



WATER TREATMENT PLANT & DISTRIBUTION SYSTEM



Operations Performance Annual Report 2020

Facility Numbers 529 & 155

TABLE OF CONTENTS

1. OVERVIEW	2
2. PERMIT TO OPERATE	2
3. CERTIFIED OPERATORS	2
4. OPERATIONAL HIGHLIGHTS.....	3
5. CROSS CONNECTION CONTROL PROGRAM.....	6
6. WATER WISE PROGRAM CONTINUATION.....	6
7. WATER PLANT AND DISTRIBUTION CHECKS.....	7
8. RAW AND TREATED WATER PRODUCTION.....	8
9. CHEMICAL USAGE	8
10. DISTRIBUTION WATER QUALITY AND BACTERIOLOGICAL RESULTS.....	9
11. GENERAL CHEMISTRY RAW & TREATED RESULTS.....	13
12. TRIHALOMETHANE/HALOACETIC ACID RESULTS.....	15
13. ADDITIONAL SAMPLING RESULTS.....	23

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 two Level III Water Distribution Operator.

Operator	Title	Certification
Joe Jewell	Utilities Supervisor	WT IV, WD III, WWT II, WWC II
Justin Reusch	Chief Operator	WT III, WD III, WWT II, WWC I
Roland LeFort	Operator	WWT III, WT III, WWC I
Cory Henschke	Operator	WWT I, WD II
Robert Cousins	Operator	WT I, WWT II, Cross Connection

WATER TREATMENT PLANT

Throughout 2020, 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

Most capital projects in 2020 were postponed due to the coronavirus pandemic. However, utilities staff was able to complete the installation of new flocculation tank gearbox and motors. These units replace the original equipment installed in 2000 and are much more efficient.

ADDITIONAL HIGHLIGHTS:

- No violations to permit in 2020
- 1610 ML of water were produced in 2020
- 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
- Several power outages occurred in the later portion of 2020. In November, power was out to the north island for over 30 hours.
- A small water leak was found inside the water treatment plant on the 20th. After 20 years, one of the inner welds on the aluminum tank failed. The tank was taken offline and repaired on the 24th after a welder could complete the confined space training. The utilities crew performed as the confined space rescue team
- A General Chemistry/Physical Characteristics and Total Metals scan of the raw and treated water quality was performed on the February 25th. All results are within acceptable range
- On the May 1st, the main electrical switch disconnect failed on the 600 Volt, 600 amp service ruining the switch and fuses. Our FSR was able to secure parts on the mainland and have them brought to Campbell River where they were picked up by a District employee. The water plant had to run over the weekend on the diesel generator until Monday when the new parts could be installed
- A planned power outage occurred on August 13th. Operators switched the water plant to the standby diesel generator and there were no interruptions in 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 (m³) 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

In 2020, the majority of capital projects were postponed due to the Coronavirus pandemic. Some of the completed projects included:

- New leak detection equipment was purchased. Utilities staff can now use this equipment to help locate leaks that may not be boiling to the surface.
- A new altitude control valve was purchased for Fort Rupert Reservoir. This smaller valve will replace the original that is too large for the application and could cause issues within the distribution system
- Water main clearing continued to keep our infrastructure accessible
- Revisions to the mapping continued in 2019. The new maps have been delivered to the operators and edits and additions are underway

ADDITIONAL HIGHLIGHTS:

- All air valves in the District were inspected and insulated
- A project to install two new hydrants on Byng Road. A Traffic Control Plan has been created and the project should begin in early 2021
- All fire hydrants were "B" Serviced this year
- Work to locate Water mainline valves are being located around the District. Many of these valve boxes are below grade and are difficult to find and get filled with debris. Utilities staff have been cleaning out the valve boxes, and bringing them up to grade with riser rings in order to keep them clean and easier to locate in an emergency
- A contractor was digging and broke the water main on Hastings Street on the January 7th. Utilities operators were able to excavate and make repairs promptly. Water samples were collected after the repairs on two consecutive days. All sample results were returned within expected parameters
- A water leak was found at the Fort Rupert Village Liftstation. The issue was isolated and repaired on February 12th. A new yard hydrant was installed
- A water leak was found at the water treatment plant on the February 21st. The leak was a service line no longer being used. The line was traced back to the main and deactivated

- In September, the leak detection equipment was deployed to survey for possible leaks in the Beaver Harbour area. A leak was found that was not surfacing that was approximately 60 litres/minute.
- A water service was repaired on MacDougal Road in November. The leak was estimated to be approximately 60 litres/minute
- Several water leaks were addressed in the system this year both on District land and private. Letters are sent to property owners stating that they must be addressed
- A mainline water leak was found on Goodspeed Road. The thrust block on the end cap had deteriorated causing a leak. The end cap and thrust block were replaced and the leak repaired. This outage only affected one customer
- Two water service lines were repaired on McDougal Road in April. New water service line was installed from the main to the property line shutoffs
- A large structure fire on Hardy Bay Road on April 18th caused a high demand for water. Utility operators were able to make some adjustments and the water treatment plant was able to meet the water demands keeping the reservoirs near full
- A water main break occurred September 2nd on Main Street. 14 valves were required to isolate the issue. The water main was repaired and a new water main valve was installed during the repairs. Water mains were flushed after the break and water samples were sent out. All samples tested were returned within acceptable limits

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, liftstations with a washdown hose, public sani dumps and public gardens. In August, all District Backflow assemblies were tested and recertified.

WATER WISE PROGRAM CONTINUATION

A total of 178 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.

In 2020, new meters were installed on commercial properties on Granville Street and Jensen Cove Road. Other meters that failed to read remotely were replaced after attempts to repair them failed.

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.

Water Treatment Plant / Distribution Testing													
	January	February	March	April	May	June	July	August	September	October	November	December	Total
Raw Water pH	27	24	27	26	26	26	27	26	26	26	26	27	314
Reservoir Water pH Daily Grab Sample or Continuous 6.5 - 8.5	31	29	31	30	31	30	31	31	30	31	30	31	366
Colour (Reservoir) AO: <= 15 TCU	27	24	27	26	26	26	27	26	26	26	26	27	314
Free Chlorine Residual (Reservoir) Daily Grab Sample or Continuous	31	29	31	30	31	30	31	31	30	31	30	31	366
Free Chlorine Residual Distribution Grab Sample	48	44	42	44	46	44	42	44	51	44	44	44	537
Turbidity (Distribution) Grab Samples	48	44	42	44	46	44	42	44	51	44	44	44	537
Turbidity (Filter) Grab Sample or Continuous <= 0.3 NTU in at least 95%; never > 1.0 NTU	31	29	31	30	31	30	31	31	30	31	30	31	366
Turbidity (Reservoir) Daily Grab Sample or Continuous 1 NTU Maximum in finished water	31	29	31	30	31	30	31	31	30	31	30	31	366
Escherichia Coli (<i>E.coli</i>) 11 per month Distribution, 1 Raw MAC: 0 CFU/100mL	12	12	12	12	12	12	12	12	19	12	12	12	151
Total Coliforms 11 per month Distribution, 1 Raw MAC: 0 CFU/100mL	12	12	12	12	12	12	12	12	19	12	12	12	151
Chemical and Physical Parameter Tests Once every 5 years													0
Trihalomethanes & Haloacetic Acids (THMs & HAAs) Quarterly <0.100 mg/L annual average	1			1			1			1			4
Monthly Report 15 th of the following month	1	1	1	1	1	1	1	1	1	1	1	1	12
Annual Report Before January 31 st	1												1
Permit Violations	0	0	0	0	0	0	0	0	0	0	0	0	0
Workplace Metrics													
	January	February	March	April	May	June	July	August	September	October	November	December	Total
Safety Meetings	1	1	1	1	1	1	1	1	1	1	1	1	12
Worksite Inspections	1	1	1	1	1	1	1	1	1	1	1	1	12
Kain's Lake Dam Inspections	3	2	1	3	2	4	3	2	2	2	3	2	29
Water Service Locates	3	3	4	4	4	4	6	4	4	6	2	1	45
Water Service Repairs	3	2	3	2	2	3	3	0	0	0	0	1	19
Water Main Repairs	0	0	1	4	0	1	1	0	1	0	0	0	8
BC One Calls	4	4	0	6	11	13	12	14	9	14	8	4	99
PRV Inspections	11	11	0	0	0	0	11	0	0	0	0	0	33
ERP Exercises	0	0	0	0	0	0	0	0	0	0	0	0	0
Air Valve Inspections	0	0	0	0	0	0	0	0	0	10	22	0	32
Mainline Valve Locates/Inspections	0	1	4	4	4	0	4	4	14	10	4	20	69
Hydrant A - Services	0	0	0	0	4	0	0	0	0	1	0	0	5
Hydrant B - Services	0	0	0	47	75	0	0	0	0	56	20	0	198

RAW AND TREATED WATER PRODUCTION

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Raw Water Pumped in ML	144	125	137	129	142	141	200	152	144	184	130	135	1762
Treated Water Production in ML	141	123	129	121	133	137	149	145	138	136	126	132	1610
Rainfall in mm	446	204	168	44	36.8	70.7	29.1	105.4	138.4	288.6	425.2	178	2134
Backwashes	36	33	36	36	38	36	38	36	34	34	35	37	429

CHEMICAL USAGE

	January	February	March	April	May	June	July	August	September	October	November	December	Total
ISOPAC 6 Coagulant in kg	3881	3217	3292	2673	2604	3417	2639	3554	4861	7170	5574	5446	48328
Soda Ash in kg	1634	1453	1657	1453	1203	1430	999	999	1816	2361	2020	1771	18796
Filter Aid (LT20) in kg	0.89	0.82	0.81	0.79	0.97	0.95	1.00	0.97	0.92	0.92	0.82	0.88	10.74
Salt for Chlorine Generator in kg	780	720	620	420	460	420	900	1060	920	1040	800	920	9060
Liquid Sodium Hypochlorite 12% in kg	0	0	0	0	80	0	0	0	0	0	0	0	80
Lime in kg	1797	1687	1786	1896	1885	1836	2105	1998	2109	2711	2668	2735	25212
Carbon Dioxide in kg	2786	1540	2637	2570	2284	2848	2815	2975	3001	3145	3777	3405	33783

DISTRIBUTION WATER QUALITY AND BACTERIOLOGICAL RESULTS

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	01/07/20	0.4	0.25	7.6	Chatham Avenue	02/04/20	0.5	0.15	7.6	Chatham Avenue	03/03/20	0.5	0.16	7.3
	01/21/20	0.6	0.18	7.5		02/11/20	0.6	0.17	7.7		10/03/20	0.5	0.23	7.8
	01/28/20	0.6	0.17	7.6		02/18/20	0.8	0.18	7.5		17/03/20	0.6	0.19	7.9
						02/25/20	0.6	0.17	7.7		24/03/20	0.6	0.25	7.6
											31/03/20	0.6	0.18	7.6
Peel Street Liftstation	01/07/20	0.8	0.21	7.5	Peel Street Liftstation	02/04/20	0.7	0.17	7.4	Peel Street Liftstation	03/03/20	0.9	0.18	7.2
	01/14/20	0.8	0.19	7.5		02/11/20	0.8	0.13	7.3		10/03/20	0.8	0.19	7.5
	01/21/20	0.9	0.30	7.4		02/18/20	0.7	0.16	7.3		17/03/20	0.8	0.18	7.6
	01/28/20	0.7	0.28	7.5		02/25/20	0.8	0.24	7.5		24/03/20	0.8	0.18	7.4
											31/03/20	0.9	0.18	7.5
Airport Wastewater Treatment Plant	01/07/20	0.7	0.18	7.4	Airport Wastewater Treatment Plant	02/04/20	0.6	0.25	7.4	Airport Wastewater Treatment Plant	03/03/20	0.8	0.19	7.4
	01/14/20	0.4	0.75	7.4		02/11/20	0.4	0.31	7.3		10/03/20	0.6	0.53	7.6
	01/21/20	0.8	0.22	7.4		02/18/20	0.8	0.22	7.3		17/03/20	0.8	0.20	7.6
	01/28/20	0.3	0.79	7.5		02/25/20	0.7	0.23	7.5		24/03/20	0.8	0.20	7.4
											31/03/20	0.7	0.19	7.5
Public Works Yard	01/07/20	0.9	0.94	7.6	Public Works Yard	02/04/20	1.0	0.25	7.4	Public Works Yard	03/03/20	0.8	0.31	7.3
	01/14/20	0.9	0.31	7.4		02/11/20	1.0	0.15	7.3		10/03/20	0.9	0.26	7.7
	01/21/20	1.0	0.37	7.5		02/18/20	0.8	0.16	7.4		17/03/20	1.0	0.21	7.6
	01/28/20	1.1	0.37	7.6		02/25/20	0.9	0.18	7.6		24/03/20	0.8	0.17	7.5
											31/03/20	1.0	0.16	7.6
Eagleview School	01/08/20	0.4	0.28	7.6	Eagleview School	02/04/20	0.5	0.21	7.2	Eagleview School	03/03/20	0.5	0.29	7.6
	01/14/20	0.5	0.22	7.6		02/11/20	0.4	0.19	7.3		10/03/20	0.4	0.32	7.8
	01/21/20	0.5	0.29	7.5		02/18/20	0.4	0.28	7.5		17/03/20	0.5	0.29	7.4
	01/28/20	0.4	0.25	7.6		02/25/20	0.3	0.29	7.5		24/03/20	0.4	0.28	7.3
											31/03/20	0.7	0.25	7.6
Bear Cove Reservoir	01/07/20	0.7	0.18	7.5	Bear Cove Reservoir	02/04/20	0.7	0.27	7.5	Bear Cove Reservoir	03/03/20	0.8	0.17	7.2
	01/14/20	0.8	0.20	7.4		02/11/20	0.9	0.14	7.4		10/03/20	0.7	0.25	7.6
	01/21/20	0.9	0.16	7.5		02/18/20	0.7	0.17	7.4		17/03/20	0.9	0.2	7.6
	01/28/20	0.7	0.75	7.5		02/25/20	0.9	0.19	7.5		24/03/20	0.7	0.17	7.4
											31/03/20	0.8	0.19	7.5
Ferry Terminal	01/07/20	0.3	0.32	7.2	Ferry Terminal	02/04/20	0.7	0.16	7.4	Ferry Terminal	03/03/20	0.8	0.14	7.3
	01/14/20	0.4	0.20	7.4		02/11/20	0.7	0.11	7.4		10/03/20	0.7	0.22	7.8
	01/21/20	0.6	0.60	7.4		02/18/20	0.8	0.13	7.3		17/03/20	0.7	0.18	7.6
	01/28/20	0.7	0.67	7.5		02/25/20	0.7	0.16	7.4		24/03/20	0.7	0.20	7.5
											31/03/20	0.7	0.18	7.5
Highway 19 PRV	01/07/20	1.0	0.89	7.4	Highway 19 PRV	02/04/20	0.9	0.24	7.3	Highway 19 PRV	03/03/20	0.8	0.17	7.6
	01/14/20	1.1	0.33	7.4		02/11/20	1.0	0.14	7.3		10/03/20	0.8	0.22	7.8
	01/21/20	1.1	0.24	7.4		02/18/20	1.0	0.17	7.4		17/03/20	1.0	0.24	7.6
	01/28/20	1.0	0.20	7.5		02/25/20	1.0	0.28	7.4		24/03/20	0.9	0.18	7.4
											31/03/20	0.8	0.19	7.6
Average		0.7	0.36	7.5	Average		0.7	0.20	7.4	Average		0.7	0.22	7.5
Minimum		0.3	0.16	7.2	Minimum		0.3	0.11	7.2	Minimum		0.4	0.14	7.2
Maximum		1.1	0.94	7.6	Maximum		1.0	0.31	7.7	Maximum		1.0	0.53	7.9
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	04/06/20	0.6	0.18	7.5	Chatham Avenue	05/04/20	0.5	0.19	7.7	Chatham Avenue	06/01/20	0.6	0.15	7.6
	04/14/20	0.4	0.19	7.6		05/11/20	0.5	0.21	7.5		06/08/20	0.6	0.18	7.8
	04/20/20	0.5	0.17	7.2		05/19/20	0.5	0.12	7.6		06/15/20	0.4	0.15	7.7
	04/27/20	0.6	0.17	7.7		05/26/20	0.4	0.12	7.7		06/22/20	0.4	0.24	7.7
Peel Street Liftstation	04/06/20	0.9	0.18	7.4	Peel Street Liftstation	05/04/20	0.6	0.13	7.6	Peel Street Liftstation	06/01/20	0.8	0.14	7.2
	04/14/20	0.6	0.19	7.4		05/11/20	0.6	0.19	7.2		06/08/20	0.8	0.12	7.6
	04/20/20	0.8	0.15	7.4		05/19/20	0.5	0.19	7.5		06/15/20	0.5	0.16	7.5
	04/27/20	0.5	0.15	7.3		05/26/20	0.7	0.11	7.5		06/22/20	0.5	0.15	7.4
Airport Wastewater Treatment Plant	04/06/20	0.6	0.18	7.5	Airport Wastewater Treatment Plant	05/04/20	0.4	0.15	7.6	Airport Wastewater Treatment Plant	06/01/20	0.5	0.14	7.5
	04/14/20	0.5	0.24	7.5		05/11/20	0.4	0.21	7.4		06/08/20	0.5	0.13	7.7
	04/20/20	0.6	0.14	7.4		05/19/20	0.3	0.23	7.5		06/15/20	0.4	0.17	7.5
	04/27/20	0.7	0.12	7.6		05/26/20	0.5	0.14	7.5		06/22/20	0.4	0.16	7.5
Public Works Yard	04/06/20	0.5	0.19	7.6	Public Works Yard	05/04/20	0.3	0.12	7.8	Public Works Yard	06/01/20	0.9	0.13	7.6
	04/14/20	0.4	0.18	7.3		05/11/19	0.5	0.33	7.6		06/08/20	0.3	0.22	7.7
	04/20/20	0.9	0.22	7.5		05/19/20	0.5	0.14	7.8		06/15/20	0.4	0.18	7.7
	04/27/20	0.6	0.11	7.6		05/26/20	0.5	0.20	7.6		06/22/20	0.3	0.16	7.7
Eagleview School	04/06/20	0.6	0.18	7.6	Eagleview School	05/04/20	0.5	0.51	7.7	Eagleview School	06/01/20	0.5	0.17	7.5
	04/14/20	0.5	0.19	7.4		05/11/20	0.6	0.27	7.3		06/08/20	0.2	0.16	7.9
	04/20/20	0.5	0.22	7.5		05/19/20	0.5	0.16	7.6		06/15/20	0.4	0.16	7.4
	04/27/20	0.7	0.15	7.5		05/26/20	0.5	0.19	7.6		06/22/20	0.3	0.18	7.6
Bear Cove Reservoir	04/06/20	0.7	0.17	7.4	Bear Cove Reservoir	05/04/20	0.6	0.15	7.5	Bear Cove Reservoir	06/01/20	0.7	0.12	7.5
	04/14/20	0.6	0.15	7.4		05/11/20	0.6	0.19	7.2		06/08/20	0.5	0.13	7.6
	04/20/20	0.7	0.14	7.5		05/19/20	0.6	0.16	7.5		06/15/20	0.5	0.18	7.5
	04/27/20	0.9	0.25	7.6		05/26/20	0.5	0.14	7.5		06/22/20	0.5	0.16	7.7
Ferry Terminal	04/06/20	0.6	0.19	7.4	Ferry Terminal	05/04/20	0.6	0.12	7.5	Ferry Terminal	06/01/20	0.7	0.14	7.4
	04/14/20	0.5	0.13	7.5		05/11/20	0.7	0.18	7.3		06/08/20	0.5	0.12	7.6
	04/20/20	0.6	0.13	7.4		05/19/20	0.5	0.14	7.5		06/15/20	0.4	0.15	7.3
	04/27/20	0.8	0.13	7.5		05/26/20	0.6	0.11	7.4		06/22/20	0.4	0.17	7.4
Highway 19 PRV	04/06/20	0.8	0.14	7.5	Highway 19 PRV	05/04/20	0.8	0.54	7.6	Highway 19 PRV	06/01/20	0.9	0.17	7.6
	04/14/20	0.8	0.19	7.4		05/11/19	0.9	0.60	7.4		06/08/20	0.8	0.11	7.5
	04/20/20	0.9	0.12	7.5		05/19/20	0.8	0.13	7.7		06/15/20	0.8	0.16	7.5
	04/27/20	0.9	0.15	7.5		05/26/20	0.7	0.17	7.6		06/22/20	0.7	0.18	7.5
Average		0.7	0.17	7.5	Average		0.6	0.20	7.5	Average		0.5	0.16	7.6
Minimum		0.4	0.11	7.2	Minimum		0.3	0.11	7.2	Minimum		0.2	0.11	7.2
Maximum		0.9	0.25	7.7	Maximum		0.9	0.60	7.8	Maximum		0.9	0.24	7.9

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
01/07/20	Hospital	0.8	0.24	7.5	L1	L1	02/04/20	Hospital	0.7	0.23	7.4	L1	L1
01/14/20	Airport Washroom	0.7	0.17	7.4	L1	L1	02/04/20	Airport Washroom	0.6	0.35	7.4	L1	L1
01/07/20	Chatham Ave.	0.4	0.25	7.6	L1	L1	02/18/20	Chatham Ave.	0.8	0.18	7.5	L1	L1
01/21/20	Bear Cove Reservoir	0.9	0.16	7.5	L1	L1	02/11/20	Bear Cove Reservoir	0.9	0.14	7.4	L1	L1
01/21/20	Highway 19 PRV	1.1	0.24	7.4	L1	L1	02/04/20	Highway 19 PRV	0.9	0.24	7.3	L1	L1
01/07/20	Pioneer Inn	0.9	0.23	7.5	L1	L1	02/18/20	Pioneer Inn	0.8	0.19	7.4	L1	L1
01/21/20	Public Works Yard	1.0	0.37	7.5	L1	L1	02/11/20	Public Works Yard	1.0	0.15	7.3	L1	L1
01/14/20	Glen Lyon Restaurant	1.0	0.16	7.4	L1	L1	02/18/20	Glen Lyon Restaurant	1.0	0.19	7.5	L1	L1
01/07/20	Airport Inn	0.7	0.20	7.4	L1	L1	02/18/20	Airport Inn	0.7	0.25	7.3	L1	L1
01/14/20	Peel St Liftstation	0.8	0.19	7.5	L1	L1	02/11/20	Peel St Liftstation	0.8	0.13	7.3	L1	L1
01/14/20	B.C. Ferry	0.4	0.20	7.4	L1	L1	02/11/20	B.C. Ferry	0.7	0.11	7.4	L1	L1
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
01/21/20	Tsulquate River (Untreated)		2.29	6.6	93.3	1.0	02/04/20	Tsulquate River (Untreated)		0.64	6.6	60.9	<1
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
03/03/20	Hospital	0.8	0.17	7.4	L1	L1	04/20/20	Hospital	0.7	0.24	7.5	L1	L1
03/03/20	Airport Washroom	0.8	0.19	7.2	L1	L1	04/14/20	Airport Washroom	0.4	0.25	7.4	L1	L1
17/03/20	Chatham Ave.	0.6	0.19	7.9	L1	L1	04/14/20	Chatham Ave.	0.4	0.19	7.6	L1	L1
10/03/20	Bear Cove Reservoir	0.7	0.27	7.6	L1	L1	04/06/20	Bear Cove Reservoir	0.7	0.17	7.4	L1	L1
03/03/20	Highway 19 PRV	0.8	0.17	7.6	L1	L1	04/06/20	Highway 19 PRV	0.8	0.14	7.5	L1	L1
17/03/20	Pioneer Inn	0.9	0.24	7.6	L1	L1	04/06/20	Pioneer Inn	0.5	0.14	7.2	L1	L1
10/03/20	Public Works Yard	0.8	0.22	7.7	L1	L1	04/14/20	Public Works Yard	0.4	0.18	7.3	L1	L1
17/03/20	Glen Lyon Restaurant	0.8	0.24	7.6	L1	L1	04/20/20	Glen Lyon Restaurant	0.9	0.32	7.5	L1	L1
17/03/20	Airport Inn	0.6	0.29	7.7	L1	L1	04/20/20	Airport Inn	0.6	0.20	7.5	L1	L1
10/03/20	Peel St Liftstation	0.7	0.19	7.5	L1	L1	04/06/20	Peel St Liftstation	0.9	0.18	7.4	L1	L1
10/03/20	B.C. Ferry	0.7	0.22	7.8	L1	L1	04/20/20	B.C. Ferry	0.6	0.13	7.4	L1	L1
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
03/03/20	Tsulquate River (Untreated)		0.68	6.5	56.5	<1	04/14/20	Tsulquate River (Untreated)		0.56	6.8	52	<1
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
05/04/20	Hospital	0.5	0.15	7.7	L1	L1	06/01/20	Hospital	0.6	0.13	7.5	L1	L1
05/04/20	Airport Washroom	0.4	0.52	7.6	L1	L1	06/01/20	Airport Washroom	0.4	0.16	7.5	L1	L1
05/04/20	Chatham Ave.	0.5	0.19	7.7	L1	L1	06/01/20	Chatham Ave.	0.6	0.15	7.6	L1	L1
05/11/20	Bear Cove Reservoir	0.6	0.19	7.2	L1	L1	06/08/20	Bear Cove	0.5	0.13	7.6	L1	L1
05/19/20	Highway 19 PRV	0.8	0.13	7.7	L1	L1	06/08/20	Highway 19 PRV	0.8	0.11	7.5	L1	L1
05/04/20	Pioneer Inn	0.8	0.17	7.8	L1	L1	06/08/20	Pioneer Inn	0.7	0.12	7.4	L1	L1
05/11/20	Public Works Yard	0.5	0.33	7.6	L1	L1	06/15/20	Public Works Yard	0.4	0.18	7.7	L1	L1
05/11/20	Glen Lyon Restaurant	0.7	0.80	7.3	L1	L1	06/15/20	Glen Lyon Restaurant	0.7	0.18	7.5	L1	L1
05/11/20	Airport Inn	0.6	0.17	7.3	L1	L1	06/15/20	Airport Inn	0.6	0.17	7.7	L1	L1
05/19/20	Peel St Liftstation	0.5	0.15	7.5	L1	L1	06/08/20	Peel St Liftstation	0.8	0.12	7.6	L1	L1
05/19/20	B.C. Ferry	0.5	0.14	7.5	L1	L1	06/15/20	B.C. Ferry	0.4	0.15	7.3	L1	L1
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
05/19/20	Tsulquate River (Untreated)		0.51	7.0	228.2	2.0	06/08/20	Tsulquate River (Untreated)		0.48	6.9	579.4	3.0

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
07/06/20	Hospital	0.5	0.16	7.6	L1	L1	08/17/20	Hospital	0.4	0.15	7.5	L1	L1
07/06/20	Airport Washroom	0.7	0.17	7.6	L1	L1	08/17/20	Airport Washroom	0.7	0.16	7.5	L1	L1
07/06/20	Chatham Ave.	0.8	0.17	7.7	L1	L1	08/17/20	Chatham Ave.	0.7	0.13	7.7	L1	L1
07/13/20	Bear Cove Reservoir	0.6	0.13	7.5	L1	L1	08/04/20	Bear Cove Reservoir	0.4	0.16	7.6	L1	L1
07/20/20	Highway 19 PRV	0.8	0.12	7.6	L1	L1	08/04/20	Highway 19 PRV	0.6	0.17	7.6	L1	L1
07/06/20	Pioneer Inn	0.8	0.25	7.6	L1	L1	08/17/20	Pioneer Inn	0.5	0.17	7.3	L1	L1
07/13/20	Public Works Yard	0.4	0.15	7.7	L1	L1	08/04/20	Public Works Yard	0.4	0.19	7.8	L1	L1
07/20/20	Glen Lyon Restaurant	0.5	0.11	7.6	L1	L1	08/17/20	Glen Lyon Restaurant	0.7	0.15	7.6	L1	L1
07/20/20	Airport Inn	0.5	0.16	7.6	L1	L1	08/17/20	Airport Inn	0.9	0.12	7.4	L1	L1
07/13/20	Peel St Liftstation	0.8	0.12	7.4	L1	L1	08/04/20	Peel St Liftstation	0.7	0.18	7.6	L1	L1
07/20/20	B.C. Ferry	0.4	0.11	7.6	L1	L1	08/17/20	B.C. Ferry	0.5	0.16	7.6	L1	L1
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
07/13/20	Tsulquate River (Untreated)		0.53	6.9	1413.6	14.8	08/17/20	Tsulquate River (Untreated)		0.43	7.2	>241	36.4
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
09/21/20	Hospital	0.4	0.10	7.5	L1	L1	10/19/20	Hospital	0.4	0.15	7.8	<1	<1
09/28/20	Airport Washroom	0.1	0.14	7.7	L1	L1	10/13/20	Airport Washroom	0.2	0.35	7.7	<1	<1
09/28/20	Chatham Ave.	0.4	0.13	7.5	L1	L1	10/05/20	Chatham Ave.	0.6	0.15	7.9	<1	<1
09/14/20	Bear Cove Reservoir	0.5	0.17	7.6	L1	L1	10/19/20	Bear Cove Reservoir	0.6	0.21	7.6	<1	<1
09/28/20	Highway 19 PRV	0.9	0.13	7.6	L1	L1	10/19/20	Highway 19 PRV	0.8	0.18	7.7	<1	<1
09/28/20	Pioneer Inn	0.7	0.26	7.5	L1	L1	10/05/20	Pioneer Inn	0.9	0.24	7.9	<1	<1
09/14/20	Public Works Yard	0.7	0.22	7.8	L1	L1	10/05/20	Public Works Yard	0.4	0.70	8.6	<1	<1
09/21/20	Glen Lyon Restaurant	0.4	0.17	7.4	L1	L1	10/19/20	Glen Lyon Restaurant	0.7	0.18	7.8	<1	<1
09/14/20	Airport Inn	0.6	0.15	7.6	L1	L1	10/05/20	Airport Inn	0.5	0.13	7.9	<1	<1
09/28/20	Peel St Liftstation	0.7	0.14	7.8	L1	L1	10/13/20	Peel St Liftstation	0.9	0.22	7.7	<1	<1
09/28/20	B.C. Ferry	0.2	0.16	7.7	L1	L1	10/19/20	B.C. Ferry	0.5	0.15	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
09/28/20	Tsulquate River (Untreated)		0.32	7.1	2419.2	12.1	10/19/20	Tsulquate River (Untreated)		0.69	6.9	1203.3	3.1
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
11/02/20	Hospital	0.6	0.19	7.8	<1	<1	12/07/20	Hospital	0.7	0.17	7.7	<1	<1
11/16/20	Airport Washroom	0.4	0.15	7.8	<1	<1	12/07/20	Airport Washroom	0.4	0.26	7.5	<1	<1
11/02/20	Chatham Ave.	0.4	0.16	7.9	<1	<1	12/07/20	Chatham Ave.	0.4	0.16	8.0	<1	<1
11/16/20	Bear Cove Reservoir	0.8	0.15	7.8	<1	<1	12/14/20	Bear Cove Reservoir	0.6	0.16	7.8	<1	<1
11/16/20	Highway 19 PRV	1.0	0.16	7.7	<1	<1	12/07/20	Highway 19 PRV	0.8	0.15	7.5	<1	<1
11/02/20	Pioneer Inn	0.9	0.18	7.6	<1	<1	12/07/20	Pioneer Inn	0.9	0.21	7.5	<1	<1
11/09/20	Public Works Yard	0.5	0.16	7.9	<1	<1	12/14/20	Public Works Yard	1.0	0.21	7.9	<1	<1
11/09/20	Glen Lyon Restaurant	0.7	0.16	7.8	<1	<1	12/07/20	Glen Lyon Restaurant	0.7	0.15	7.8	<1	<1
11/16/20	Airport Inn	0.4	0.16	7.9	<1	<1	12/14/20	Airport Inn	0.6	0.17	7.8	<1	<1
11/16/20	Peel St Liftstation	0.6	0.16	7.7	<1	<1	12/07/20	Peel St Liftstation	0.7	0.24	7.6	<1	<1
11/09/20	B.C. Ferry	0.5	0.17	7.7	<1	<1	12/14/20	B.C. Ferry	0.7	0.17	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
11/16/20	Tsulquate River (Untreated)		0.76	6.9	260.2	1.0	12/14/20	Tsulquate River (Untreated)		0.57	6.8	12	8.0

GENERAL CHEMISTRY RESULTS - RAW AND TREATED WATER



BV Labs Job #: C013556
Report Date: 2020/03/02

DISTRICT OF PORT HARDY
Your P.O. #: 4255

RESULTS OF CHEMICAL ANALYSES OF DRINKING WATER

BV Labs ID					XL3233		XL3234		
Sampling Date					2020/02/25 09:55		2020/02/25 10:10		
COC Number					G133562		G133562		
	UNITS	MAC	AO	OG	RIVER RAW	QC Batch	RESERVOIR	RDL	QC Batch
ANIONS									
Nitrite (N)	mg/L	1	-	-	<0.0050	9778972	<0.0050	0.0050	9778972
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	-	-	-	4.59	9777634	20.0	0.50	9777634
Nitrate (N)	mg/L	10	-	-	<0.020	9777666	<0.020	0.020	9777666
Misc. Inorganics									
Conductivity	uS/cm	-	-	-	15	9777845	88	2.0	9778044
pH	pH	-	-	7.0:10.5	6.04	9777837	7.20	N/A	9778045
Total Dissolved Solids	mg/L	-	-	-	<10	9780633	58	10	9780633
Anions									
Alkalinity (PP as CaCO3)	mg/L	-	-	-	<1.0	9777838	<1.0	1.0	9778021
Alkalinity (Total as CaCO3)	mg/L	-	-	-	1.7	9777838	23	1.0	9778021
Bicarbonate (HCO3)	mg/L	-	-	-	2.0	9777838	28	1.0	9778021
Carbonate (CO3)	mg/L	-	-	-	<1.0	9777838	<1.0	1.0	9778021
Dissolved Fluoride (F)	mg/L	1.5	-	-	<0.050	9780647	<0.050	0.050	9780647
Hydroxide (OH)	mg/L	-	-	-	<1.0	9777838	<1.0	1.0	9778021
Dissolved Chloride (Cl)	mg/L	-	250	-	2.0	9778278	12	1.0	9778269
Dissolved Sulphate (SO4)	mg/L	-	500	-	<1.0	9778278	<1.0	1.0	9778269
MISCELLANEOUS									
True Colour	Col. Unit	-	15	-	49.0	9778304	<5.0	5.0	9778304
Nutrients									
Nitrate plus Nitrite (N)	mg/L	-	-	-	<0.020	9778967	<0.020	0.020	9778967
Physical Properties									
Turbidity	NTU	see remark	see remark	see remark	1.2	9778323	1.4	0.10	9779811
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									
N/A = Not Applicable									

MERCURY BY COLD VAPOR (DRINKING WATER)

BV Labs ID			XL3233	XL3234		
Sampling Date			2020/02/25 09:55	2020/02/25 10:10		
COC Number			G133562	G133562		
	UNITS	MAC	RIVER RAW	RESERVOIR	RDL	QC Batch
Elements						
Total Mercury (Hg)	ug/L	1	0.0034	<0.0019	0.0019	9779650
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						

RESULTS OF CHEMICAL ANALYSES OF DRINKING WATER

BV Labs ID					XL3233		XL3234		
Sampling Date					2020/02/25 09:55		2020/02/25 10:10		
COC Number					G133562		G133562		
	UNITS	MAC	AO	OG	RIVER RAW	QC Batch	RESERVOIR	RDL	QC Batch
ANIONS									
Nitrite (N)	mg/L	1	-	-	<0.0050	9778972	<0.0050	0.0050	9778972
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	-	-	-	4.59	9777634	20.0	0.50	9777634
Nitrate (N)	mg/L	10	-	-	<0.020	9777666	<0.020	0.020	9777666
Misc. Inorganics									
Conductivity	uS/cm	-	-	-	15	9777845	88	2.0	9778044
pH	pH	-	-	7.0:10.5	6.04	9777837	7.20	N/A	9778045
Total Dissolved Solids	mg/L	-	-	-	<10	9780633	58	10	9780633
Anions									
Alkalinity (PP as CaCO3)	mg/L	-	-	-	<1.0	9777838	<1.0	1.0	9778021
Alkalinity (Total as CaCO3)	mg/L	-	-	-	1.7	9777838	23	1.0	9778021
Bicarbonate (HCO3)	mg/L	-	-	-	2.0	9777838	28	1.0	9778021
Carbonate (CO3)	mg/L	-	-	-	<1.0	9777838	<1.0	1.0	9778021
Dissolved Fluoride (F)	mg/L	1.5	-	-	<0.050	9780647	<0.050	0.050	9780647
Hydroxide (OH)	mg/L	-	-	-	<1.0	9777838	<1.0	1.0	9778021
Dissolved Chloride (Cl)	mg/L	-	250	-	2.0	9778278	12	1.0	9778269
Dissolved Sulphate (SO4)	mg/L	-	500	-	<1.0	9778278	<1.0	1.0	9778269
MISCELLANEOUS									
True Colour	Col. Unit	-	15	-	49.0	9778304	<5.0	5.0	9778304
Nutrients									
Nitrate plus Nitrite (N)	mg/L	-	-	-	<0.020	9778967	<0.020	0.020	9778967
Physical Properties									
Turbidity	NTU	see remark	see remark	see remark	1.2	9778323	1.4	0.10	9779811
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit N/A = Not Applicable									

TRIHALOMETHANE AND HALOACETIC ACID QUARTERLY RESULTS 1



Element
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: info.vancouver@element.com
W: element.com

Page 1 of 3

Analytical Report

Bill To: District of Port Hardy
Box 68
Port Hardy, BC, Canada
V0N 2P0
Attn: Accounts Payable
Sampled By: R. LeFort
Company: District of Port Hardy

Project ID:
Project Name: THM/HAA Sampling for
Quarter #1 2020
Project Location:
LSD:
P.O.: 4350
Proj. Acct. code:

Lot ID: **1401753**
Control Number:
Date Received: Jan 10, 2020
Date Reported: Jan 20, 2020
Report Number: 2482141

		Reference Number	1401753-1			
		Sample Date	January 09, 2020			
		Sample Time	10:40			
		Sample Location				
		Sample Description	WTP Reservoir / 8.4 °C			
		Sample Matrix	Water			
Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Trihalomethanes Screen - Water						
Chloroform		mg/L	0.019	0.001		
Bromodichloromethane		mg/L	0.001	0.001		
Dibromochloromethane		mg/L	<0.001	0.001		
Bromoform		mg/L	<0.001	0.001		
Total Trihalomethanes		mg/L	0.020	0.001	0.1	Below MAC
Trihalomethanes - Surrogate Recovery						
Dibromofluoromethane	EPA Surrogate	%	96	50-140		
Toluene-d8	EPA Surrogate	%	96	50-140		
Bromofluorobenzene	EPA Surrogate	%	103	50-140		
Haloacetic Acids - Water						
Monochloroacetic Acid		µg/L	<2.0	2.0		
Monobromoacetic Acid		µg/L	<2.0	2.0		
Dichloroacetic Acid		µg/L	6.5	2.0		
Bromochloroacetic Acid		µg/L	<2.0	2.0		
Dibromoacetic Acid		µg/L	<2.0	2.0		
Trichloroacetic Acid		µg/L	6.5	2.0		
Total Haloacetic Acids (HAA6)		µg/L	13.0	2.0		

Analytical Report

Bill To: District of Port Hardy
Box 68
Port Hardy, BC, Canada
V0N 2P0
Attn: Accounts Payable
Sampled By: R. LeFort
Company: District of Port Hardy

Project ID:
Project Name: THM/HAA Sampling for
Quarter #1 2020
Project Location:
LSD:
P.O.: 4350
Proj. Acct. code:

Lot ID: **1401753**
Control Number:
Date Received: Jan 10, 2020
Date Reported: Jan 20, 2020
Report Number: 2482141

Reference Number		1401753-2			
Sample Date		January 09, 2020			
Sample Time		11:10			
Sample Location		Chatham Ave. / 8.4 °C			
Sample Description		Water			
Sample Matrix		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Trihalomethanes Screen - Water					
Chloroform	mg/L	0.044	0.001		
Bromodichloromethane	mg/L	0.002	0.001		
Dibromochloromethane	mg/L	<0.001	0.001		
Bromoform	mg/L	<0.001	0.001		
Total Trihalomethanes	mg/L	0.046	0.001	0.1	Below MAC
Trihalomethanes - Surrogate Recovery					
Dibromofluoromethane	EPA Surrogate %	94	50-140		
Toluene-d8	EPA Surrogate %	97	50-140		
Bromofluorobenzene	EPA Surrogate %	106	50-140		
Haloacetic Acids - Water					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	9.6	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Trichloroacetic Acid	µg/L	11.7	2.0		
Total Haloacetic Acids (HAA6)	µg/L	21.3	2.0		

Approved by:

Jimmy Tran
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

Terms and Conditions: <https://www.element.com/terms-and-conditions>

THM/HAA RESULTS - QUARTER 2



Element
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: info.vancouver@element.com
W: element.com

Page 1 of 3

Analytical Report

Bill To: District of Port Hardy
Box 68
Port Hardy, BC, Canada
V0N 2P0
Attn: Accounts Payable
Sampled By: J. Jewell
Company: District of Port Hardy

Project ID:
Project Name:
Project Location:
LSD:
P.O.: 4455
Proj. Acct. code:

Lot ID: **1417322**
Control Number:
Date Received: Apr 8, 2020
Date Reported: Apr 16, 2020
Report Number: 2505596

		Reference Number	1417322-1			
		Sample Date	April 07, 2020			
		Sample Time	NA			
		Sample Location				
		Sample Description	Reservoir / 6.3 °C			
		Sample Matrix	Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
Trihalomethanes Screen - Water						
Chloroform	mg/L	0.023	0.001			
Bromodichloromethane	mg/L	0.002	0.001			
Dibromochloromethane	mg/L	<0.001	0.001			
Bromoform	mg/L	<0.001	0.001			
Total Trihalomethanes	mg/L	0.025	0.001	0.1		Below MAC
Trihalomethanes - Surrogate Recovery						
Dibromofluoromethane	EPA Surrogate %	111	50-140			
Toluene-d8	EPA Surrogate %	96	50-140			
Bromofluorobenzene	EPA Surrogate %	93	50-140			
Haloacetic Acids - Water						
Monochloroacetic Acid	µg/L	<2.0	2.0			
Monobromoacetic Acid	µg/L	<2.0	2.0			
Dichloroacetic Acid	µg/L	5.4	2.0			
Trichloroacetic Acid	µg/L	3.3	2.0			
Bromochloroacetic Acid	µg/L	3.8	2.0			
Dibromoacetic Acid	µg/L	4.0	2.0			
Total Haloacetic Acids (HAA6)	µg/L	16.5	2.0	80		Below MAC

Analytical Report

Bill To: District of Port Hardy
Box 68
Port Hardy, BC, Canada
V0N 2P0
Attn: Accounts Payable
Sampled By: J. Jewell
Company: District of Port Hardy

Project ID:
Project Name:
Project Location:
LSD:
P.O.: 4455
Proj. Acct. code:

Lot ID: **1417322**
Control Number:
Date Received: Apr 8, 2020
Date Reported: Apr 16, 2020
Report Number: 2505596

	Reference Number	1417322-2			
	Sample Date	April 07, 2020			
	Sample Time	NA			
	Sample Location				
	Sample Description	Chatham Ave. / 6.3 °C			
	Sample Matrix	Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Trihalomethanes Screen - Water					
Chloroform	mg/L	0.043	0.001		
Bromodichloromethane	mg/L	0.003	0.001		
Dibromochloromethane	mg/L	<0.001	0.001		
Bromoform	mg/L	<0.001	0.001		
Total Trihalomethanes	mg/L	0.046	0.001	0.1	Below MAC
Trihalomethanes - Surrogate Recovery					
Dibromofluoromethane	EPA Surrogate	%	112	50-140	
Toluene-d8	EPA Surrogate	%	96	50-140	
Bromofluorobenzene	EPA Surrogate	%	93	50-140	
Haloacetic Acids - Water					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	8.8	2.0		
Trichloroacetic Acid	µg/L	9.7	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	18.5	2.0	80	Below MAC

THM/HAA RESULTS – QUARTER 3



Element
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P6, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: info.vancouver@element.com
W: www.element.com

Page 1 of 3

Analytical Report

Bill To: District of Port Hardy
Box 68
Port Hardy, BC, Canada
V0N 2P0
Attn: Accounts Payable
Sampled By: R. LeFort
Company: District of Port Hardy

Project ID:
Project Name: THM/HAA Sampling for
Quarter #3 2020
Project Location:
LSD:
P.O.: 4461
Proj. Acct. code:

Lot ID: **1433798**
Control Number:
Date Received: Jul 9, 2020
Date Reported: Jul 20, 2020
Report Number: 2529495

Reference Number		1433798-1			
Sample Date					
Sample Time					
Sample Location					
Sample Description		WTP Reservoir / 3.9 °C			
Sample Matrix		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Trihalomethanes Screen - Water					
Chloroform	mg/L	0.026	0.001		
Bromodichloromethane	mg/L	0.001	0.001		
Dibromochloromethane	mg/L	<0.001	0.001		
Bromoform	mg/L	<0.001	0.001		
Total Trihalomethanes	mg/L	0.027	0.001	0.1	Below MAC
Trihalomethanes - Surrogate Recovery					
Dibromofluoromethane	EPA Surrogate %	101	50-140		
Toluene-d8	EPA Surrogate %	100	50-140		
Bromofluorobenzene	EPA Surrogate %	106	50-140		
Haloacetic Acids - Water					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	11.5	2.0		
Trichloroacetic Acid	µg/L	16.4	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	28.0	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	100	50-150		

Analytical Report

Bill To: District of Port Hardy Box 68 Port Hardy, BC, Canada V0N 2P0	Project ID: Project Name: THM/HAA Sampling for Quarter #3 2020	Lot ID: 1433798
Attn: Accounts Payable	Project Location: LSD:	Control Number: Date Received: Jul 9, 2020
Sampled By: R. LeFort	P.O.: 4461	Date Reported: Jul 20, 2020
Company: District of Port Hardy	Proj. Acct. code:	Report Number: 2529495

Reference Number		1433798-2			
Sample Date					
Sample Time					
Sample Location					
Sample Description		Chatham Ave. / 3.9 °C			
Sample Matrix		Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Trihalomethanes Screen - Water					
Chloroform	mg/L	0.052	0.001		
Bromodichloromethane	mg/L	0.002	0.001		
Dibromochloromethane	mg/L	<0.001	0.001		
Bromoform	mg/L	<0.001	0.001		
Total Trihalomethanes	mg/L	0.054	0.001	0.1	Below MAC
Trihalomethanes - Surrogate Recovery					
Dibromofluoromethane	EPA Surrogate %	102	50-140		
Toluene-d8	EPA Surrogate %	101	50-140		
Bromofluorobenzene	EPA Surrogate %	102	50-140		
Haloacetic Acids - Water					
Monochloroacetic Acid	µg/L	<2.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	19.0	2.0		
Trichloroacetic Acid	µg/L	25.1	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	44.1	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	99	50-150		

Approved by:



Max Hewitt
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report and approval by the digitized signature above, are performed through a secure and controlled automatic process.

Terms and Conditions: <https://www.element.com/terms/terms-and-conditions>

THM/HAA RESULTS – QUARTER 4



Element
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: info.vancouver@element.com
W: www.element.com

Page 1 of 3

Analytical Report

Bill To: District of Port Hardy Water & Wastewater Division 8900 Park Drive Port Hardy, BC, Canada V0N 2P0	Project ID: Project Name: Project Location: Port Hardy LSD: P.O.: 4988 Proj. Acct. code:	Lot ID: 1456332 Control Number: Date Received: Oct 30, 2020 Date Reported: Nov 4, 2020 Report Number: 2565859
Attn: Joe Jewell Sampled By: R. LeFort Company: District of Port Hardy		

		Reference Number	1456332-1			
		Sample Date	October 29, 2020			
		Sample Time	10:36			
		Sample Location				
		Sample Description	Reservoir / 8.3 °C			
		Sample Matrix	Water			
Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Trihalomethanes Screen - Water						
Chloroform		mg/L	0.049	0.001		
Bromodichloromethane		mg/L	0.003	0.001		
Dibromochloromethane		mg/L	<0.001	0.001		
Bromoform		mg/L	<0.001	0.001		
Total Trihalomethanes		mg/L	0.052	0.001	0.1	Below MAC
Trihalomethanes - Surrogate Recovery						
Dibromofluoromethane	EPA Surrogate	%	125	50-140		
Toluene-d8	EPA Surrogate	%	98	50-140		
Bromofluorobenzene	EPA Surrogate	%	105	50-140		
Haloacetic Acids - Water						
Monochloroacetic Acid		µg/L	2.4	2.0		
Monobromoacetic Acid		µg/L	<2.0	2.0		
Dichloroacetic Acid		µg/L	15.4	2.0		
Trichloroacetic Acid		µg/L	18.5	2.0		
Bromochloroacetic Acid		µg/L	<2.0	2.0		
Dibromoacetic Acid		µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)		µg/L	36.3	12.0	80	Below MAC
2,3-Dibromopropionic acid		%	110	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	Project ID: Project Name: Project Location: Port Hardy LSD: P.O.: 4988 Proj. Acct. code:	Lot ID: 1456332 Control Number: Date Received: Oct 30, 2020 Date Reported: Nov 4, 2020 Report Number: 2565859
Sampled By: R. LeFort Company: District of Port Hardy		

	Reference Number	1456332-2			
	Sample Date	October 29, 2020			
	Sample Time	10:56			
	Sample Location				
	Sample Description	Chatham Ave. / 8.3 °C			
	Sample Matrix	Water			
Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Trihalomethanes Screen - Water					
Chloroform	mg/L	0.079	0.001		
Bromodichloromethane	mg/L	0.004	0.001		
Dibromochloromethane	mg/L	<0.001	0.001		
Bromoform	mg/L	<0.001	0.001		
Total Trihalomethanes	mg/L	0.083	0.001	0.1	Below MAC
Trihalomethanes - Surrogate Recovery					
Dibromofluoromethane	EPA Surrogate %	128	50-140		
Toluene-d8	EPA Surrogate %	99	50-140		
Bromofluorobenzene	EPA Surrogate %	107	50-140		
Haloacetic Acids - Water					
Monochloroacetic Acid	µg/L	3.0	2.0		
Monobromoacetic Acid	µg/L	<2.0	2.0		
Dichloroacetic Acid	µg/L	22.9	2.0		
Trichloroacetic Acid	µg/L	34.0	2.0		
Bromochloroacetic Acid	µg/L	<2.0	2.0		
Dibromoacetic Acid	µg/L	<2.0	2.0		
Total Haloacetic Acids (HAA6)	µg/L	59.9	12.0	80	Below MAC
2,3-Dibromopropionic acid	%	120	50-150		

Approved by:



Max Hewitt
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.
Terms and Conditions: <https://www.element.com/terms-and-conditions>

ADDITIONAL SAMPLING RESULTS

Sample Results from Hastings Street Main Break January 2020



BV Labs Job #: C001259
Report Date: 2020/01/09

DISTRICT OF PORT HARDY
Your P.O. #: 4255

MICROBIOLOGY (WATER)

BV Labs ID			XF1169	XF1170	
Sampling Date			2020/01/07 14:50	2020/01/07 15:00	
COC Number			G140068	G140068	
	UNITS	MAC	8865 HASTINGS	8835 HASTINGS	QC Batch
Microbiological Param.					
Total Coliforms	CFU/100mL	0	0	0	9728977
E. coli	CFU/100mL	0	0	0	9728977
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				



BV Labs Job #: C001573
Report Date: 2020/01/10

DISTRICT OF PORT HARDY
Your P.O. #: 4255

MICROBIOLOGY (DRINKING WATER)

BV Labs ID			XF2326	XF2327	
Sampling Date			2020/01/08 11:50	2020/01/08 12:00	
COC Number			G140069	G140069	
	UNITS	MAC	8865 HASTINGS	8835 HASTINGS	QC Batch
Microbiological Param.					
Total Coliforms	CFU/100mL	0	0	0	9730154
E. coli	CFU/100mL	0	0	0	9730154
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				

SAMPLE RESULTS AFTER MAIN STREET MAIN BREAK



BV Labs Job #: C063756
Report Date: 2020/09/09


DISTRICT OF PORT HARDY
Client Project #: Sampling Supplies Order
Your P.O. #: 4255

MICROBIOLOGY (DRINKING WATER)

BV Labs ID			YJ8223	YJ8224	YJ8225	YJ8226	YJ8227	
Sampling Date			2020/09/03 12:45	2020/09/03 12:35	2020/09/03 12:25	2020/09/03 12:20	2020/09/03 12:00	
COC Number			617688-08-01	617688-08-01	617688-08-01	617688-08-01	617688-08-01	
	UNITS	MAC	SPORTY	8720 MAIN	CENTRAL LIFTSTATION	8708 TELCO	8730 SEAVIEW	QC Batch
Microbiological Param.								
Total Coliforms (QT)	MPN/100mL	0	0	0	0	0	0	9988824
E. coli (QT)	MPN/100mL	0	0	0	0	0	0	9988824
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							

BV Labs ID			YJ8228	YJ8229	
Sampling Date			2020/09/03 11:40	2020/09/03 11:30	
COC Number			617688-08-01	617688-08-01	
	UNITS	MAC	7300 COLUMBIA ST.	MUNICIPAL HALL	QC Batch
Microbiological Param.					
Total Coliforms (QT)	MPN/100mL	0	0	0	9988824
E. coli (QT)	MPN/100mL	0	0	0	9988824
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				

STOREY'S BEACH SAMPLING

STOREY'S BEACH 	Port Hardy – Salt Water	
	Carlton Street	Bacteriological Sample on 19/05/2020 – Enterococci : LT5
		Bacteriological Sample on 13/07/2020 – Enterococci : LT5
	Rotary Pavilion	Bacteriological Sample on 19/05/2020 – Enterococci : LT5
		Bacteriological Sample on 13/07/2020 – Enterococci : LT5
	Scotia Street	Bacteriological Sample on 19/05/2020 – Enterococci : LT5
		Bacteriological Sample on 13/07/2020 – Enterococci : LT5
	100 m NW of Rotary Pavilion	Bacteriological Sample on 19/05/2020 – Enterococci : LT5
		Bacteriological Sample on 13/07/2020 – Enterococci : LT5

Last updated Thursday, August 06, 2020

	100 m SE of Rotary Pavilion	Bacteriological Sample on 19/05/2020 – Enterococci : LT5
		Bacteriological Sample on 13/07/2020 – Enterococci : LT5