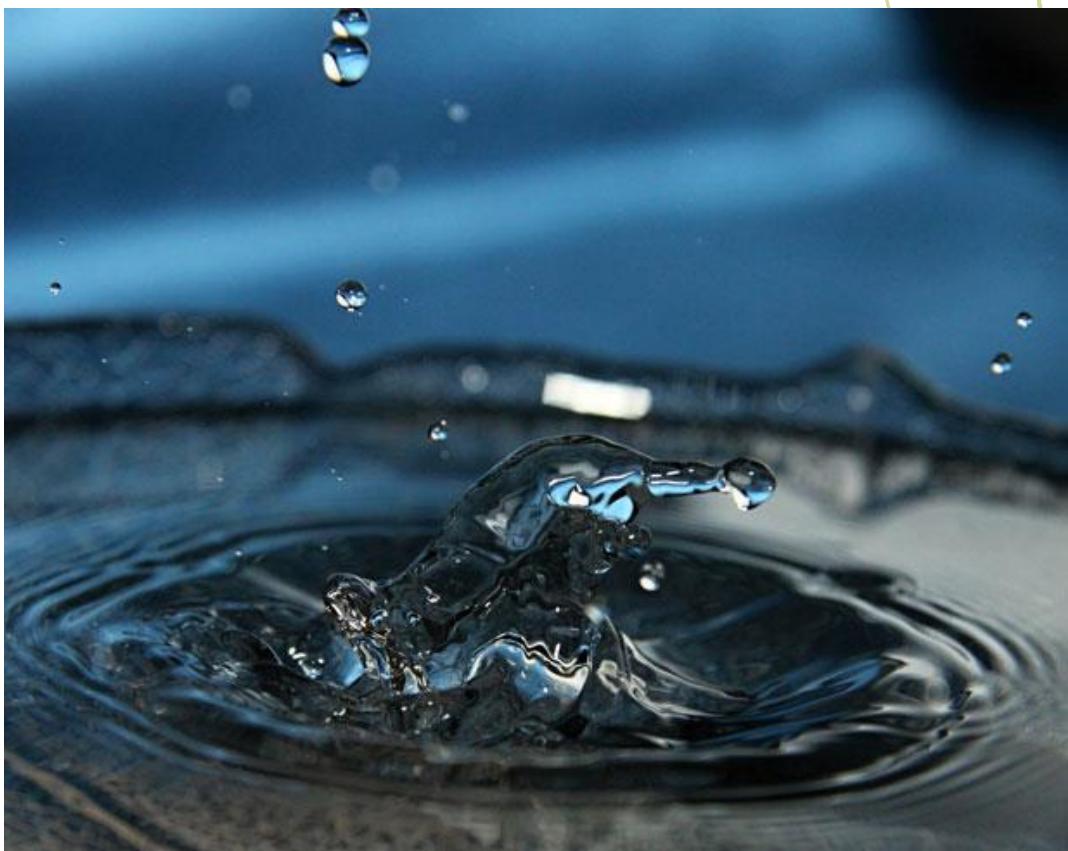


Drinking Water Quality Report

2019



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DRINKING WATER QUALITY REPORT 2019

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1.0 EXECUTIVE SUMMARY

The City of Pitt Meadows holds a permit to operate its water utility from the Fraser Health Authority (FHA). In 2019, the city was mainly supplied by the Coquitlam watershed and treated by Metro Vancouver.

In accordance with the requirements of the *Drinking Water Protection Act* and the *Drinking Water Protection Regulation*, the city's operations department takes weekly water samples from nine stations which are sent to the Metro Vancouver laboratory for testing. Results are returned to the city on a weekly basis as documented in this annual public report.

The *Drinking Water Protection Regulation* establishes requirements for drinking water quality to ensure water quality standards are in compliance for public safety.

In 2019, the City of Pitt Meadows water system met all regulatory requirements for drinking water quality as set out by the BC Drinking Water Protection Act. All water quality objectives suggested by Health Canada were also met:

- Six chlorine residual tests fell below the minimum level of 0.2 ppm.
- No samples tested positive for E. coli.
- 99% of the samples had 0 Total Coliform per 100 mL. The problem sample sites passed on a subsequent re-test.
- The annual average Total Trihalomethane results ranged between 33 and 55 parts per billion (ppb), less than the Health Canada guidelines of 100 ppb.
- The annual average Total Haloacetic acid results ranged from 33 to 47 ppb, less than Health Canada's guidelines of 80 ppb.

In conclusion, the water quality in the City of Pitt Meadows was quite good in 2019.

2.0 INTRODUCTIONS

This is the City of Pitt Meadows (PM) annual Drinking Water Quality Report for 2019. It is prepared for the Fraser Health Authority (FHA) as well as public information.

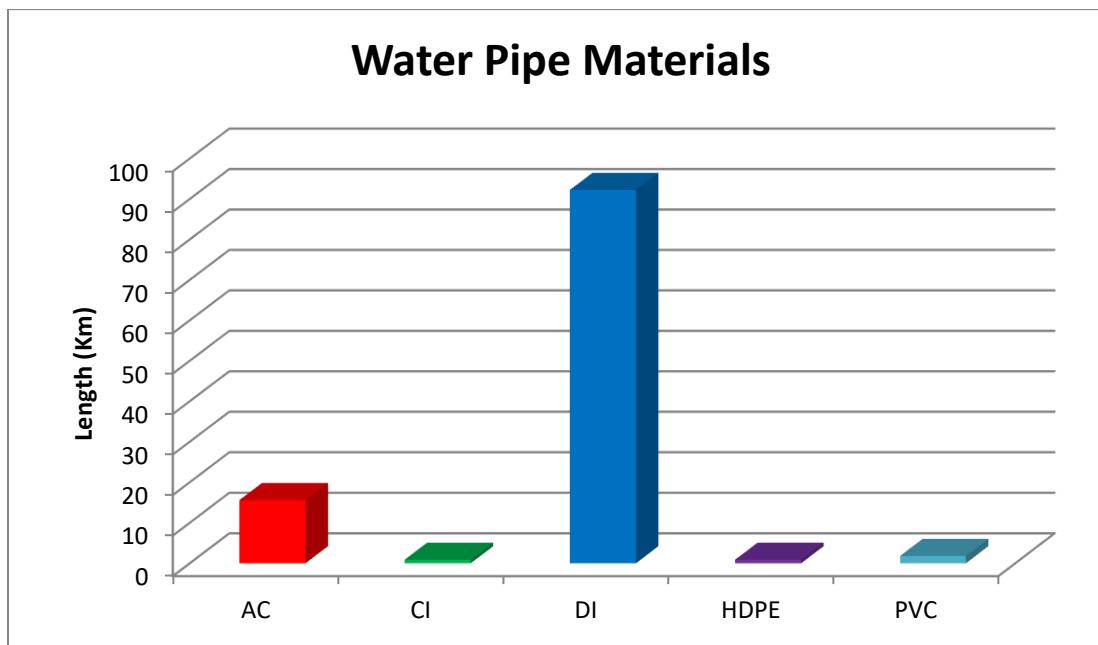
3.0 BACKGROUND

3.1 Regulating Authorities

PM holds a permit to operate its water distribution network from the FHA (Appendix 8) and adheres to the provisions of the Local Government Act. Water quality requirements are legislated by the *Drinking Water Protection Act (DWPA)* and *Drinking Water Protection Regulation (DWPR)*. The drinking water officer may also issue orders for non-compliance and or health concerns. The water distribution system has been classified by the EOCP as a Class II System.

3.2 Distribution System

PM's water distribution network is over 111 kilometers long and serves a population of approximately 18,500 residents.



Water Supply

The primary water supply source is the Coquitlam watershed. The Coquitlam source uses Ozone and U.V. as a pretreatment and chlorine as a secondary disinfectant. Water supply can also come from the Metro Vancouver's other watershed sources (Capilano & Seymour). The water arrives via Haney Mains 2 and 3. Water supplied by both Haney

Main 2 and 3 is re-chlorinated as a secondary disinfectant at the Pitt River Disinfection Station prior to arriving in the municipal water distribution system.

Maintenance

In a unidirectional fashion, using valve isolation, all water mains were effectively flushed. Dead end lines that are not looped received special attention and some received a second flushing in the fall. Sodium thiosulphate was used to ensure the absence of chlorine residual as the water being flushed was introduced into the environment. An automatic flush valve at the end of the long run on Rannie Road engages for 2 hours twice every day to ensure the presence of chlorine residual (PMS425). Rannie Road main was flushed with mechanical pigging to remove accumulating growth from pipe wall in 2019.

Unidirectional flushing has been revised further with the aid of computerized modeling and feedback from previous year's program to improve effectiveness.

All City owned backflow devices and assemblies were tested and repaired as required by a certified tester. Our cross connection control program ensures backflow protection devices are installed and tested annually at all high and moderate hazard locations.

All components of the six pressure regulating stations and the single booster station were maintained on a regular basis to ensure proper operation. This maintenance included the cleaning of inline and body strainers, function of Clayton valves and pressure relief valves, air valves.

All 482 fire hydrants owned by the City were fully maintained in 2019. The hydrants received a scheduled "A" or "B" service.

The City has 971 mainline and service valves in the distribution system that are exercised and maintained as necessary.

We currently have 3 level II and 3 level I Water Distribution Operators employed to maintain our system.

Repairs and Upgrades

Currently asbestos cement (AC) mains are being replaced by ductile iron mains (DI) on a yearly basis with all AC mains scheduled to be replaced by 2025. The following projects were completed in 2019:

- 446 m of AC Watermain was replaced with Ductile Iron on 194B St.
- 1004 m of AC Watermain was replaced with Ductile Iron on Sharpe Rd.
- 256 m of AC Watermain was replaced with Ductile Iron on Advent Rd.

4.0 WATER QUALITY SAMPLE SITES

The city has 9 sampling sites that are sampled weekly. Their locations and attributes are listed in table 1 and shown on a map in Appendix 1. All 9 sample sites are tested for physical parameters and 4 are tested for chemical in one distribution zone.

Table 1: Sample Location and Attributes

Sample Site	Location	Main Size (mm)	Normal Flow
DmPMS-421	12188 McMyn Ave	150 DI	Low
DmPMS-422	19817 Wildwood Place	150 DI	Low
DmPMS-423	12476 Wooldridge Road	250 DI	Medium
DmPMS-424	20217 McNeil Road	250 DI	Medium
DmPMS-425	16651 Rannie Road	150 DI	Low
DmPMS-426	13657 McKechnie Road	150 DI	Medium
DmPMS-427	120B Ave Opposite 18993	150 AC	Low
DmPMS-428	100 meters west of Old Dewdney Trunk Rd PRV	300 DI	Source
DmPMS-429	North West corner of Sutton and Bonson	300 DI	Low

Samples are taken every Tuesday morning by the city's Operations Department and are then picked up by the Metro Vancouver for testing. The detailed 2019 results are in Appendix 2.

4.1 Bacteriological Monitoring

Samples are analyzed for fecal coliform, total coliform and heterotrophic plate count (HPC). BCDWPR Microbiological Standards are listed in Table 2.

Table 2: BCDWPR Microbiological Standards

Parameter	Occurrence	Standard
Fecal Coliform	0	Less than 1 fecal coliform per 100 mL
Total Coliform	2	0 total coliform per 100 mL At least 90% of samples have 0 total coliform per 100 mL and no sample has more than 10 fecal coliform per 100 mL

Bacteriological Results

There were two samples that tested positive for coliform but a subsequent test at both sites tested negative, suggesting sample contamination. This is particularly likely for the failed sample at PMS428, a source water sample site. Appendix 4 illustrates the bacteriological requirements were met in 2019.

4.2 Chemical and Physical Monitoring

Monitoring of the City's distribution system is conducted by Metro Vancouver. Samples are screened for temperature, pH and turbidity. Monitoring of the source water and Metro Vancouver transmission system is conducted by the Metro Vancouver Water District (MVWD) and Metro Vancouver.

Temperature of water was generally acceptable, the only times that the water temperature was above the guideline was during the summer months. The excess temperatures range from 16 to 18 degrees Celsius. Temperature of water will affect the efficiency of water treatment processes. Low temperature decreases efficiency of treatment processes and high temperatures enhance the growth of nuisance organisms that could be detected by odor and taste.

Total Haloacetic Acid results account for the by-products of the disinfection process from chlorine break down when it reacts with natural occurring organisms and are within the allowable limits. Source water and Metro Vancouver improvement plans are determined by the MVWD and published in the *MVWD Quality Control Annual Report, 2019*. They are also in Appendix 6 and 7.

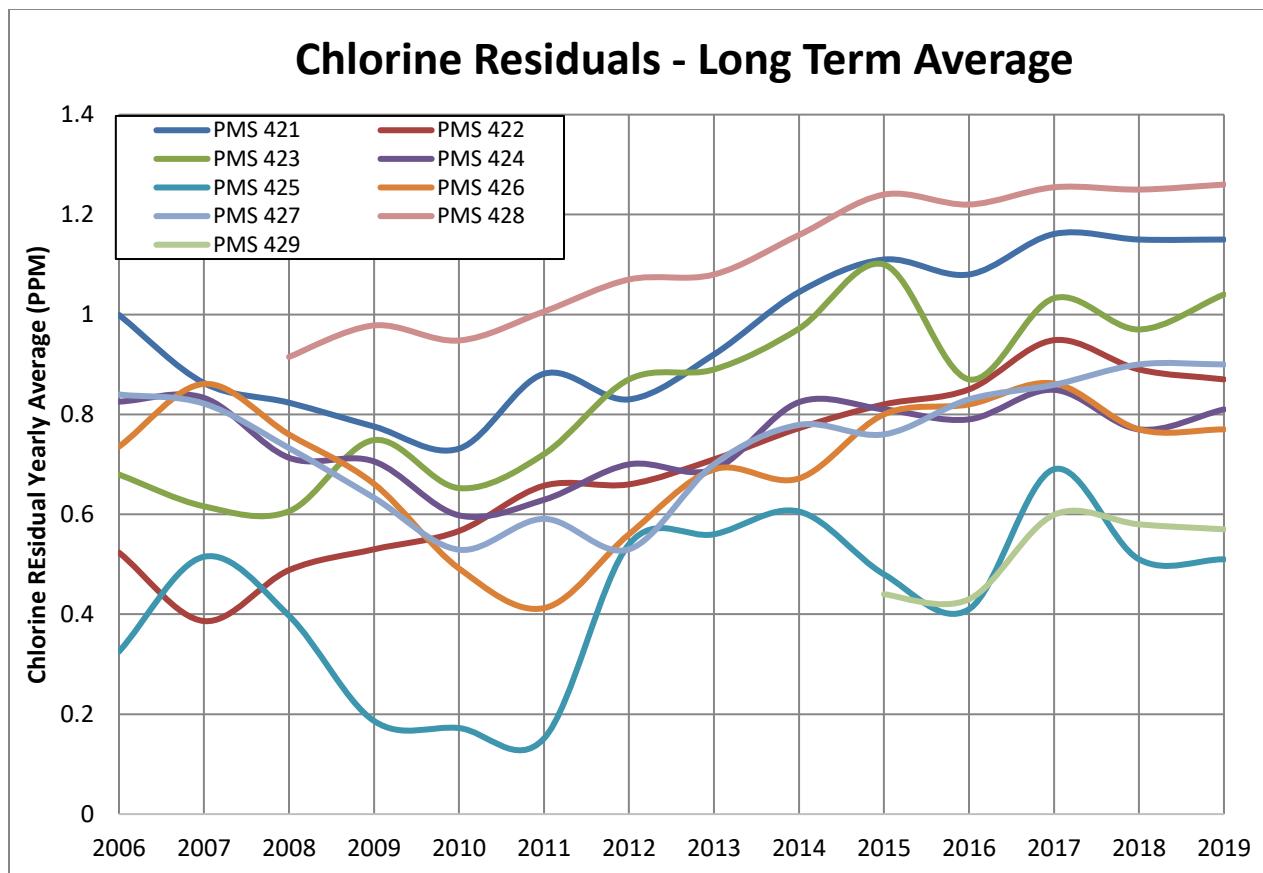
4.3 Chlorine Residual Levels

Table 4: Chlorine Levels at Each Sample Site in 2017

Sample Site	Number of Samples Taken	Number of Samples with <0.2ppm Chlorine Residual	Percent of Samples with <0.2ppm Chlorine Residual
DmPMS-421	51	0	0%
DmPMS-422	54	0	0%
DmPMS-423	49	0	0%
DmPMS-424	53	0	0%
DmPMS-425	53	5	9%
DmPMS-426	53	1	2%
DmPMS-427	53	0	0%
DmPMS-428	53	0	0%
DmPMS-429	53	0	0%

Chlorine Residual Improvement Plan

Chlorine Residuals have improved over the past several years due to significant improvements to our unidirectional flushing program. The following graph illustrates the long term yearly average chlorine Residuals in Pitt Meadows.



5.0 EMERGENCY RESPONSE PLAN

The City of Pitt Meadows *Water Response Plan* is a document that contains detailed information for all stakeholders in the event of an emergency related to the City's water distribution system.

The plan has been developed to ensure the safe and effective delivery of water is maintained and lessen the impacts of emergency situations.



6.0 WATER FLUSHING MESSAGE FROM FRASER HEALTH

A public health message from the Fraser Health Authority



Anytime the water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until you notice a change in temperature. (This could take as little as five to thirty seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer.) The more time water has been sitting in your home's pipes, the more lead it may contain.

Use only water from the cold-tap for drinking, cooking, and especially making baby formula. Hot water is likely to contain higher levels of lead.

The two actions recommended above are very important to the health of your family. They will probably be effective in reducing lead levels because most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

Conserving water is still important. Rather than just running the water down the drain you could use the water for things such as watering your plants.

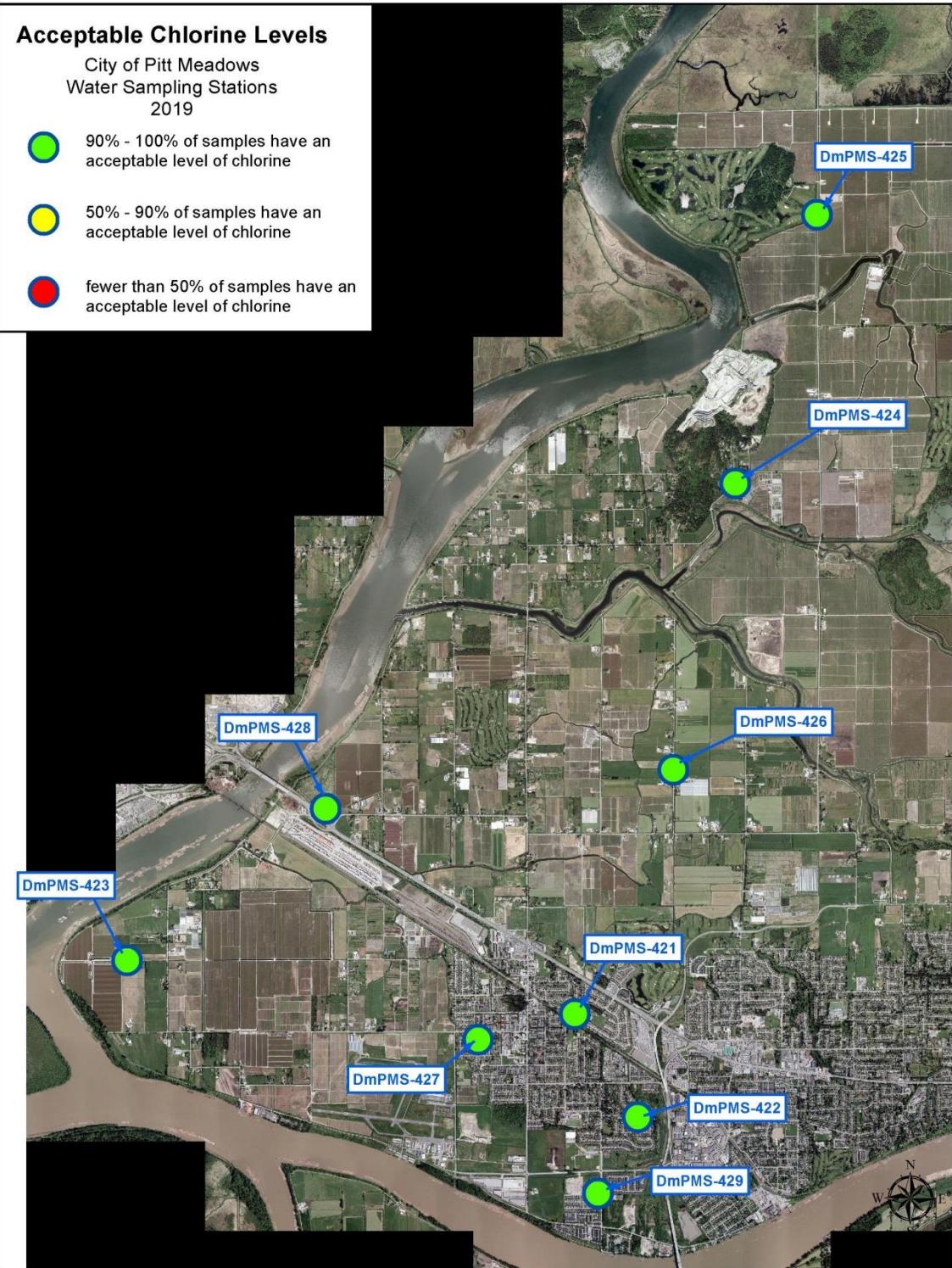
APPENDIX – I

ACCEPTABLE CHLORINE LEVELS AND SAMPLE SITE LOCATIONS

Acceptable Chlorine Levels

City of Pitt Meadows
Water Sampling Stations
2019

- 90% - 100% of samples have an acceptable level of chlorine
- 50% - 90% of samples have an acceptable level of chlorine
- fewer than 50% of samples have an acceptable level of chlorine



APPENDIX – 2

WEEKLY SAMPLE METRO VANCOUVER LAB RESULTS DMPMS 421 – 429

PMS-421

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mls	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 9:20	1.06	<1	6	5	<1	0.46
08/01/2019 8:58	1.07	<1	2	6	<1	0.36
15/01/2019 9:45	1.18	<1	<2	6	<1	0.37
22/01/2019 8:58	1.04	<1	2	5	<1	0.37
29/01/2019 9:00	1.08	<1	<2	5	<1	0.32
19/02/2019 11:10	1.08	<1	2	5	<1	0.35
26/02/2019 10:30	1.18	<1	<2	6	<1	0.32
05/03/2019 9:00	1.09	<1	4	5	<1	0.46
12/03/2019 9:01	1.09	<1	<2	5	<1	0.3
19/03/2019 11:04	1.18	<1	<2	6	<1	0.55
26/03/2019 8:58	1.18	<1	<2	6	<1	0.68
02/04/2019 10:30	1.19	<1	<2	7.5	<1	0.36
09/04/2019 10:46	1.5	<1	<2	8	<1	0.4
16/04/2019 9:10	1.17	<1	<2	8	<1	0.49
23/04/2019 9:00	1.14	<1	<2	8	<1	0.39
30/04/2019 9:20	1.07	<1	8	7	<1	0.37
07/05/2019 11:30	1.28	<1	16	9.5	<1	0.39
14/05/2019 9:23	1.12	<1	<2	9	<1	0.37
21/05/2019 8:56	1.15	<1	6	11	<1	0.33
28/05/2019 10:35	1.2	<1	34	10	<1	0.52
04/06/2019 9:00	1.15	<1	4	12	<1	0.31
11/06/2019 9:40	1.13	<1	8	13	<1	0.45
18/06/2019 9:40	1.16	<1	14	13	<1	0.33
25/06/2019 9:35	1.21	<1	18	13	<1	0.38
02/07/2019 9:40	1.17	<1	100	14	<1	0.21
09/07/2019 9:40	1.19	<1	20	13	<1	0.22
16/07/2019 9:10	1.22	<1	6	13	<1	0.31
23/07/2019 9:20	0.69	<1	42	13	<1	0.36
30/07/2019 9:00	1.18	<1	20	15	<1	0.24
06/08/2019 10:50	1	<1	38	14	<1	0.35
13/08/2019 10:40	0.93	<1	12	16	<1	0.31
20/08/2019 11:40	1.27	<1	14	16	<1	0.33
27/08/2019 10:10	1.14	<1	38	15	<1	0.37

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
03/09/2019 11:15	1.09	<1	10	17	<1	0.3
10/09/2019 9:30	1.09	<1	8	17	<1	0.27
17/09/2019 8:40	1.17	<1	12	15	<1	0.31
24/09/2019 9:15	1.01	<1	24	15	<1	0.47
01/10/2019 9:15	0.99	<1	14	14	<1	0.44
08/10/2019 9:15	1.15	<1	4	14	<1	0.47
15/10/2019 9:15	1.14	<1	2	13	<1	0.33
22/10/2019 8:53	1.13	<1	4	11	<1	0.29
29/10/2019 8:45	1.15	<1	12	11	<1	0.37
05/11/2019 9:40	1.16	<1	8	10	<1	0.24
12/11/2019 8:57	1.11	<1	2	9.5	<1	0.32
19/11/2019 8:51	1.28	<1	6	9.5	<1	0.46
26/11/2019 10:25	1.29	<1	6	9	<1	0.37
03/12/2019 10:30	1.47	<1	6	8	<1	0.44
10/12/2019 11:30	1.22	<1	4	9	<1	0.28
17/12/2019 9:35	1.07	<1	18	7	<1	0.3
23/12/2019 8:45	1.34	<1	NA	7	<1	0.33
31/12/2019 9:45	1.29	<1	NA	9	<1	0.45

PMS-422

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 8:55	0.79	<1	10	7	<1	0.42
08/01/2019 8:42	0.72	<1	4	7	<1	0.33
15/01/2019 10:45	0.84	<1	<2	7	<1	0.37
22/01/2019 8:41	0.79	<1	<2	7	<1	0.28
29/01/2019 8:45	0.89	<1	2	6.5	<1	0.3
05/02/2019 8:44	0.89	<1	<2	7	<1	0.4
12/02/2019 9:05	1.05	<1	<2	6	<1	0.46
19/02/2019 8:50	0.9	<1	<2	5	<1	0.42
26/02/2019 11:21	0.91	<1	4	5	<1	0.36
05/03/2019 8:43	0.89	<1	2	6	<1	0.37
12/03/2019 8:48	0.82	<1	<2	6	<1	0.29

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
19/03/2019 11:34	0.88	<1	<2	7	<1	0.4
26/03/2019 8:45	0.81	<1	10	9	<1	0.75
02/04/2019 9:35	0.83	<1	2	9	<1	0.42
09/04/2019 11:10	1.07	<1	<2	10	<1	0.31
16/04/2019 8:39	0.88	<1	2	9	<1	0.43
23/04/2019 8:44	0.91	<1	<2	10	<1	0.33
30/04/2019 8:52	0.86	<1	4	9	<1	0.3
07/05/2019 9:45	0.89	<1	<2	11	<1	0.36
14/05/2019 8:46	0.96	<1	14	12	<1	0.95
21/05/2019 8:42	0.89	<1	12	14	<1	0.25
28/05/2019 9:40	1.08	<1	<2	13	<1	0.37
04/06/2019 8:43	0.9	<1	<2	14	<1	0.31
11/06/2019 10:20	0.9	<1	2	14	<1	0.37
18/06/2019 10:20	0.91	<1	6	14	<1	0.3
25/06/2019 10:45	1.07	<1	2	15	<1	0.36
02/07/2019 10:20	0.95	<1	2	15	<1	0.24
09/07/2019 9:20	1.02	<1	4	15	<1	0.25
16/07/2019 8:47	1.02	<1	4	16	<1	0.26
23/07/2019 8:55	0.95	<1	2	14	<1	0.31
30/07/2019 9:15	1.06	<1	4	16	<1	0.23
06/08/2019 11:15	0.99	<1	28	15	<1	0.33
13/08/2019 10:20	1.04	<1	10	18	<1	0.32
20/08/2019 8:30	0.97	<1	10	17	<1	0.25
27/08/2019 9:02	0.86	<1	22	16	<1	0.29
03/09/2019 11:00	0.93	<1	8	18	2	0.26
04/09/2019 10:30	1.02	<1	<2	17	<1	0.27
10/09/2019 10:20	0.83	<1	4	18	<1	0.2
17/09/2019 9:15	0.76	<1	<2	16	<1	0.25
24/09/2019 10:20	0.69	<1	2	17	<1	0.41
01/10/2019 10:20	0.72	<1	<2	15	<1	0.41
08/10/2019 9:30	0.74	<1	4	15	<1	0.4
15/10/2019 9:50	0.81	<1	4	13	<1	0.28
22/10/2019 8:34	0.72	<1	4	12	<1	0.23
29/10/2019 11:00	0.72	<1	<2	11	<1	0.41

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
05/11/2019 10:20	0.69	<1	<2	11	<1	0.32
12/11/2019 8:40	0.79	<1	2	10	<1	0.24
19/11/2019 8:36	0.5	<1	6	10	<1	0.53
26/11/2019 9:45	0.76	<1	2	10	<1	0.37
03/12/2019 11:10	0.69	<1	40	9	<1	0.45
10/12/2019 9:45	0.88	<1	<2	9	<1	0.25
17/12/2019 8:55	0.75	<1	4	8	<1	0.27
23/12/2019 10:20	0.81	<1	NA	8	<1	0.32
31/12/2019 10:20	0.98	<1	NA	8	<1	0.28

PMS-423

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 11:29	0.98	<1	<2	5	<1	0.62
08/01/2019 9:36	1.01	<1	<2	7	<1	0.45
15/01/2019 9:00	1.08	<1	<2	5	<1	0.46
22/01/2019 9:40	0.99	<1	<2	6	<1	0.42
29/01/2019 9:39	1.12	<1	<2	6	<1	0.32
19/02/2019 9:25	1.08	<1	2	5	<1	0.34
12/03/2019 9:39	1.04	<1	2	5	<1	0.31
19/03/2019 8:35	0.92	<1	<2	6	<1	0.48
26/03/2019 9:37	0.89	<1	<2	6	<1	0.42
02/04/2019 8:45	1.28	<1	<2	7	<1	0.39
09/04/2019 9:50	1.25	<1	<2	8	<1	0.34
16/04/2019 11:15	1.07	<1	6	7	<1	0.93
23/04/2019 9:33	1.07	<1	6	8	<1	0.37
30/04/2019 11:20	1.02	<1	<2	8	<1	0.31
07/05/2019 8:45	0.91	<1	<2	9	<1	0.44
14/05/2019 9:45	1.04	<1	66	11	<1	0.3
21/05/2019 9:38	1.05	<1	2	10	<1	0.27
28/05/2019 8:40	0.94	<1	<2	11	<1	0.39
04/06/2019 9:40	1.1	<1	<2	11	<1	0.27
11/06/2019 8:50	0.96	<1	<2	12	<1	0.38

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
18/06/2019 8:40	1.01	<1	4	12	<1	0.36
25/06/2019 8:40	1.1	<1	<2	13	<1	0.34
02/07/2019 8:50	1.09	<1	<2	12	<1	0.21
09/07/2019 8:45	1.06	<1	<2	13	<1	0.26
16/07/2019 9:42	0.82	<1	30	16	<1	0.45
23/07/2019 11:20	0.73	<1	<2	15	<1	0.3
30/07/2019 8:40	0.7	<1	<2	16	<1	0.24
06/08/2019 8:45	0.96	<1	<2	14	<1	0.31
13/08/2019 8:35	1.06	<1	4	15	<1	0.26
20/08/2019 9:20	1.06	<1	<2	15	<1	0.27
27/08/2019 11:45	0.99	<1	4	15	<1	0.27
03/09/2019 8:30	1.01	<1	<2	16	<1	0.25
10/09/2019 8:40	1.05	<1	<2	16	<1	0.33
17/09/2019 9:35	0.99	<1	18	15	<1	0.26
24/09/2019 8:45	0.84	<1	<2	14	<1	0.49
01/10/2019 8:40	1	<1	6	13	<1	0.43
08/10/2019 8:40	1.1	<1	<2	13	<1	0.46
15/10/2019 8:45	1.15	<1	<2	12	<1	0.34
22/10/2019 9:23	1.08	<1	<2	11	<1	0.31
29/10/2019 10:30	1.12	<1	<2	10	<1	0.31
05/11/2019 8:50	1.12	<1	<2	10	<1	0.29
12/11/2019 9:27	1.09	<1	<2	10	<1	0.26
19/11/2019 9:30	1.01	<1	<2	9.5	<1	0.83
26/11/2019 8:50	1.06	<1	10	9	<1	0.41
03/12/2019 8:25	1	<1	8	7	<1	0.39
10/12/2019 8:50	1.13	<1	2	8	<1	0.28
17/12/2019 11:05	1.16	<1	<2	7	<1	0.36
23/12/2019 9:05	1.24	<1	NA	7	<1	0.81
31/12/2019 8:50	1.38	<1	NA	7	<1	0.28

PMS-424

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 10:38	0.65	<1	<2	6	<1	0.4
08/01/2019 11:15	0.83	<1	<2	7	<1	0.38
15/01/2019 11:20	0.68	<1	<2	7	<1	0.37
22/01/2019 11:18	0.76	<1	<2	7	<1	0.4
29/01/2019 11:20	0.77	<1	2	7	<1	0.37
05/02/2019 11:03	0.73	<1	<2	7	<1	0.28
12/02/2019 10:10	0.99	<1	<2	6	<1	0.59
19/02/2019 10:45	0.77	<1	<2	5	<1	0.34
26/02/2019 9:50	0.86	<1	<2	5	<1	0.22
05/03/2019 11:10	0.7	<1	<2	6	<1	0.27
12/03/2019 11:15	0.86	<1	<2	6	<1	0.25
19/03/2019 10:20	0.72	<1	<2	7	<1	0.35
26/03/2019 11:15	0.84	<1	<2	8	<1	0.59
02/04/2019 11:15	0.84	<1	4	7	<1	0.31
09/04/2019 8:51	0.95	<1	<2	8	<1	0.36
16/04/2019 10:20	0.75	<1	<2	7	<1	0.48
23/04/2019 11:20	0.79	<1	<2	9	<1	0.41
30/04/2019 10:34	0.78	<1	<2	7	<1	0.31
07/05/2019 11:10	0.99	<1	4	10	<1	0.38
14/05/2019 11:27	0.96	<1	<2	10	<1	0.27
21/05/2019 11:17	0.87	<1	<2	12	<1	0.29
28/05/2019 11:25	0.87	<1	<2	11	<1	0.3
04/06/2019 11:15	0.98	<1	<2	11	<1	0.47
11/06/2019 11:20	0.86	<1	4	13	<1	0.33
18/06/2019 11:10	0.95	<1	<2	12	<1	0.29
25/06/2019 11:30	1.05	<1	2	13	<1	0.65
02/07/2019 11:05	0.87	<1	<2	13	<1	0.23
09/07/2019 11:30	1.01	<1	<2	14	<1	0.21
16/07/2019 11:17	1.04	<1	<2	13	<1	0.36
23/07/2019 10:38	0.74	<1	2	13	<1	0.26
30/07/2019 11:00	0.95	<1	<2	14	<1	0.23
06/08/2019 10:20	1.01	<1	4	14	<1	0.34
13/08/2019 9:25	1	<1	370	15	<1	0.31

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
20/08/2019 10:40	1.11	<1	4	15	<1	0.24
27/08/2019 11:10	0.92	<1	8	17	<1	0.24
03/09/2019 9:40	1.06	<1	2	15	<1	0.28
10/09/2019 10:40	0.99	<1	<2	17	<1	0.19
17/09/2019 11:35	0.82	<1	2	16	<1	0.32
24/09/2019 11:30	0.97	<1	2	15	<1	0.41
01/10/2019 11:10	0.83	<1	4	15	<1	0.46
08/10/2019 11:05	0.78	<1	<2	14	<1	0.35
15/10/2019 10:55	0.77	<1	<2	13	<1	0.38
22/10/2019 11:10	0.47	<1	2	12	<1	0.22
29/10/2019 9:40	0.71	<1	<2	10	<1	0.34
05/11/2019 11:10	0.68	<1	<2	11	<1	0.28
12/11/2019 11:17	0.6	<1	<2	11	<1	0.22
19/11/2019 11:20	0.32	<1	2	10	<1	0.56
26/11/2019 11:05	0.82	<1	<2	10	<1	0.47
03/12/2019 10:20	0.72	<1	<2	9	<1	0.31
10/12/2019 10:45	0.5	<1	2	9	<1	0.22
17/12/2019 10:35	0.47	<1	<2	8	<1	0.33
23/12/2019 11:15	0.7	<1	NA	8	<1	0.41
31/12/2019 11:00	0.73	<1	NA	8	<1	0.45

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Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 10:10	0.22	<1	<2	7	<1	0.44
08/01/2019 11:00	0.38	<1	4	8	<1	0.45
15/01/2019 11:40	0.3	<1	6	7.5	<1	0.44
22/01/2019 11:01	0.36	<1	<2	8	<1	0.32
29/01/2019 11:00	0.25	<1	12	7	<1	0.26
05/02/2019 10:51	0.29	<1	10	7	<1	0.29
12/02/2019 9:50	0.63	<1	2	7	<1	0.66
19/02/2019 10:30	0.53	<1	<2	6	<1	0.32
26/02/2019 9:32	0.57	<1	6	5	<1	0.25

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
05/03/2019 10:58	0.55	<1	<2	6	<1	0.32
12/03/2019 11:00	0.56	<1	<2	6	<1	0.27
19/03/2019 9:43	0.62	<1	<2	7	<1	0.35
26/03/2019 11:00	0.72	<1	<2	8	<1	0.52
02/04/2019 11:30	0.68	<1	<2	8	<1	0.36
09/04/2019 8:40	0.81	<1	4	8	<1	0.33
16/04/2019 10:00	0.52	<1	14	8	<1	0.67
23/04/2019 11:05	0.74	<1	2	9	<1	0.61
30/04/2019 10:00	0.66	<1	2	10	<1	0.33
07/05/2019 10:55	0.71	<1	8	11	<1	0.44
14/05/2019 11:03	0.7	<1	<2	11	<1	0.23
21/05/2019 11:05	0.67	<1	<2	12	<1	0.28
28/05/2019 11:00	0.62	<1	4	12	<1	0.51
04/06/2019 11:03	0.73	<1	4	13	<1	0.31
11/06/2019 11:00	0.62	<1	2	14	<1	0.42
18/06/2019 10:50	0.74	<1	4	14	<1	0.3
25/06/2019 11:15	0.84	<1	<2	14	<1	0.53
02/07/2019 11:30	0.76	<1	<2	15	<1	0.38
09/07/2019 11:15	0.7	<1	<2	15	<1	0.42
16/07/2019 10:57	0.76	<1	<2	14	<1	0.33
23/07/2019 10:10	0.56	<1	<2	14	<1	0.31
30/07/2019 11:15	0.83	<1	<2	15	<1	0.22
06/08/2019 9:49	0.75	<1	<2	15	<1	0.31
13/08/2019 9:10	0.84	<1	<2	16	<1	0.23
20/08/2019 10:25	0.71	<1	2	16	<1	0.23
27/08/2019 11:00	0.55	<1	2	16	<1	0.33
03/09/2019 9:20	0.53	<1	4	17	<1	0.33
10/09/2019 10:55	0.6	<1	<2	18	<1	0.21
17/09/2019 11:15	0.3	<1	6	16	<1	0.37
24/09/2019 11:15	0.66	<1	<2	16	<1	0.53
01/10/2019 10:50	0.37	<1	<2	15	<1	0.42
08/10/2019 10:45	0.36	<1	4	15	<1	0.54
15/10/2019 10:35	0.3	<1	6	15	<1	0.31
22/10/2019 10:45	0.27	<1	<2	13	<1	0.25

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
29/10/2019 9:25	0.32	<1	2	12	<1	0.4
05/11/2019 10:55	0.18	<1	2	13	<1	0.39
12/11/2019 10:55	0.21	<1	4	12	<1	0.25
19/11/2019 11:00	0.07	<1	2	11	<1	0.57
26/11/2019 10:50	0.26	<1	<2	11	<1	0.67
03/12/2019 9:42	0.32	<1	<2	9	<1	0.28
10/12/2019 10:30	0.18	<1	<2	9	<1	0.24
17/12/2019 10:15	0.12	<1	<2	9	<1	0.35
23/12/2019 10:50	0.17	<1	NA	9	<1	0.3
31/12/2019 10:45	0.45	<1	NA	9	<1	0.3

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Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 9:40	0.69	<1	4	7	<1	0.31
08/01/2019 10:41	0.75	<1	<2	8	<1	0.43
15/01/2019 11:00	0.74	<1	6	7	<1	0.34
22/01/2019 10:47	0.8	<1	2	7	<1	0.36
29/01/2019 10:43	0.82	<1	<2	7	<1	0.32
05/02/2019 10:35	0.78	<1	<2	7	<1	0.34
12/02/2019 9:30	1.12	<1	<2	5	<1	0.47
19/02/2019 10:10	0.84	<1	<2	5	<1	0.33
26/02/2019 9:00	0.92	<1	<2	5	<1	0.27
05/03/2019 10:41	0.89	<1	<2	6	<1	0.3
12/03/2019 10:40	0.99	<1	<2	6	<1	0.39
19/03/2019 9:17	0.86	<1	<2	7	<1	0.4
26/03/2019 10:39	0.86	<1	4	8	<1	0.49
02/04/2019 10:50	0.85	<1	<2	9	<1	0.29
09/04/2019 9:08	1.09	<1	4	9	<1	0.31
16/04/2019 9:34	0.38	<1	2	9	<1	0.49
23/04/2019 10:45	0.96	<1	2	9	<1	0.38
30/04/2019 9:41	0.75	<1	8	10	<1	0.36
07/05/2019 10:30	0.72	<1	<2	11.5	<1	0.44

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
14/05/2019 10:43	0.95	<1	<2	12	<1	0.3
21/05/2019 10:42	0.3	<1	6	14	<1	0.29
28/05/2019 9:20	0.87	<1	4	13	<1	0.44
04/06/2019 10:45	0.57	<1	2	15	<1	0.26
11/06/2019 9:25	0.84	<1	<2	15	<1	0.43
18/06/2019 9:15	0.98	<1	6	15	<1	0.45
25/06/2019 9:15	1.11	<1	<2	14	<1	0.65
02/07/2019 9:20	0.96	<1	<2	15	<1	0.25
09/07/2019 10:50	0.75	<1	2	16	<1	0.22
16/07/2019 10:40	0.73	<1	2	16	<1	0.34
23/07/2019 9:38	0.72	<1	4	15	<1	0.35
30/07/2019 11:30	0.87	<1	<2	16	<1	0.32
06/08/2019 10:35	0.78	<1	8	15	<1	0.31
13/08/2019 9:45	0.98	<1	8	17	<1	0.33
20/08/2019 11:26	0.66	<1	16	17	<1	0.28
27/08/2019 10:45	0.79	<1	8	17	<1	0.37
03/09/2019 9:00	0.37	<1	2	18	<1	0.28
10/09/2019 11:25	0.7	<1	2	19	<1	0.3
17/09/2019 10:50	0.81	<1	2	16	<1	0.36
24/09/2019 10:45	0.68	<1	<2	15	<1	0.54
01/10/2019 11:30	0.8	<1	<2	14	<1	0.41
08/10/2019 11:30	0.64	<1	2	15	<1	0.4
15/10/2019 11:20	0.87	<1	<2	13	<1	0.3
22/10/2019 10:25	0.65	<1	6	12	<1	0.29
29/10/2019 9:10	0.71	<1	2	12	<1	0.27
05/11/2019 11:35	0.65	<1	<2	11	<1	0.3
12/11/2019 10:37	0.75	<1	<2	11	<1	0.25
19/11/2019 10:42	0.65	<1	<2	10	<1	0.48
26/11/2019 11:25	0.87	<1	2	10	<1	0.38
03/12/2019 9:15	0.92	<1	2	7	<1	0.41
10/12/2019 11:15	0.77	<1	4	8	<1	0.25
17/12/2019 9:50	0.68	<1	2	8	<1	0.32
23/12/2019 11:30	0.49	<1	NA	8	<1	0.85
31/12/2019 11:20	0.12	<1	NA	9	<1	0.34

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Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 11:55	0.89	<1	<2	6	<1	0.38
08/01/2019 9:16	0.94	<1	<2	7	<1	0.36
15/01/2019 10:20	0.94	<1	<2	6	<1	0.42
22/01/2019 9:23	0.96	<1	<2	6	<1	0.34
29/01/2019 9:17	0.93	<1	<2	6	<1	0.26
05/02/2019 9:18	0.62	<1	2	6	<1	0.37
12/02/2019 11:05	1.15	<1	<2	6	<1	0.67
19/02/2019 9:05	0.88	<1	2	5	<1	0.35
26/02/2019 10:50	1.07	<1	<2	5	<1	0.32
05/03/2019 9:13	0.82	<1	2	5	<1	0.35
12/03/2019 9:16	0.99	<1	4	6	<1	0.28
19/03/2019 10:35	0.89	<1	4	6	<1	0.41
26/03/2019 9:16	0.9	<1	<2	7	<1	0.42
02/04/2019 9:15	1.01	<1	<2	6	<1	0.36
09/04/2019 10:36	0.95	<1	2	8	<1	0.33
16/04/2019 11:30	1.07	<1	2	7	<1	0.78
23/04/2019 9:13	0.97	<1	2	9	<1	0.4
30/04/2019 11:42	1.02	<1	<2	7	<1	0.35
07/05/2019 9:25	0.95	<1	<2	10	<1	0.33
14/05/2019 9:32	1.03	<1	<2	10	<1	0.31
21/05/2019 9:12	1	<1	<2	11	<1	0.3
28/05/2019 10:20	1.08	<1	<2	10	<1	0.65
04/06/2019 9:18	1	<1	4	11	<1	0.37
11/06/2019 10:35	0.89	<1	12	12	<1	0.4
18/06/2019 11:30	0.86	<1	4	13	<1	0.53
25/06/2019 10:20	0.96	<1	6	13	<1	0.31
02/07/2019 10:40	0.96	<1	<2	13	<1	0.24
09/07/2019 9:00	0.96	<1	<2	13	<1	0.27
16/07/2019 9:23	0.92	<1	4	14	<1	0.29
23/07/2019 11:45	0.98	<1	52	14	<1	0.36
30/07/2019 9:30	0.99	<1	<2	14	<1	0.33
06/08/2019 11:30	0.91	<1	14	15	<1	0.3
13/08/2019 11:00	0.8	<1	2	16	<1	0.31

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
20/08/2019 9:00	0.96	<1	<2	15	<1	0.25
27/08/2019 9:25	0.92	<1	8	15	<1	0.25
03/09/2019 11:30	0.86	<1	6	17	<1	0.32
10/09/2019 9:15	1.06	<1	<2	17	<1	0.22
17/09/2019 8:55	0.83	<1	22	16	<1	0.29
24/09/2019 9:35	0.75	<1	4	16	<1	0.4
01/10/2019 9:35	1.18	<1	6	14	<1	0.46
08/10/2019 10:20	0.8	<1	<2	15	<1	0.41
15/10/2019 9:00	0.81	<1	<2	13	<1	0.29
22/10/2019 9:05	0.6	<1	<2	12	<1	0.27
29/10/2019 10:45	0.84	<1	<2	11	<1	0.33
05/11/2019 9:25	0.78	<1	4	11	<1	0.33
12/11/2019 9:13	0.47	<1	6	11	<1	0.22
19/11/2019 9:10	0.64	<1	6	10	<1	0.97
26/11/2019 9:30	0.55	<1	6	10	<1	0.42
03/12/2019 11:00	0.83	<1	2	8	<1	0.42
10/12/2019 9:30	0.89	<1	<2	8	<1	0.24
17/12/2019 9:10	0.72	<1	<2	7	<1	0.37
23/12/2019 9:40	1.02	<1	NA	8	<1	0.39
31/12/2019 9:10	0.91	<1	NA	8	<1	0.28

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Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 11:07	1.13	<1	<2	5	<1	0.58
08/01/2019 9:58	1.2	<1	<2	5	<1	0.48
15/01/2019 9:25	1.28	<1	2	5	<1	0.37
22/01/2019 9:55	1.29	<1	2	5	<1	0.36
29/01/2019 9:38	1.25	<1	<2	5	<1	0.29
05/02/2019 9:47	1.22	<1	<2	5	<1	0.41
12/02/2019 10:30	1.21	<1	LA	5	<1	0.61
19/02/2019 9:45	1.3	<1	<2	4	<1	0.36
26/02/2019 8:40	1.36	<1	<2	5	<1	0.32

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
05/03/2019 9:55	1.34	<1	<2	4	<1	0.36
12/03/2019 9:57	1.23	<1	<2	4	<1	0.36
19/03/2019 8:52	1.18	<1	<2	6	<1	0.53
26/03/2019 9:52	1.27	<1	<2	5	<1	0.39
02/04/2019 9:00	1.27	<1	<2	7	<1	0.37
09/04/2019 9:25	1.41	<1	<2	7	<1	0.42
16/04/2019 11:00	1.22	<1	<2	7	<1	0.5
23/04/2019 9:48	1.3	<1	<2	8	<1	0.44
30/04/2019 10:49	1.2	<1	<2	7	<1	0.33
07/05/2019 9:05	1.31	<1	<2	9	<1	0.44
14/05/2019 9:57	1.28	<1	<2	8	<1	0.33
21/05/2019 9:55	1.41	<1	<2	9	<1	0.46
28/05/2019 8:55	1.12	<1	<2	9	<1	0.41
04/06/2019 10:00	1.3	<1	<2	11	<1	0.42
11/06/2019 9:10	1.25	<1	<2	13	<1	0.46
18/06/2019 9:00	1.26	<1	<2	13	<1	0.37
25/06/2019 8:55	1.31	<1	<2	12	<1	0.33
02/07/2019 9:00	1.21	<1	<2	13	<1	0.33
09/07/2019 10:30	1.21	<1	<2	14	<1	0.25
16/07/2019 9:58	1.4	<1	<2	13	<1	0.33
23/07/2019 11:10	1.11	<1	2	13	<1	0.3
30/07/2019 10:30	1.32	<1	<2	14	<1	0.35
06/08/2019 9:15	1.28	<1	<2	14	<1	0.32
13/08/2019 8:55	0.9	<1	<2	15	<1	0.27
20/08/2019 9:45	1.19	<1	<2	15	<1	0.35
27/08/2019 11:30	1.39	<1	2	15	<1	0.3
03/09/2019 8:50	1.41	<1	<2	16	<1	0.31
10/09/2019 8:55	1.29	<1	<2	17	<1	0.3
17/09/2019 10:30	1.29	<1	<2	15	<1	0.3
24/09/2019 9:00	1.26	<1	<2	15	<1	0.52
01/10/2019 8:55	1.23	<1	2	13	9	0.44
08/10/2019 8:55	1.25	<1	<2	13	<1	0.41
15/10/2019 8:30	1.23	<1	<2	12	<1	0.39
22/10/2019 9:52	1.31	<1	<2	11	<1	0.3

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
29/10/2019 10:05	1.29	<1	<2	10	<1	0.31
05/11/2019 9:10	1.41	<1	<2	10	<1	0.27
12/11/2019 9:50	1.08	<1	<2	9	<1	0.25
20/11/2019 8:55	1.55	<1	<2	9	<1	0.29
26/11/2019 9:10	1.28	<1	<2	9	<1	0.39
03/12/2019 8:50	1.09	<1	<2	7	<1	0.39
10/12/2019 9:10	1.18	<1	<2	8	<1	0.24
17/12/2019 10:50	1.15	<1	<2	7	<1	0.36
23/12/2019 9:20	1.52	<1	NA	7	<1	0.37
31/12/2019 9:10	1.27	<1	NA	8	<1	0.28

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Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
02/01/2019 8:31	0.56	<1	<2	7	<1	0.53
08/01/2019 8:29	0.76	<1	4	8	<1	0.32
15/01/2019 8:30	0.48	<1	4	7	<1	0.42
22/01/2019 8:24	0.61	<1	<2	7	<1	0.46
29/01/2019 8:30	0.57	<1	14	7	<1	0.29
05/02/2019 11:32	0.64	<1	<2	7	<1	0.38
12/02/2019 8:45	0.77	<1	<2	7	<1	1
19/02/2019 8:30	0.64	<1	8	6	<1	0.33
26/02/2019 11:05	0.65	<1	<2	5	<1	0.23
05/03/2019 8:30	0.66	<1	32	6	<1	0.26
12/03/2019 8:30	0.62	<1	2	6	<1	0.3
19/03/2019 11:20	0.65	<1	<2	7	<1	0.33
26/03/2019 8:30	0.66	<1	<2	8	<1	0.37
02/04/2019 8:25	0.64	<1	<2	8	<1	0.3
09/04/2019 11:23	0.81	<1	<2	9	<1	0.33
16/04/2019 8:17	0.52	<1	<2	9	<1	0.36
23/04/2019 8:28	0.61	<1	<2	10	<1	0.27
30/04/2019 8:24	0.69	<1	<2	10	<1	0.27
07/05/2019 8:25	0.72	<1	<2	11	<1	0.5

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
14/05/2019 8:30	0.67	<1	<2	12	<1	0.24
21/05/2019 8:30	0.47	<1	6	14	<1	0.26
28/05/2019 8:20	0.72	<1	<2	12	<1	0.41
04/06/2019 8:32	0.52	<1	<2	14	<1	0.28
11/06/2019 8:35	0.65	<1	2	13	<1	0.29
18/06/2019 8:20	0.76	<1	4	14	<1	0.44
25/06/2019 8:20	0.59	<1	<2	15	<1	0.25
02/07/2019 8:30	0.64	<1	<2	14	<1	0.39
09/07/2019 8:20	0.59	<1	2	15	<1	0.34
16/07/2019 8:30	0.8	<1	44	15	<1	0.32
23/07/2019 8:30	0.8	<1	14	14	<1	0.33
30/07/2019 8:20	0.71	<1	<2	15	<1	0.24
06/08/2019 8:20	0.84	<1	32	16	<1	0.26
13/08/2019 8:15	0.64	<1	<2	17	<1	0.2
20/08/2019 8:25	0.65	<1	<2	17	<1	0.21
27/08/2019 8:27	0.69	<1	12	16	<1	0.26
03/09/2019 10:45	0.66	<1	2	17	<1	0.33
10/09/2019 8:20	0.42	<1	<2	18	<1	0.2
17/09/2019 8:25	0.29	<1	2	17	<1	0.29
24/09/2019 8:25	0.44	<1	6	17	<1	0.37
01/10/2019 8:25	0.43	<1	2	16	<1	0.35
08/10/2019 8:20	0.33	<1	6	15	<1	0.41
15/10/2019 9:35	0.45	<1	2	14	<1	0.32
22/10/2019 8:23	0.35	<1	<2	13	<1	0.25
29/10/2019 11:20	0.38	<1	<2	13	<1	0.27
05/11/2019 8:30	0.47	<1	<2	12	<1	0.25
12/11/2019 8:27	0.39	<1	2	11	<1	0.25
20/11/2019 8:30	0.4	<1	6	11	<1	0.53
26/11/2019 8:30	0.2	<1	2	10	<1	0.31
03/12/2019 11:25	0.45	<1	8	9	<1	0.48
10/12/2019 8:30	0.41	<1	<2	9	<1	0.38
17/12/2019 8:40	0.4	<1	8	9	<1	0.32
23/12/2019 8:30	0.55	<1	NA	9	<1	0.32
31/12/2019 8:20	0.54	<1	NA	9	<1	0.63

APPENDIX – 3

QUARTERLY METALS ANALYSIS RESULTS FROM METRO VANCOUVER LAB

Chemical Analysis

Sample	Date Sampled	THM (ppb)						Total THM Quarterly Average	HAA (ppb)						Total HAA Quarterly Average
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Dibromoacetic Acid		Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid		
PMS-422	07/08/2018	<1	<1	<1	26	27	<0.5	13	<1	<2	13.2	29.2			
PMS-422	20/11/2018	<1	<1	<1	43	44	<0.5	26	<1	3	34.1	62.6			
PMS-422	20/02/2019	<1	<1	<1	30	31	34	<0.5	12	<1	<2	14.7	28	40	
PMS-422	14/05/2019	<1	<1	<1	27	29	33	<0.5	17	<1	<2	18.7	38.1	39	
PMS-422	20/08/2019	1	<1	<1	26	28	33	<0.5	13	<1	<2	14.2	28.1	39	
PMS-422	05/12/2019	<1	<1	<1	45	47	34	<0.5	14	<1	<2	23.8	38.1	33	
PMS-424	07/08/2018	<1	<1	<1	26	27	<0.5	13	<1	<2	12.1	27.9			
PMS-424	20/11/2018	<1	<1	<1	63	64	<0.5	32	<1	3	45	80.2			
PMS-424	20/02/2019	<1	<1	<1	36	37	43	<0.5	13	<1	<2	18.2	33.7	47	
PMS-424	14/05/2019	<1	<1	<1	30	32	40	<0.5	20	<1	2	25.1	48.1	47	
PMS-424	20/08/2019	1	<1	<1	26	28	40	<0.5	12	<1	<2	11.9	24	47	
PMS-424	05/12/2019	1	<1	<1	54	55	38	<0.5	16	<1	<2	25.4	42.4	37	
PMS-425	07/08/2018	1	<1	<1	30	31	<0.5	13	<1	2	13.8	30.5			
PMS-425	20/11/2018	1	<1	<1	89	90	<0.5	26	<1	2	37.5	65.6			
PMS-425	20/02/2019	<1	<1	<1	44	45	55	<0.5	13	<1	2	24.9	40.3	45	
PMS-425	14/05/2019	1	<1	<1	40	42	52	<0.5	17	<1	2	25.7	45.8	46	
PMS-425	20/08/2019	1	<1	<1	37	39	54	<0.5	12	<1	<2	17.7	30.6	46	
PMS-425	05/12/2019	1	<1	<1	65	66	48	<0.5	11	<1	<2	27.9	39.5	39	

Metal Analysis - Spring

	Sample Description	PMS-421	PMS-426		
		12192 McMynn Ave.	McKechnie Road	Canadian Guideline Limit	Reason Guideline Established
	Sample Date	30/04/2019 9:21	30/04/2019 9:41		
Aluminum Total	µg/L	90	94	200	aesthetic
Antimony Total	µg/L	<0.5	<0.5	6	health
Arsenic Total	µg/L	<0.5	<0.5	10	health
Barium Total	µg/L	2.2	2.4	1000	health
Boron Total	µg/L	<10	<10	5000	health
Cadmium Total	µg/L	<0.2	<0.2	5	health
Calcium Total	µg/L	918	1280	none	
Chromium Total	µg/L	0.05	0.06	50	health
Cobalt Total	µg/L	<0.5	<0.5	none	
Copper Total	µg/L	6.8	0.8	≤1000	aesthetic
Iron Total	µg/L	58	61	≤ 300	aesthetic
Lead Total	µg/L	<0.5	<0.5	10	health
Magnesium Total	µg/L	91	88	none	
Manganese Total	µg/L	3.1	3.2	≤ 50	aesthetic
Mercury Total	µg/L	<0.05	<0.05	1.0	health
Molybdenum Total	µg/L	<0.5	<0.5	none	
Nickel Total	µg/L	<0.5	<0.5	none	
Potassium Total	µg/L	106	109	none	
Selenium Total	µg/L	<0.5	<0.5	50	health
Silver Total	µg/L	<0.5	<0.5	none	
Sodium Total	µg/L	5450	5700	≤ 200,000	aesthetic
Zinc Total	µg/L	<3.0	<3.0	≤ 5000	aesthetic

Metal Analysis - Fall

	Sample Description	PMS-421	PMS-426		
		12192 McMynn Ave.	McKechnie Road	Canadian Guideline Limit	Reason Guideline Established
	Sample Date	2019-12-10 11:30	2019-12-10 11:15		
Aluminum Total	µg/L	81	84	200	aesthetic
Antimony Total	µg/L	<0.5	<0.5	6	health
Arsenic Total	µg/L	<0.5	<0.5	10	health
Barium Total	µg/L	2.3	2.6	1000	health
Boron Total	µg/L	<10	<10	5000	health
Cadmium Total	µg/L	<0.2	<0.2	5	health
Calcium Total	µg/L	989	1450	none	
Chromium Total	µg/L	<0.05	<0.05	50	health
Cobalt Total	µg/L	<0.5	<0.5	none	
Copper Total	µg/L	9.3	1	≤1000	aesthetic
Iron Total	µg/L	41	41	≤ 300	aesthetic
Lead Total	µg/L	<0.5	<0.5	10	health
Magnesium Total	µg/L	97	94	none	
Manganese Total	µg/L	1.8	1.1	≤ 50	aesthetic
Mercury Total	µg/L	<0.05	<0.05	1.0	health
Molybdenum Total	µg/L	<0.5	<0.5	none	
Nickel Total	µg/L	<0.5	<0.5	none	
Potassium Total	µg/L	115	119	none	
Selenium Total	µg/L	<0.5	<0.5	50	health
Silver Total	µg/L	<0.5	<0.5	none	
Sodium Total	µg/L	5500	5360	≤ 200,000	aesthetic
Zinc Total	µg/L	3.3	<3.0	≤ 5000	aesthetic

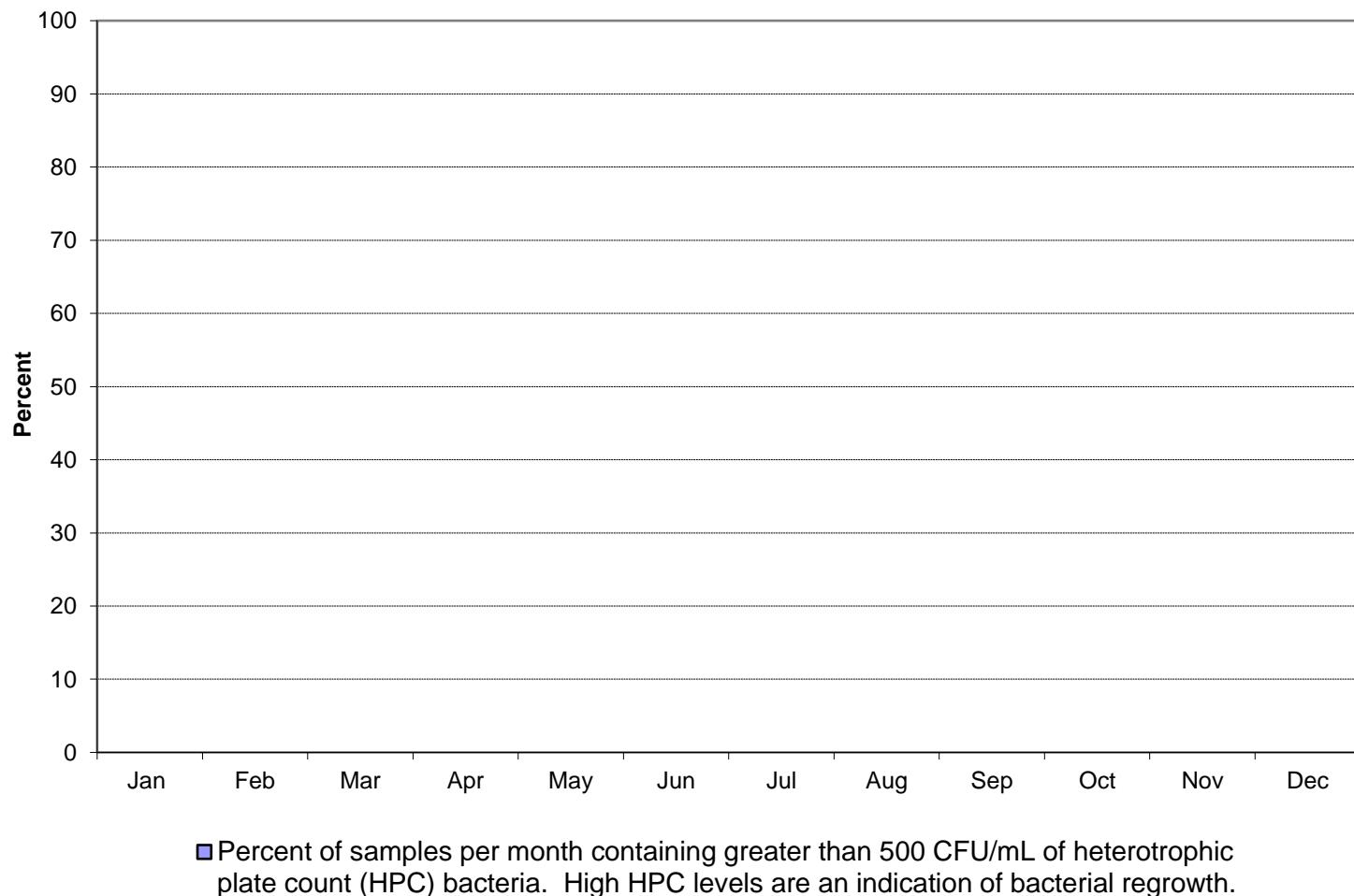
Vinyl Chloride Analysis

Sample Site Number	Sample Reported Name	Sampled date	Vinyl Chloride ppb
PMS-1	Pitt Meadows Sampling Point (PMS-1)	11-Jun-19	<0.00040
PMS-I	Pitt Meadows Sampling Point (PMS-I)	26-Nov-19	<0.00040

APPENDIX – 4

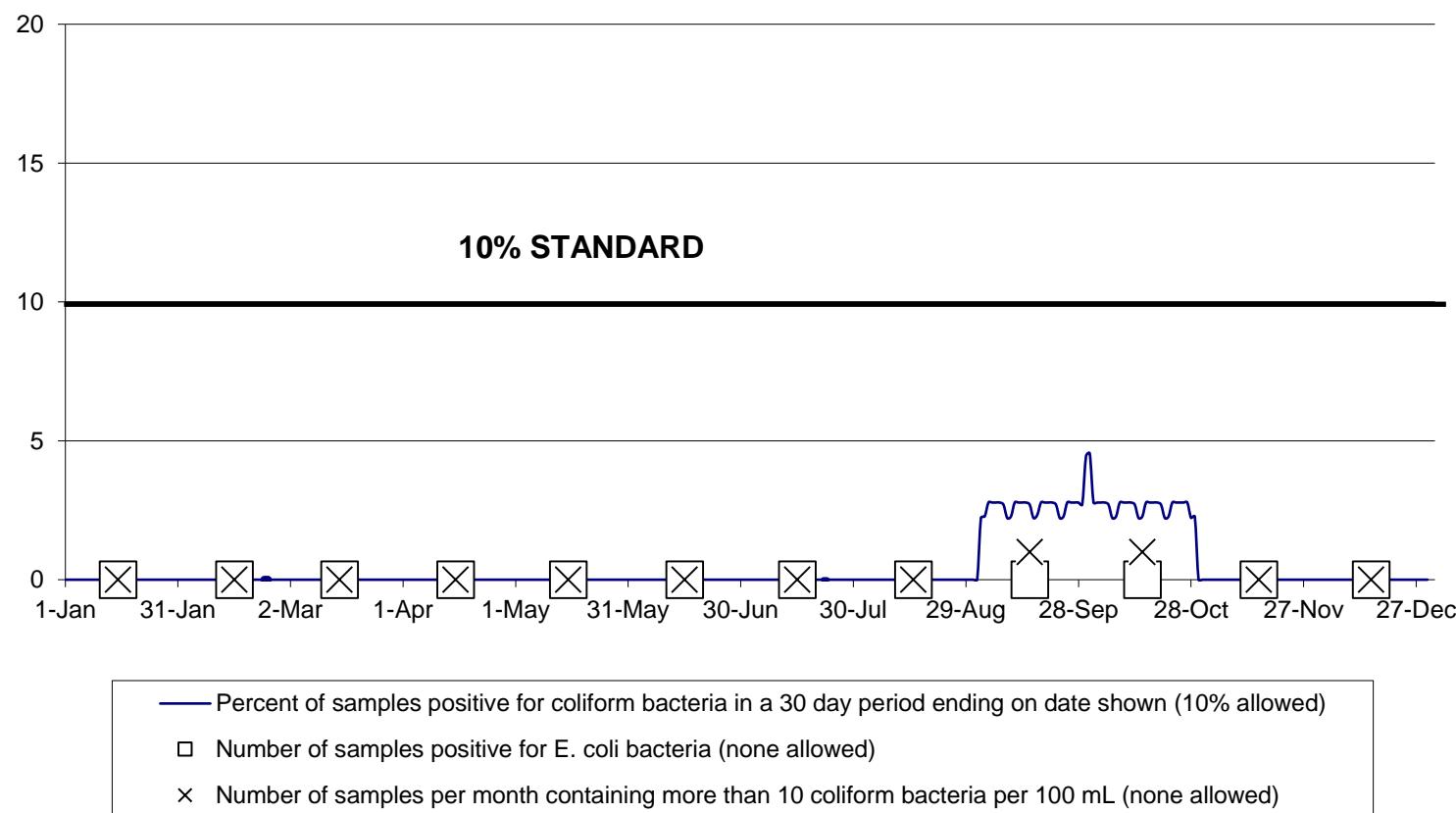
BACTERIOLOGICAL ANALYSIS OF POTABLE WATER SAMPLES

CITY OF PIT MEADOWS - MONTHLY HPC COUNTS FOR 2019

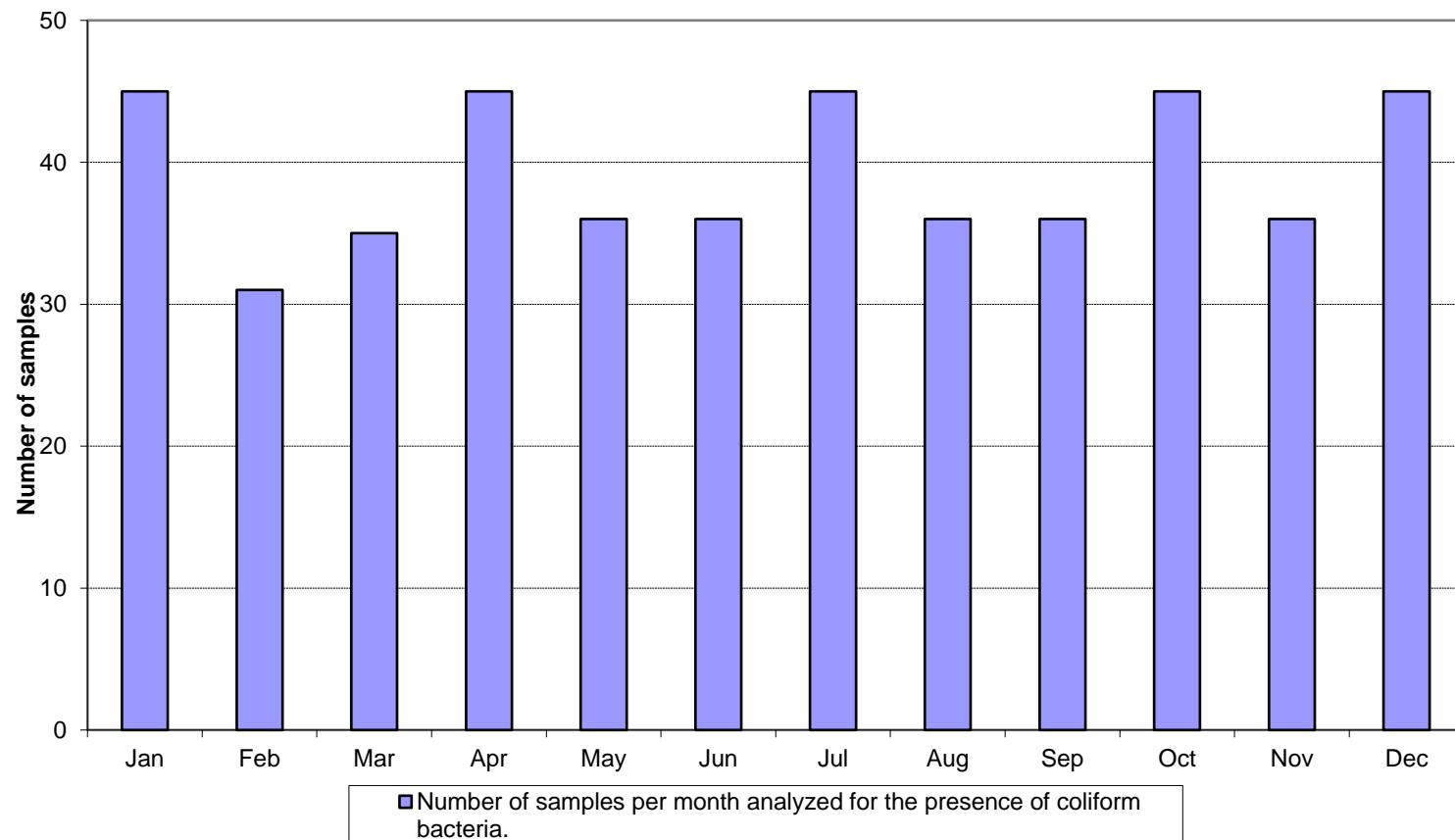


CITY OF PITT MEADOWS - 2019

Results of Bacteriological Analyses of Potable Water Samples Compliance With BC Drinking Water Protection Regulation



CITY OF PITT MEADOWS - 2019



APPENDIX – 5

WEEKLY SAMPLE RESULTS – METRO VANCOUVER SAMPLE STATION GVS-012 IN PORT MOODY

GVS-012 Port Moody Results:

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
2019-01-04 11:10	0.78	<1	8	5	<1	0.86
2019-01-09 10:51	0.87	<1	<2	5	<1	0.69
2019-01-16 11:29	0.87	<1	LA	5	<1	0.48
2019-01-23 11:38	0.78	<1	<2	5	<1	0.33
2019-01-30 10:21	0.84	<1	<2	5	<1	0.31
2019-02-06 11:30	0.92	<1	<2	5	<1	0.33
2019-02-20 11:47	0.82	<1	<2	3	<1	0.41
2019-02-27 11:10	1.4	<1	<2	4	<1	0.42
2019-03-07 10:41	1.1	<1	<2	4	<1	0.62
2019-03-13 10:22	0.96	<1	<2	4	<1	0.4
2019-03-20 11:21	0.97	<1	<2	7	<1	0.37
2019-03-27 10:59	0.88	<1	<2	8	<1	0.55
2019-03-28 13:01	0.55	<1	<2	10	<1	0.48
2019-04-10 11:08	0.79	<1	<2	6	<1	0.38
2019-04-18 10:24	1	<1	<2	8	<1	0.33
2019-04-26 09:41	0.71	<1	<2	7	<1	0.6
2019-04-30 10:47	0.68	<1	<2	9	<1	0.36
2019-05-03 10:34	0.77	<1	<2	9	<1	0.4
2019-05-07 10:45	0.73	<1	<2	9	<1	0.33
2019-05-16 11:15	0.93	<1	<2	9	<1	0.79
2019-05-23 10:19	0.95	<1	<2	9	<1	0.31
2019-05-29 12:15	0.9	<1	2	14	<1	0.34
2019-06-05 11:43	1.1	<1	<2	15	<1	0.56
2019-06-12 12:34	1.1	<1	8	13	<1	0.86
2019-06-13 10:22	1	<1	<2	12	<1	0.36
2019-06-19 10:11	0.92	<1	<2	10	<1	0.28
2019-06-21 08:18	0.73	<1	<2	13	<1	0.39
2019-06-23 10:46	1.1	<1	24	11	<1	0.15
2019-07-03 10:59	1	<1	2	13	<1	0.24
2019-07-10 10:27	0.9	<1	18	12	<1	0.32
2019-07-18 10:03	0.91	<1	<2	14	<1	0.25
2019-07-25 11:34	0.74	<1	16	15	<1	0.32
2019-08-01 11:09	0.76	<1	<2	13	<1	0.31
2019-08-02 10:52	0.87	<1	36	14	<1	0.21

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
2019-08-12 10:41	1	<1	20	14	<1	0.34
2019-08-23 10:08	0.8	<1	<2	14	<1	0.24
2019-08-30 12:29	0.87	<1	40	16	<1	0.45
2019-09-05 10:26	0.9	<1	<2	14	<1	0.32
2019-09-14 10:30	0.82	<1	<2	16	<1	0.31
2019-09-19 09:44	0.8	<1	<2	15	<1	0.36
2019-09-25 09:31	0.81	<1	<2	14	<1	0.38
2019-09-26 11:37	0.59	<1	2	15	<1	0.38
2019-10-01 11:46	0.77	<1	<2	15	<1	0.4
2019-10-02 11:47	0.75	<1	<2	14	<1	0.4
2019-10-08 09:50	0.74	<1	<2	12	<1	0.47
2019-10-09 11:53	0.43	<1	<2	12	<1	0.38
2019-10-16 11:10	0.68	<1	<2	12	<1	0.39
2019-10-23 10:25	0.94	<1	<2	10	<1	0.44
2019-10-30 10:53	0.74	<1	<2	9	<1	0.39
2019-10-31 10:08	0.99	<1	<2	10	<1	0.32
2019-11-05 11:28	0.82	<1	<2	9	<1	0.27
2019-11-07 11:29	0.7	<1	<2	8	<1	0.23
2019-11-14 11:39	0.76	<1	<2	9	<1	0.23
2019-11-20 10:10	1	<1	4	10	<1	0.37
2019-11-28 10:33	0.71	<1	<2	8	<1	0.45
2019-12-04 10:27	0.7	<1	<2	7	<1	0.38
2019-12-05 10:44	0.85	<1	<2	7	<1	0.28
2019-12-11 10:14	0.73	<1	<2	7	<1	0.29
2019-12-13 11:12	0.87	<1	<2	7	<1	1.1
2019-12-18 10:30	0.93	<1	<2	6.6	<1	0.28
2019-12-22 10:41	0.72	<1	NA	5.7	<1	0.21
2019-12-31 10:13	0.75	<1	NA	6.7	<1	0.36

APPENDIX – 6

SOURCE WATER QUALITY – COQUITLAM, SEYMOUR AND CAPILANO WATERSHEDS



Physical and Chemical Analysis of Water Supply

2019 – Capilano Water System

Parameter	Untreated		Treated		Canadian Guideline		
	Average	Average	Range	Days Exceeded	Limit	Reason Established	
Alkalinity as CaCO ₃ (mg/L)	3.2	9.7	6.2 - 13		none		
Aluminum Dissolved (µg/L)	68	21	17 - 27		none		
Aluminum Total (µg/L)	100	25	16 - 41		none		
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health	
Arsenic Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health	
Barium Total (µg/L)	2.6	3.2	2.9 - 3.5	0	1000	Health	
Boron Total (mg/L)	<0.01	<0.01	<0.01		5	Health	
Bromate (mg/L)	NA	<0.01	<0.01	0	0.01	Health	
Bromide (mg/L)	NA	<0.01	<0.01		none		
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health	
Calcium Total (µg/L)	1230	4180	2940 - 4800		none		
Carbon Organic - Dissolved (mg/L)	1.8	0.7	0.5 - 1		none		
Carbon Organic - Total (mg/L)	1.8	0.7	0.5 - 1		none		
Chlorate (mg/L)	NA	<0.03	<0.01-0.04	0	1	Health	
Chloride (mg/L)	0.6	2.4	2.1 - 3	0	≤ 250	Aesthetic	
Chromium Total (µg/L)	<0.06	<0.05	<0.05	0	50	Health	
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none		
Color - Apparent (ACU)	15	<2	<1 - 2		none		
Color - True (TCU)	11	<1	<1 - 1	0	≤ 15	Aesthetic	
Conductivity (µmhos/cm)	11	30	25 - 36		none		
Copper Total (µg/L)	4.8	<0.5	<0.5	0	≤ 1000	Aesthetic	
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health	
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health	
Hardness as CaCO ₃ (mg/L)	3.8	11.3	8.1 - 12.6		none		
Iron Dissolved (µg/L)	36	<5	<5 - 18		none		
Iron Total (µg/L)	88	<6	<5 - 23	0	≤ 300	Aesthetic	
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health	
Magnesium Total (µg/L)	167	175	152 - 214		none		
Manganese Dissolved (µg/L)	5.1	2.2	0.9 - 7.4		none		
Manganese Total (µg/L)	6.4	6.1	1.4 - 37.5	0	≤ 50	Aesthetic	
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	Health	
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5		none		
Nickel Total (µg/L)	<0.5	<0.5	<0.5		none		
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02		none		
Nitrogen - Nitrate as N (mg/L)	0.06	0.06	0.03 - 0.09	0	45	Health	
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	1	Health	
pH (pH units)	6.5	7.4	7 - 7.6	0	7.0 to 10.5	Aesthetic	
Phenol (mg/L)	<0.005	<0.005	<0.005		none		
Phosphorus Dissolved (µg/L)	<10	<10	<10		none		
Phosphorus Total (µg/L)	<11	<10	<10		none		
Potassium Total (µg/L)	153	169	150 - 190		none		
Residue Total (mg/L)	19	33	30 - 35		none		
Residue Total Dissolved (mg/L)	14	19	11 - 27	0	≤ 500	Aesthetic	
Residue Total Fixed (mg/L)	12	25	21 - 28		none		
Residue Total Volatile (mg/L)	7	8	6 - 9		none		
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health	
Silica as SiO ₂ (mg/L)	3.6	3.6	3.1 - 4		none		
Silver Total (µg/L)	<0.5	<0.5	<0.5		none		
Sodium Total (µg/L)	0.63	1.6	1.4 - 1.8	0	≤ 200	Aesthetic	
Sulphate (mg/L)	0.8	1.1	0.8 - 1.3	0	≤ 500	Aesthetic	
Turbidity (NTU)	0.62	0.12	0.08 - 0.51				
Turbidity IFE (NTU)	-	-	-	0 ¹	≤ 1.0	Health	
UV Absorbance 254 nm (Abs/cm)	0.072	0.011	0.008 - 0.016		none		
Zinc Total (µg/L)	<3	<3	<3	0	≤ 5000	Aesthetic	

These figures are averaged values from a number of laboratory analyses done throughout the year. Where the range is a single value no variation was measured for the samples analyzed. Average values containing one or more results below the detection limit are preceded with “<” symbol. Minimum range values than “<” denotes not detectable with the technique used for determination. Methods and terms are based on those of the most current online version of “Standard Methods for the Examination of Water and Waste Water”. Untreated water is from the intake prior to the raw water tunnel, treated water is from a single site in the GVWD distribution system after the treated water tunnel and before the breakhead tank. Guidelines are taken from the most current Guidelines for Canadian Drinking Water Quality summary table updated in February 2017. Capilano Source was operational for 365 days in 2019.



Physical and Chemical Analysis of Water Supply

2019 – Seymour Water System

Parameter	Untreated	Treated		Canadian Guideline		
	Average	Average	Range	Days Exceeded	Limit	Reason Established
Alkalinity as CaCO ₃ (mg/L)	3.8	9.6	5.9 - 13		none	
Aluminum Dissolved (µg/L)	49	21	16 - 29		none	
Aluminum Total (µg/L)	85	26	15 - 63	0	200	Aesthetic
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Barium Total (µg/L)	3.7	3.1	2.7 - 3.6	0	1000	Health
Boron Total (mg/L)	<0.01	<0.01	<0.01	0	5	Health
Bromate (mg/L)	<0.01	<0.01	<0.01	0	0.01	Health
Bromide (mg/L)	<0.01	<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2	<0.2	<0.2 - <0.2	0	5	Health
Calcium Total (µg/L)	1810	4150	2860 - 4770		none	
Carbon Organic - Dissolved (mg/L)	1.5	0.7	0.5 - 1		none	
Carbon Organic - Total (mg/L)	1.6	0.7	0.5 - 1		none	
Chlorate (mg/L)	<0.01	0.03	0.01 - 0.04	0	1	Health
Chloride (mg/L)	<0.5	2.4	2 - 2.9	0	≤ 250	Aesthetic
Chromium Total (µg/L)	<0.06	<0.05	<0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	17	<2	<1 - 2		none	
Color - True (TCU)	11	<1	<1 - 1	0	≤ 15	Aesthetic
Conductivity (µmhos/cm)	14	30	25 - 36		none	
Copper Total (µg/L)	26.9	<0.5	<0.5	0	≤ 1000	Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Hardness as CaCO ₃ (mg/L)	5.2	11.2	7.9 - 12.6		none	
Iron Dissolved (µg/L)	92	<5	<5 - 13		none	
Iron Total (µg/L)	215	<7	<5 - 61	0	≤ 300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Magnesium Total (µg/L)	165	175	149 - 208		none	
Manganese Dissolved (µg/L)	6.8	4.6	2.3 - 10.7		none	
Manganese Total (µg/L)	9.9	5.3	2.6 - 12	0	≤ 50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	Health
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5		none	
Nickel Total (µg/L)	<0.5	<0.5	<0.5		none	
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02		none	
Nitrogen - Nitrate as N (mg/L)	0.06	0.06	0.03 - 0.09	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	3	Health
pH (pH units)	6.6	7.4	7.1 - 7.6	0	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Dissolved (µg/L)	<10	<10	<10		none	
Phosphorus Total (µg/L)	<11	<10	<10		none	
Potassium Total (µg/L)	176	169	150 - 190		none	
Residue Total (mg/L)	19	27	24 - 29		none	
Residue Total Dissolved (mg/L)	15	22	18 - 28	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	12	20	15 - 23		none	
Residue Total Volatile (mg/L)	8	7	6 - 9		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO ₂ (mg/L)	3.5	3.6	3.1 - 4		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (µg/L)	0.6	1.6	1.4 - 1.8	0	≤ 200	Aesthetic
Sulphate (mg/L)	1.4	1.1	0.8 - 1.3	0	≤ 500	Aesthetic
Turbidity (NTU)	0.59	0.12	0.07 - 0.25			
Turbidity IFE (NTU)	-	-	-	0 ¹	≤ 1.0	Health
UV Absorbance 254 nm (Abs/cm)	0.066	0.011	0.008 - 0.015		none	
Zinc Total (µg/L)	<4.1	<3	<3	0	≤ 5000	Aesthetic

These figures are averaged values from a number of laboratory analyses done throughout the year. Where the range is a single value no variation was measured for the samples analyzed. Average values containing one or more results below the detection limit are preceded with "<" symbol. Minimum range values than "<" denotes not detectable with the technique used for determination. Methods and terms are based on those of the most current on-line version of "Standard Methods for the Examination of Water and Waste Water". Untreated water is from a sample site prior to coagulation, treated water is from a sample site downstream of the SCFP clearwell. Guidelines are taken from the most current Guidelines for Canadian Drinking Water Quality summary table updated in February 2017. Seymour Source was operational for 365 days in 2019.

¹Treated turbidity guideline and the number of exceedances applies to Individual Filter Effluent readings; measured in events and not days.



Physical and Chemical Analysis of Water Supply

2019 – Coquitlam Water System

Parameter	Untreated	Treated	Canadian Guideline			
	Average	Average	Range	Days Exceeded	Limit	Reason Established
Alkalinity as CaCO ₃ (mg/L)	1.8	8.8	6.6 - 10.5		none	
Aluminum Dissolved (µg/L)	60	61	45 - 68		none	
Aluminum Total (µg/L)	83	83	59 - 94		none	
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Barium Total (µg/L)	2.2	2.3	2 - 2.6	0	1000	Health
Boron Total (mg/L)	<0.01	<0.01	<0.01	0	5	Health
Bromate (mg/L)	NA	<0.01	<0.01	0	0.01	Health
Bromide (mg/L)	NA	<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	857	856	806 - 933		none	
Carbon Organic - Dissolved (mg/L)	1.6	1.5	1.2 - 2.6		none	
Carbon Organic - Total (mg/L)	1.76	1.5	1.2 - 2.6		none	
Chlorate (mg/L)	NA	0.05	0.03 - 0.06	0	1	Health
Chloride (mg/L)	<0.5	2	1.4 - 2.3	0	≤ 250	Aesthetic
Chromium Total (µg/L)	<0.05	<0.05	<0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	13	<2	<2 - 5		none	
Color - True (TCU)	9	<1	<1 - 3	0	≤ 15	Aesthetic
Conductivity (µmhos/cm)	8	27	22 - 30		none	
Copper Total (µg/L)	2.8	<0.5	<0.5	0	≤ 1000	Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Hardness as CaCO ₃ (mg/L)	2.5	2.5	2.4 - 2.8		none	
Iron Dissolved (µg/L)	23	25	15 - 74		none	
Iron Total (µg/L)	53	53	35 - 109	0	≤ 300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Magnesium Total (µg/L)	96	96	89 - 107		none	
Manganese Dissolved (µg/L)	4	2.3	1.7 - 3.6		none	
Manganese Total (µg/L)	4.2	2.8	2.2 - 3.9	0	≤ 50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	Health
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5		none	
Nickel Total (µg/L)	<0.5	<0.5	<0.5		none	
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02		none	
Nitrogen - Nitrate as N (mg/L)	0.08	0.08	0.06 - 0.1	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01 - 0.01	0	3	Health
pH (pH units)	6.3	7.6	7 - 8.2	0	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.008	<0.005	<0.005		none	
Phosphorus Dissolved (µg/L)	<10	<10	<10		none	
Phosphorus Total (µg/L)	<10	<10	<10		none	
Potassium Total (µg/L)	112	113	103 - 120		none	
Residue Total (mg/L)	13	30	27 - 34		none	
Residue Total Dissolved (mg/L)	10	22	19 - 26	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	7	21	16 - 24		none	
Residue Total Volatile (mg/L)	6	9	7 - 11		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO ₂ (mg/L)	2.6	2.6	2.3 - 2.8		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (µg/L)	0.47	5	4.7 - 5.7	0	≤ 200	Aesthetic
Sulphate (mg/L)	<0.6	<0.6	<0.5 - 0.6	0	≤ 500	Aesthetic
Turbidity (NTU)	0.39	0.33	0.18 - 0.98	0	≤ 1.0	Health
UV 254 - Apparent (Abs/cm)	0.069	0.023	0.012 - 0.05	0		
UV Absorbance 254 nm (Abs/cm)	0.064	0.019	0.014 - 0.039		none	
Zinc Total (µg/L)	<3	<3	<3	0	≤ 5000	Aesthetic

These figures are averaged values from a number of laboratory analyses done throughout the year. Where the range is a single value no variation was measured for the samples analyzed. Average values containing one or more results below the detection limit are preceded with "<" symbol. Minimum range values than "<" denotes not detectable with the technique used for determination. Methods and terms are based on those of the most current online version of "Standard Methods for the Examination of Water and Waste Water". Untreated water is from the intake prior to treatment, treated water is from a single site in the GWWD distribution system downstream of CWTP. Guidelines are taken from the most current Guidelines for Canadian Drinking Water Quality summary table updated in February 2017. Recommended turbidity guidelines applies to finished treated water from an unfiltered source. Coquitlam source was operational for 365 days in 2019.

APPENDIX – 7

PHYSICAL AND CHEMICAL ANALYSIS – COQUITLAM WATER SYSTEM

Analysis of Source Waters for Herbicides, Pesticides, Volatile Organic Compounds and Uranium

	Units	Date Sampled	MAC	AO	Capilano	Seymour	Coquitlam
Atrazine	µg/L	26-Nov-19	5		<0.5	<0.5	<0.5
Azinphos-Methyl	µg/L	26-Nov-19	20		<1.0	<1.0	<1.0
Benzene	µg/L	5-Mar-19	5		<0.5	<0.5	<0.5
Benzo(a)pyrene	µg/L	17-Jun-19	0.04		<0.0050	<0.0050	<0.0050
Bromoxynil	µg/L	26-Nov-19	5		<0.50	<0.50	<0.50
Carbaryl	µg/L	26-Nov-19	90		<5	<5	<5
Carbofuran	µg/L	26-Nov-19	90		<5	<5	<5
Carbon Tetrachloride	µg/L	5-Mar-19	2		<0.50	<0.50	<0.50
Cyanobacterial toxins—Microcystin-LR	µg/L	Apr thru Nov 2019	1.5		<0.20	<0.20	<0.20
Chlorpyrifos	µg/L	26-Nov-19	90		<2.0	<2.0	<2.0
Diazinon	µg/L	26-Nov-19	20		<2	<2	<2
Dicamba	µg/L	26-Nov-19	120		<1.0	<1.0	<1.0
Dichlofop-Methyl	µg/L	26-Nov-19	9		<0.90	<0.90	<0.90
Dichlorobenzene, 1,2-	µg/L	5-Mar-19	200	≤ 3	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5-Mar-19	5	≤ 1	<1.0	<1.0	<1.0
Dichloroethane, 1,2-	µg/L	5-Mar-19	5		<1.0	<1.0	<1.0
Dichloroethylene, 1,1-	µg/L	5-Mar-19	14		<1.0	<1.0	<1.0
Dichlormethane	µg/L	5-Mar-19	50		<5.0	<5.0	<5.0
Dichlorophenol, 2,4-	µg/L	26-Nov-19	900	≤ 0.3	<0.10	<0.10	<0.10
Dichlorophenoxyacetic acid, 2,4-(2,4-D)	µg/L	26-Nov-19	100		<1.0	<1.0	<1.0
Dimethoate	µg/L	26-Nov-19	20		<2	<2	<2
Diquat	µg/L	26-Nov-19	70		<7.0	<7.0	<7.0
Diuron	µg/L	26-Nov-19	150		<10	<10	<10
Ethylbenzene	µg/L	5-Mar-19	140	≤ 1.6	<0.5	<0.5	<0.5
Glyphosate	µg/L	26-Nov-19	280		<10	<10	<10
Malathion	µg/L	26-Nov-19	190		<2.0	<2.0	<2.0
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	µg/L	26-Nov-19	100		<2.0	<2.0	<2.0
Methyl t-butyl ether (MTBE)	µg/L	5-Mar-19		≤ 15	<0.5	<0.50	<0.50
Metolachlor	µg/L	26-Nov-19	50		<5	<5	<5
Metribuzin	µg/L	26-Nov-19	80		<5.0	<5.0	<5.0
Monochlorobenzene	µg/L	5-Mar-19	80	≤ 30	<1.0	<1.0	<1.0
N-Nitroso dimethylamine (NDMA)	µg/L	26-Nov-19	0.04		<0.0019	<0.0019	<0.0020
Nitrilotriacetic Acid (NTA)	µg/L	26-Nov-19	400		<50.0	<50.0	<50.0
Paraquat (as Dichloride)	µg/L	26-Nov-19	10		<1.0	<1.0	<1.0
Pentachlorophenol	µg/L	26-Nov-19	60	≤ 30	<0.10	<0.10	<0.10
Phorate	µg/L	26-Nov-19	2		<1	<1	<1

	Units	Date Sampled	MAC	AO	Capilano	Seymour	Coquitlam
Picloram	µg/L	26-Nov-19	190		<5.0	<5.0	<5.0
Simazine	µg/L	26-Nov-19	10		<2	<2	<2
Terbufos	µg/L	26-Nov-19	1		<1	<1	<1
Tetrachloroethylene	µg/L	5-Mar-19	10		<1.0	<1.0	<1.0
Tetrachlorophenol, 2,3,4,6-	µg/L	26-Nov-19	100	≤ 1	<0.10	<0.10	<0.10
Toluene	µg/L	5-Mar-19	60	24	<0.45	<0.45	<0.45
Trichloroethylene	µg/L	5-Mar-19	5		<1.0	<1.0	<1.0
Trichlorophenol, 2,4,6-	µg/L	26-Nov-19	5	≤ 2	<0.10	<0.10	<0.10
Trifluralin	µg/L	26-Nov-19	45		<5	<5	<5
Uranium (Total)	µg/L	26-Nov-19	20		0.0397	0.0342	0.0447
Vinyl Chloride	µg/L	5-Mar-19	2		<0.40	<0.40	<0.40
Xylene (Total)	µg/L	5-Mar-19	90	≤ 20	<0.75	<0.75	<0.75

Analysis of Source Water for PAH's

Parameters	Units	Capilano		Seymour		Coquitlam	
		17-June	19-Nov	17-June	18-Nov	17-June	19-Nov
Acenaphthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Acenaphthylene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)anthracene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(g,h,i)perylene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene ¹	µg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenzo(a,h)anthracene	µg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	µg/L	<0.050	<0.020	<0.050	<0.020	<0.050	<0.020
Phenanthrene	µg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Pyrene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Monitoring of Selected GVWD Water Mains for BTEXs

Parameters	MAC	AO	Maple Ridge Main at Reservoir		Barnston Island Main at Willoughby PS	Jericho-Clayton Main	South Burnaby Main #2
			18-Nov-2019	19-Nov-2019	21-Nov-2019		
Benzene	µg/L	5		<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	140	1.6	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	60	24	<0.45	<0.45	<0.45	<0.45
Xylenes (Total)	µg/L	90	20	<0.75	<0.75	<0.75	<0.75

Analysis of Source Water for Radioactivity

Radioactivity	Units	Date Sampled	MAC ¹	Capilano	Seymour	Coquitlam
				Activity	Activity	Activity
Gross Alpha	Bq/L	10-Dec-19	<0.5	<0.10	<0.10	<0.10
Gross Beta	Bq/L	10-Dec-19	<1.0	<0.10	<0.10	<0.10
Cobalt-60	Bq/L	10-Dec-19	2	<1	<1	<1
Cesium-134	Bq/L	10-Dec-19	7	<1	<1	<1
Cesium-137	Bq/L	10-Dec-19	10	<1	<1	<1
Iodine-131	Bq/L	10-Dec-19	6	<1	<1	<1
Lead-210	Bq/L	10-Dec-19	0.2	<0.10	<0.10	<0.10
Radium-226	Bq/L	10-Dec-19	0.5	<1.0	<1.0	<1.0
Radon-222	Bq/L	10-Dec-19	None	<10	<10	<10
Strontium-90	Bq/L	10-Dec-19	5	<0.10	<0.10	<0.10
Tritium (H-3)	Bq/L	10-Dec-19	7000	<20	<20	<20

Footnotes:

¹MAC from Guidelines for Canadian Drinking Water Quality (GCDWQ), February 2017

Monitoring of Selected GWWD Mains for PAHs

Parameters	Units	Coquitlam Main #2 & #3		Westburnco Reservoir		Barnston Island		Queensborough		Whalley Kennedy Link Main		Haney Main #2		36th Ave Main		
		21-Jun	20-Nov	17-Jun	21-Nov	17-Jun	19-Nov	20-Nov	19-Jun	21-Jun	19-Nov	18-Jun	18-Nov	17-Jun	17-Jun	20-Nov
Acenaphthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Acenaphthylene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)anthracene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(g,h,i)perylene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene ¹	µg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	µg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	µg/L	<0.010	<0.010	<0.010	<0.040	<0.010	<0.010	0.012	0.018	<0.010	0.011	<0.010	0.014	<0.010	0.012	<0.010
Indeno(1,2,3,c,d)pyrene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	µg/L	<0.050	<0.020	<0.050	0.174	<0.050	<0.020	<0.050	<0.020	<0.050	0.026	<0.050	<0.020	<0.050	<0.020	<0.020
Phenanthrene	µg/L	<0.020	<0.020	0.067	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Pyrene	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

¹Benzo(a)pyrene is the only PAH compound that has guideline limit. Maximum Acceptable Concentration of Benzo(a)pyrene is 0.04 µg/L

APPENDIX – 8

2019 OPERATING PERMIT



fraserhealth

**HEALTH
PROTECTION**

PERMIT TO OPERATE

**A Drinking Water System with
301-10000 Connections**

Water Supplier:
Facility Name:

City of Pitt Meadows
City of Pitt Meadows Water System

Conditions of Permit

By December 31, 2014, the drinking water that you provide must have undergone treatment that achieves the following:

1. At least a 4-log (99.99%) reduction and/or inactivation of viruses
2. At least a 3-log (99.9%) reduction and/or inactivation of Giardia cysts
3. At least a 3-log (99.9%) reduction and/or inactivation of Cryptosporidium oocysts

A written update on the status of the plan to meet these terms and conditions shall be submitted to Fraser Health Authority by March 31st of each calendar year.

29-Aug-2013
Effective Date


Environmental Health Officer

*This permit must be displayed
in a conspicuous place and is nontransferable*

