24.9	0.5		
Dibromochloromethane	µg/L	<0.5	0.5		
Total Trihalomethanes	µg/L	26.1			
VOC - Water - Surrogate Recovery					
Bromofluorobenzene EPA Surrogate	%	105	50-140		
Dibromofluoromethane EPA Surrogate	%	102	50-140		
Toluene-d8 EPA Surrogate	%	113	50-140		



## Analytical Report

Bill To: District of Port Hardy	Project ID:	Lot ID: <b>1706199</b>
Water & Wastewater Division	Project Name: Quarter 1 - THM/HAA	Control Number:
8900 Park Drive	Project Location:	Date Received: Jan 11, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Jan 26, 2024
V0N 2P0	P.O.: 7989	Report Number: 2962822
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By:		
Company:		

		Reference Number	1706199-4			
		Sample Date	January 24, 2024			
		Sample Time	NA			
		Sample Location				
		Sample Description	Chatham			
		Sample Matrix	Water			
Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
VOC Screen - Water						
Bromodichloromethane		µg/L	2.8	0.5		
Bromoform		µg/L	<0.5	0.5		
Chloroform		µg/L	43.7	0.5		
Dibromochloromethane		µg/L	<0.5	0.5		
Total Trihalomethanes		µg/L	46.5			
VOC - Water - Surrogate Recovery						
Bromofluorobenzene	EPA Surrogate	%	109	50-140		
Dibromofluoromethane	EPA Surrogate	%	107	50-140		
Toluene-d8	EPA Surrogate	%	116	50-140		

## Analytical Report

Bill To: District of Port Hardy	Project ID: April 2024	Lot ID: <b>1725539</b>
Water & Wastewater Division	Project Name: Quater 2 - THM/HAA	Control Number:
8900 Park Drive	Project Location:	Date Received: Apr 17, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Apr 25, 2024
V0N 2P0	P.O.: 7840	Report Number: 2993613
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By: Robert Cousins		
Company: District of Port Hardy		

Reference Number		1725539-1			
Sample Date		April 16, 2024			
Sample Time		10:15			
Sample Location					
Sample Description		Reservoir / 6.4 °C			
Sample Matrix		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>VOC Screen - Water</b>					
Bromodichloromethane	µg/L	1.3	0.5		
Bromoform	µg/L	<0.5	0.5		
Chloroform	µg/L	25.8	0.5		
Dibromochloromethane	µg/L	<0.5	0.5		
Total Trihalomethanes	µg/L	27.1			
<b>VOC - Water - Surrogate Recovery</b>					
Bromofluorobenzene EPA Surrogate	%	102	50-140		
Dibromofluoromethane EPA Surrogate	%	99	50-140		
Toluene-d8 EPA Surrogate	%	109	50-140		
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	11.1	2.0		
Trichloroacetic Acid	µg/L	12.1	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	23.2	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	85	50-150		

## Analytical Report

Bill To: District of Port Hardy	Project ID: April 2024	Lot ID: <b>1725539</b>
Water & Wastewater Division	Project Name: Quater 2 - THM/HAA	Control Number:
8900 Park Drive	Project Location:	Date Received: Apr 17, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Apr 25, 2024
VON 2P0	P.O.: 7840	Report Number: 2993613
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By: Robert Cousins		
Company: District of Port Hardy		

		Reference Number	1725539-2		
		Sample Date	April 16, 2024		
		Sample Time	11:15		
		Sample Location			
		Sample Description	Chatham / 6.4 °C		
		Sample Matrix	Water		
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>VOC Screen - Water</b>					
Bromodichloromethane	µg/L	2.2	0.5		
Bromoform	µg/L	<0.5	0.5		
Chloroform	µg/L	55.3	0.5		
Dibromochloromethane	µg/L	<0.5	0.5		
Total Trihalomethanes	µg/L	57.5			
<b>VOC - Water - Surrogate Recovery</b>					
Bromofluorobenzene EPA Surrogate	%	107	50-140		
Dibromofluoromethane EPA Surrogate	%	99	50-140		
Toluene-d8 EPA Surrogate	%	106	50-140		
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	2.4	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	18.5	2.0		
Trichloroacetic Acid	µg/L	28.1	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	48.9	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	93	50-150		

## Analytical Report

Bill To: District of Port Hardy	Project ID: July 2024	Lot ID: <b>1744610</b>
Water & Wastewater Division	Project Name: THM/HAA	Control Number:
8800 Park Drive	Project Location:	Date Received: Jul 10, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Jul 17, 2024
VON 2P0	P.O.: 8191	Report Number: 3023722
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By: Owen Jewell		
Company: District of Port Hardy		

<b>Reference Number</b>		1744610-1			
<b>Sample Date</b>		July 09, 2024			
<b>Sample Time</b>		10:09			
<b>Sample Location</b>					
<b>Sample Description</b>		WTP Reservoir / 13.6 °C			
<b>Sample Matrix</b>		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>VOC Screen - Water</b>					
Bromodichloromethane	µg/L	2.4	0.5		
Bromoform	µg/L	<0.5	0.5		
Chloroform	µg/L	33.8	0.5		
Dibromochloromethane	µg/L	<0.5	0.5		
Total Trihalomethanes	µg/L	36.2			
<b>VOC - Water - Surrogate Recovery</b>					
Bromofluorobenzene EPA Surrogate	%	106	50-140		
Dibromofluoromethane EPA Surrogate	%	97	50-140		
Toluene-d8 EPA Surrogate	%	110	50-140		
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	13.6	2.0		
Trichloroacetic Acid	µg/L	14.6	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	28.2	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	80	50-150		

## Analytical Report

Bill To: District of Port Hardy	Project ID: July 2024	Lot ID: <b>1744610</b>
Water & Wastewater Division	Project Name: THM/HAA	Control Number:
8900 Park Drive	Project Location:	Date Received: Jul 10, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Jul 17, 2024
V0N 2P0	P.O.: 8191	Report Number: 3023722
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By: Owen Jewell		
Company: District of Port Hardy		

		Reference Number	1744610-2		
		Sample Date	July 09, 2024		
		Sample Time	10:40		
		Sample Location			
		Sample Description	Chatham St. / 13.6 °C		
		Sample Matrix	Water		
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>VOC Screen - Water</b>					
Bromodichloromethane	µg/L	3.6	0.5		
Bromoform	µg/L	<0.5	0.5		
Chloroform	µg/L	72.9	0.5		
Dibromochloromethane	µg/L	<0.5	0.5		
Total Trihalomethanes	µg/L	76.5			
<b>VOC - Water - Surrogate Recovery</b>					
Bromofluorobenzene	EPA Surrogate %	94	50-140		
Dibromofluoromethane	EPA Surrogate %	101	50-140		
Toluene-d8	EPA Surrogate %	112	50-140		
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	3.1	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	21.7	2.0		
Trichloroacetic Acid	µg/L	35.6	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	60.4	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	83	50-150		

Approved by:



Rachel Eden, B. Sc.  
Operations Manager

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## Analytical Report

Bill To: District of Port Hardy	Project ID: October 2024	Lot ID: <b>1770399</b>
Water & Wastewater Division	Project Name: THM/HAA	Control Number:
8900 Park Drive	Project Location:	Date Received: Oct 23, 2024
Port Hardy, BC, Canada	LSD:	Date Reported: Oct 30, 2024
VON 2P0	P.O.: 8340	Report Number: 3065077
Attn: Joe Jewell	Proj. Acct. code:	Report Type: Final Report
Sampled By: Patrick Traverse		
Company: District of Port Hardy		

Reference Number		1770399-1			
Sample Date		October 22, 2024			
Sample Time		10:15			
Sample Location					
Sample Description		WTP Reservoir / THM + HAA / 11.7 °C			
Sample Matrix		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>VOC Screen - Water</b>					
Bromodichloromethane	µg/L	2.6	0.5		
Bromoform	µg/L	<0.5	0.5		
Chloroform	µg/L	39.4	0.5		
Dibromochloromethane	µg/L	<0.5	0.5		
Total Trihalomethanes	µg/L	42.0			
<b>VOC - Water - Surrogate Recovery</b>					
Bromofluorobenzene EPA Surrogate	%	109	50-140		
Dibromofluoromethane EPA Surrogate	%	116	50-140		
Toluene-d8 EPA Surrogate	%	113	50-140		
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	12.9	2.0		
Trichloroacetic Acid	µg/L	14.3	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	27.1	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	100	50-150		


## Analytical Report

Bill To: District of Port Hardy  
Water & Wastewater Division  
8900 Park Drive  
Port Hardy, BC, Canada  
V0N 2P0  
Attn: Joe Jewell  
Sampled By: Patrick Traverse  
Company: District of Port Hardy

Project ID: October 2024  
Project Name: THM/HAA  
Project Location:  
LSD:  
P.O.: 8340  
Proj. Acct. code:

Lot ID: **1770399**  
Control Number:  
Date Received: Oct 23, 2024  
Date Reported: Oct 30, 2024  
Report Number: 3065077  
Report Type: Final Report

Reference Number		1770399-2			
Sample Date		October 22, 2024			
Sample Time		10:50			
Sample Location		Chatham / THM + HAA / 11.7 °C			
Sample Description		Water			
Sample Matrix		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>VOC Screen - Water</b>					
Bromodichloromethane	µg/L	4.6	0.5		
Bromoform	µg/L	<0.5	0.5		
Chloroform	µg/L	81.3	0.5		
Dibromochloromethane	µg/L	<0.5	0.5		
Total Trihalomethanes	µg/L	85.9			
<b>VOC - Water - Surrogate Recovery</b>					
Bromofluorobenzene	EPA Surrogate	%	114	50-140	
Dibromofluoromethane	EPA Surrogate	%	114	50-140	
Toluene-d8	EPA Surrogate	%	109	50-140	
<b>Haloacetic Acids - Water</b>					
Monochloroacetic Acid	µg/L	2.5	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	19.8	2.0		
Trichloroacetic Acid	µg/L	33.3	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	55.6	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	120	50-150		

Approved by:   
Rachel Eden, B. Sc.  
Operations Manager

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