

# Drinking Water Quality Report 2017



# **DRINKING WATER QUALITY REPORT 2017**

## ***Table of Contents***

1.0 EXECUTIVE SUMMARY

2.0 INTRODUCTION

3.0 BACKGROUND

    3.1 REGULATING AUTHORITIES

    3.2 DISTRIBUTION SYSTEM

4.0 WATER QUALITY SAMPLE SITES

    4.1 BACTERIOLOGICAL MONITORING

    4.2 CHEMICAL & PHYSICAL MONITORING

    4.3 CHLORINE RESIDUAL LEVELS

5.0 EMERGENCY RESPONSE PLAN

6.0 WATER FLUSHING MESSAGE FROM THE FHR

APPENDIX – 1	ACCEPTABLE CHLORINE LEVELS AND SAMPLE SITE LOCATIONS
APPENDIX – 2	WEEKLY SAMPLE METRO VANCOUVER LAB RESULTS
APPENDIX – 3	QUARTERLY METALS ANALYSIS RESULTS FROM METRO VANCOUVER LAB
APPENDIX – 4	BACTERIOLOGICAL ANALYSIS OF POTABLE WATER SAMPLES
APPENDIX – 5	WEEKLY SAMPLE RESULTS – METRO VANCOUVER SAMPLE STATION GVS-072 IN MAPLE RIDGE
APPENDIX – 6	SOURCE WATER QUALITIES – COQUITLAM WATERSHED
APPENDIX – 7	PHYSICAL AND CHEMICAL ANALYSIS – COQUITLAM, SEYMOUR AND CAPILANO WATERSHEDS
APPENDIX – 8	OPERATING PERMIT

## **1.0 EXECUTIVE SUMMARY**

The City of Pitt Meadows holds a permit to operate its water utility from the Fraser Health Authority (FHA). In 2017, 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 eight 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 2017, 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:

- No chlorine residual tests fell below the minimum level of 0.2 ppm.
- No samples tested positive for E. coli.
- 100% of the samples had 0 Total Coliform per 100 mL.
- The annual average Total Trihalomethane results ranged between 33 and 47 parts per billion (ppb), less than the Health Canada guidelines of 100 ppb.
- The annual average Total Haloacetic acid results ranged from 40 to 57 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 2017.

## **2.0 INTRODUCTIONS**

This is the City of Pitt Meadows (PM) annual Drinking Water Quality Report for 2017. It is prepared for the Fraser Health Authority (FHA) as well as public information.

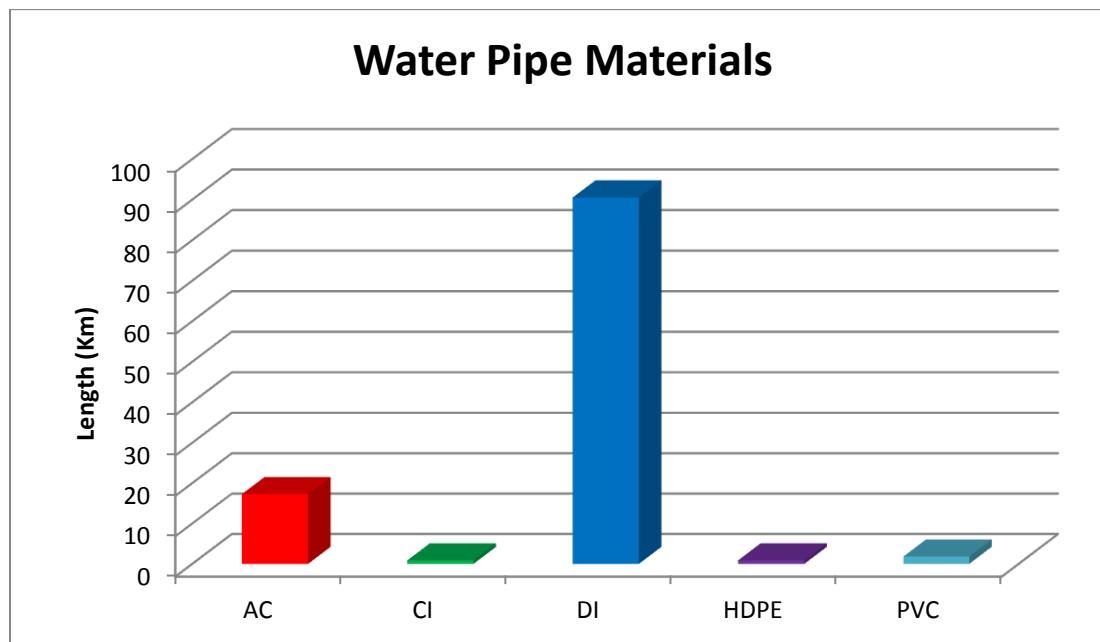
## **3.0 BACKGROUND**

### **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 as a primary 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. 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.

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. Kennedy PRV was replaced with a new facility in 2015.

All 482 fire hydrants owned by the City were fully maintained in 2017. 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 6 level II and 2 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. Water main replacement projects planned for 2017 were postponed until early 2018 due to higher than expected prices from contractors.

## **4.0 WATER QUALITY SAMPLE SITES**

The city has 8 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**

<b>Sample Site</b>	<b>Location</b>	<b>Main Size (mm)</b>	<b>Normal Flow</b>
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	I20B 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 2017 results are in Appendix 2.

### **4.1 Bacteriological Monitoring**

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

**Table 2: BCSDWR Microbiological Standards**

<b>Parameter</b>	<b>Occurrence</b>	<b>Standard</b>
Fecal Coliform	0	Less than 1 fecal coliform per 100 mL
Total Coliform	0	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

Appendix 4 illustrates the bacteriological requirements were met in 2017.

## 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. Table 3 illustrates which BCSDWR guidelines were not met.

**Table 3: Chemical or Physical Parameters that Did Not Meet the Guidelines**

Parameter	Target	Number of Tests that did not meet the Guideline	Percent of Tests that did not meet the Guideline
<b>Source Water</b>			
See Appendix 3, 6 and 7			
<b>Metro Vancouver Transmission System</b>			
See Appendix 5			
<b>City Distribution System</b>			
Temperature	<15 °C	47	10.3%

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, 2015*. They are also in Appendix 6 and 7.

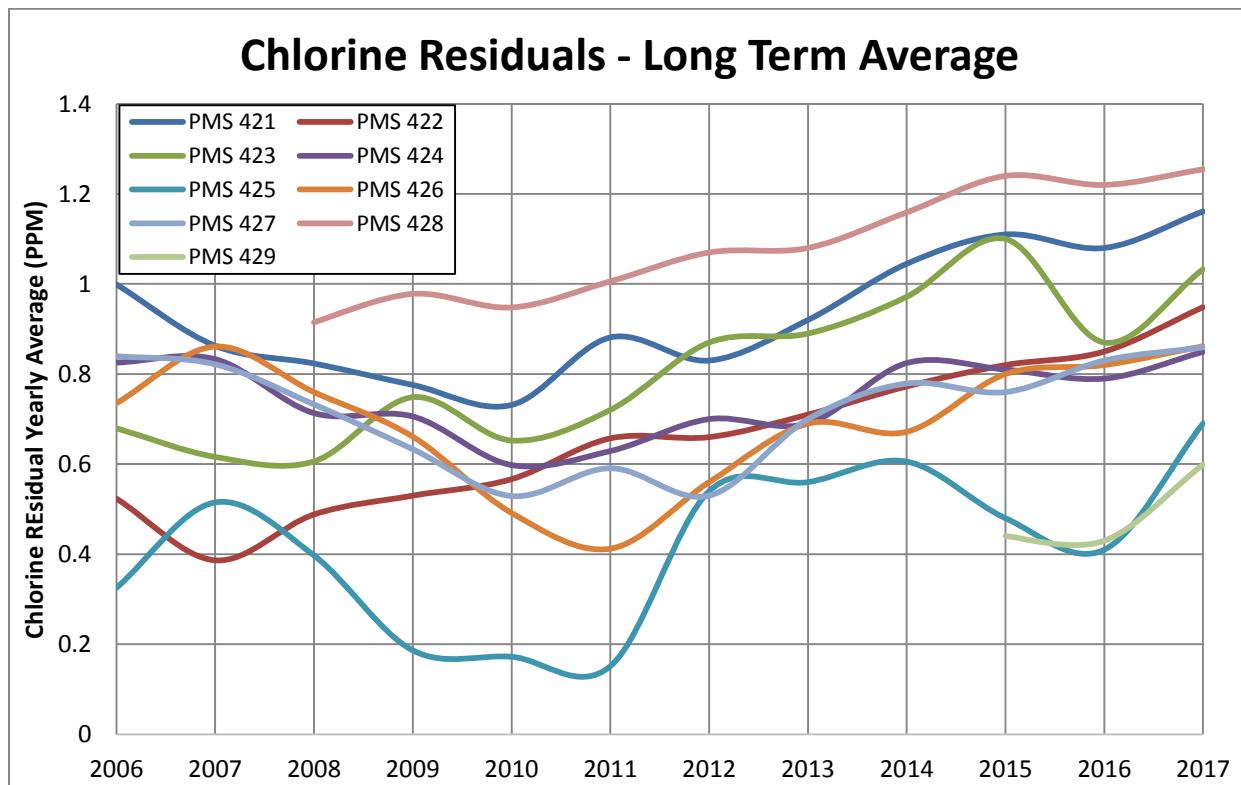
## 4.3 Chlorine Residual Levels

**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	49	0	0%
DmPMS-422	49	0	0%
DmPMS-423	49	0	2%
DmPMS-424	52	0	0%
DmPMS-425	52	0	2%
DmPMS-426	49	0	0%
DmPMS-427	52	0	0%
DmPMS-428	51	0	0%
DmPMS-429	50	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 2 stations that were trending downward are recovering with improvements over last year. We will continue to monitor the distant lines for issues. 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.

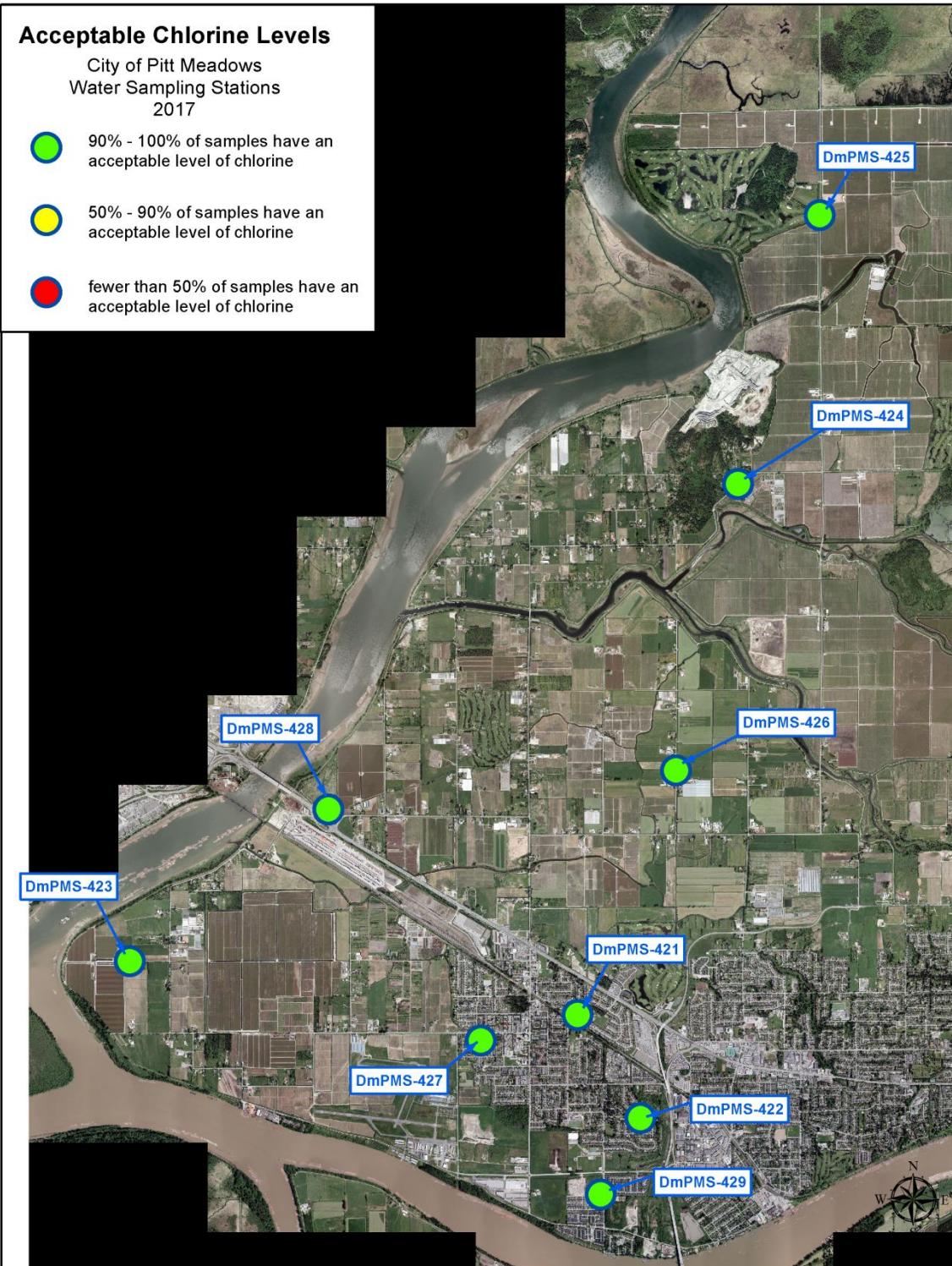
## **APPENDIX – I**

### **ACCEPTABLE CHLORINE LEVELS AND SAMPLE SITE LOCATIONS**

## Acceptable Chlorine Levels

City of Pitt Meadows  
Water Sampling Stations  
2017

- 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
Jan 17, 2017 9:03:00 AM	1.28	<1	2	4	<1	0.24
Jan 24, 2017 12:00:00 PM	1.05	<1	<2	5	<1	0.31
Jan 31, 2017 11:00:00 AM	1.13	<1	2	5	<1	0.26
Feb 14, 2017 9:03:00 AM	1.26	<1	<2	4	<1	0.26
Feb 21, 2017 9:00:00 AM	0.88	<1	<2	5	<1	0.36
Feb 28, 2017 10:40:00 AM	1.20	<1	2	6	<1	0.32
Mar 07, 2017 9:05:00 AM	1.10	<1	<2	5	<1	0.38
Mar 14, 2017 8:58:00 AM	1.23	<1	2	5	<1	0.44
Mar 21, 2017 9:00:00 AM	1.18	<1	<2	6	<1	0.32
Mar 28, 2017 9:12:00 AM	1.28	<1	<2	6	<1	0.37
Apr 04, 2017 10:00:00 AM	1.20	<1		<2	6	<1
Apr 11, 2017 9:06:00 AM	1.12	<1	<2	7	<1	0.39
Apr 18, 2017 9:00:00 AM	1.44	<1	<2	7	<1	0.78
Apr 25, 2017 9:00:00 AM	1.19	<1	<2	8	<1	0.46
May 02, 2017 9:00:00 AM	1.07	<1	2	8	<1	0.31
May 09, 2017 8:56:00 AM	1.27	<1	2	8	<1	0.34
May 16, 2017 8:53:00 AM	1.14	<1	<2	8	<1	0.28
May 23, 2017 11:00:00 AM	1.09	<1	<2	9	<1	0.56
May 30, 2017 9:20:00 AM	0.91	<1	16	9	<1	0.38
Jun 06, 2017 9:01:00 AM	1.27	<1	<2	10	<1	0.43
Jun 13, 2017 9:17:00 AM	1.07	<1	4	9	<1	0.32
Jun 20, 2017 9:03:00 AM	1.13	<1	6	9	<1	0.37
Jun 28, 2017 9:04:00 AM	1.08	<1	52	10	<1	0.37
Jul 04, 2017 9:00:00 AM	GRAB	1.22	<1	46	11	<1
Jul 11, 2017 10:50:00 AM	1.06	<1	26	12	<1	0.32
Jul 18, 2017 9:00:00 AM	1.21	<1	8	13	<1	0.46
Jul 25, 2017 9:03:00 AM	1.20	<1	8	14	<1	0.39
Aug 01, 2017 9:00:00 AM	1.24	<1	22	14	<1	0.34
Aug 08, 2017 9:15:00 AM	0.99	<1	88	14	<1	0.36
Aug 15, 2017 11:10:00 AM	1.25	<1	4	15	<1	0.24
Aug 22, 2017 9:12:00 AM	1.13	<1	38	15	<1	0.52
Aug 29, 2017 9:10:00 AM	1.30	<1	22	16	<1	0.35
Sep 05, 2017 9:04:00 AM	1.07	<1	24	16	<1	0.28
Sep 12, 2017 10:40:00 AM	1.14	<1	10	16	<1	0.46

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Sep 19, 2017 9:30:00 AM	1.13	<1	6	15	<1	0.26
Sep 26, 2017 8:55:00 AM	1.04	<1	2	15	<1	0.50
Oct 03, 2017 11:05:00 AM	1.14	<1	44	15.5	<1	0.55
Oct 10, 2017 9:14:00 AM	0.96	<1	26	13	<1	0.26
Oct 17, 2017 11:00:00 AM	1.34	<1	4	12	<1	0.33
Oct 24, 2017 9:05:00 AM	1.41	<1	4	11	<1	0.49
Oct 31, 2017 9:22:00 AM	1.02	<1	64	10	<1	0.53
Nov 07, 2017 9:08:00 AM	1.07	<1	<2	9	<1	0.41
Nov 14, 2017 9:18:00 AM	1.10	<1	4	8	<1	0.36
Nov 21, 2017 10:15:00 AM	1.15	<1	<2	8	<1	0.54
Nov 28, 2017 10:10:00 AM	1.41	<1	<2	8	<1	1.1
Dec 05, 2017 9:00:00 AM	1.33	<1	<2	7	<1	0.73
Dec 12, 2017 10:45:00 AM	1.15	<1	6	7	<1	0.66
Dec 19, 2017 10:45:00 AM	1.15	<1	NA	7	<1	0.74
Dec 27, 2017 11:30:00 AM	1.17	<1	NA	5	<1	0.54

### PMS-422

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 10, 2017 9:03:00 AM	0.89	<1	<2	5	<1	0.21
Jan 17, 2017 8:47:00 AM	1.11	<1	<2	5	<1	0.19
Jan 24, 2017 10:11:00 AM	1.15	<1	<2	5	<1	0.31
Jan 31, 2017 8:55:00 AM	0.97	<1	<2	5	<1	0.22
Feb 14, 2017 8:45:00 AM	1.01	<1	<2	5	<1	0.25
Feb 21, 2017 8:43:00 AM	0.70	<1	2	6	<1	0.31
Feb 28, 2017 8:50:00 AM	1.00	<1	<2	6	<1	0.38
Mar 07, 2017 8:47:00 AM	1.00	<1	2	6	<1	0.34
Mar 14, 2017 8:43:00 AM	0.99	<1	<2	6	<1	0.80
Mar 21, 2017 8:44:00 AM	1.01	<1	2	7	<1	0.32
Mar 28, 2017 9:00:00 AM	1.04	<1	<2	8	<1	0.28
Apr 04, 2017 10:45:00 AM	1.03	<1		2	8	<1
Apr 11, 2017 8:40:00 AM	1.01	<1	<2	9	<1	0.37
Apr 18, 2017 8:45:00 AM	1.15	<1	<2	9	<1	0.83
Apr 25, 2017 8:44:00 AM	0.96	<1	<2	10	<1	0.40
May 02, 2017 8:38:00 AM	0.90	<1	LA	10	<1	0.32

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
May 09, 2017 8:42:00 AM	0.96	<1	6	11	<1	0.31
May 16, 2017 8:34:00 AM	0.90	<1	8	11	<1	0.26
May 23, 2017 10:25:00 AM	0.90	<1	6	12	<1	0.56
May 30, 2017 9:03:00 AM	0.93	<1	58	12	<1	0.91
Jun 06, 2017 8:40:00 AM	1.11	<1	6	13	<1	0.36
Jun 13, 2017 8:55:00 AM	0.75	<1	14	13	<1	0.23
Jun 20, 2017 8:44:00 AM	0.74	<1	2	13	<1	0.25
Jun 28, 2017 8:40:00 AM	0.82	<1	42	11	<1	0.49
Jul 04, 2017 8:35:00 AM	GRAB	1.04	<1	8	13	<1
Jul 11, 2017 8:50:00 AM	0.92	<1	2	14	<1	0.31
Jul 18, 2017 8:45:00 AM	0.97	<1	2	14	<1	0.29
Jul 25, 2017 8:50:00 AM	1.08	<1	2	16	<1	0.24
Aug 01, 2017 8:46:00 AM	1.04	<1	6	16	<1	0.37
Aug 08, 2017 9:00:00 AM	1.05	<1	<2	15	<1	0.33
Aug 15, 2017 10:45:00 AM	1.07	<1	2	17	<1	0.27
Aug 22, 2017 8:45:00 AM	1.12	<1	14	16	<1	0.66
Aug 29, 2017 8:45:00 AM	1.10	<1	2	16	<1	0.38
Sep 05, 2017 8:49:00 AM	0.97	<1	2	17	<1	0.30
Sep 12, 2017 10:55:00 AM	0.91	<1	<2	17	<1	0.31
Sep 19, 2017 9:15:00 AM	0.83	<1	12	16	<1	0.25
Sep 26, 2017 8:40:00 AM	0.95	<1	<2	16	<1	0.59
Oct 03, 2017 11:36:00 AM	0.84	<1	58	16	<1	0.46
Oct 10, 2017 9:00:00 AM	0.87	<1	<2	14	<1	0.27
Oct 17, 2017 8:35:00 AM	0.84	<1	2	13	<1	0.28
Oct 24, 2017 8:50:00 AM	1.15	<1	<2	12	<1	0.42
Oct 31, 2017 9:05:00 AM	0.78	<1	2	12	<1	0.37
Nov 07, 2017 8:55:00 AM	0.82	<1	14	10	<1	0.38
Nov 14, 2017 9:00:00 AM	0.87	<1	16	9	<1	0.40
Nov 21, 2017 11:15:00 AM	0.76	<1	34	9	<1	0.46
Nov 28, 2017 9:40:00 AM	0.97	<1	12	9	<1	0.72
Dec 05, 2017 8:45:00 AM	0.98	<1	4	9	<1	0.60
Dec 12, 2017 8:45:00 AM	0.84	<1	<2	7	<1	0.61
Dec 19, 2017 11:05:00 AM	0.77	<1	NA	7	<1	0.95

**PMS-423**

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 17, 2017 9:37:00 AM	1.08	<1	<2	4	<1	0.24
Jan 24, 2017 10:40:00 AM	1.31	<1	<2	5	<1	0.36
Jan 31, 2017 9:30:00 AM	1.01	<1	<2	5	<1	0.23
Feb 07, 2017 9:52:00 AM	1.23	<1	2	4	<1	0.30
Feb 14, 2017 9:40:00 AM	1.17	<1	<2	5	<1	0.26
Feb 21, 2017 9:35:00 AM	0.74	<1	<2	5	<1	0.32
Feb 28, 2017 10:20:00 AM	1.15	<1	<2	6	<1	0.37
Mar 07, 2017 9:45:00 AM	1.10	<1	2	5	<1	0.41
Mar 14, 2017 9:32:00 AM	1.10	<1	<2	5	<1	0.41
Mar 21, 2017 9:31:00 AM	1.04	<1	<2	6	<1	0.30
Mar 28, 2017 9:43:00 AM	1.12	<1	<2	6	<1	0.32
Apr 04, 2017 8:35:00 AM	1.04	<1		<2	6	<1
Apr 11, 2017 9:38:00 AM	1.08	<1	<2	7	<1	0.39
Apr 18, 2017 9:30:00 AM	1.35	<1	<2	7	<1	0.73
Apr 25, 2017 9:37:00 AM	1.12	<1	<2	8	<1	0.42
May 02, 2017 9:30:00 AM	1.08	<1	<2	8	<1	0.33
May 09, 2017 9:35:00 AM	1.13	<1	<2	8	<1	0.40
May 16, 2017 9:25:00 AM	1.02	<1	<2	8	<1	0.27
May 23, 2017 8:30:00 AM	1.20	<1	<2	8	<1	0.46
May 30, 2017 11:21:00 AM	0.95	<1	<2	9	<1	0.31
Jun 06, 2017 9:31:00 AM	1.09	<1	<2	9	<1	0.34
Jun 13, 2017 9:46:00 AM	0.91	<1	2	9	<1	0.28
Jun 20, 2017 9:32:00 AM	0.86	<1	<2	10	<1	0.26
Jun 28, 2017 11:15:00 AM	0.78	<1	<2	10	<1	0.31
Jul 04, 2017 11:08:00 AM	GRAB	0.98	<1	<2	12	<1
Jul 11, 2017 9:10:00 AM	0.99	<1	<2	12	<1	0.31
Jul 18, 2017 9:35:00 AM	1.09	<1	<2	12	<1	0.26
Jul 25, 2017 9:45:00 AM	1.09	<1	2	14	<1	0.24
Aug 01, 2017 9:33:00 AM	1.13	<1	4	14	<1	0.31
Aug 08, 2017 10:48:00 AM	0.90	<1	32	15	<1	0.26
Aug 15, 2017 8:45:00 AM	1.15	<1	<2	14	<1	0.35
Aug 22, 2017 11:20:00 AM	1.08	<1	68	15	<1	0.39
Aug 29, 2017 11:10:00 AM	1.03	<1	48	16	<1	0.30
Sep 05, 2017 9:36:00 AM	1.01	<1	2	16	<1	0.22

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Sep 12, 2017 8:50:00 AM	0.93	<1	8	16	<1	0.50
Sep 19, 2017 9:55:00 AM	0.98	<1	8	15	<1	0.24
Sep 26, 2017 9:35:00 AM	0.89	<1	4	15	<1	0.41
Oct 03, 2017 8:20:00 AM	1.04	<1	8	14	<1	0.60
Oct 10, 2017 9:43:00 AM	0.96	<1	2	14	<1	0.23
Oct 17, 2017 9:25:00 AM	1.01	<1	<2	12	<1	0.25
Oct 24, 2017 9:40:00 AM	1.33	<1	4	12	<1	0.48
Oct 31, 2017 9:50:00 AM	0.87	<1	<2	11	<1	0.34
Nov 07, 2017 9:41:00 AM	0.89	<1	2	10	<1	0.49
Nov 14, 2017 9:50:00 AM	0.89	<1	4	9	<1	0.42
Nov 21, 2017 8:50:00 AM	1.09	<1	<2	8	<1	0.54
Nov 28, 2017 8:35:00 AM	0.95	<1	<2	8	<1	0.85
Dec 05, 2017 9:38:00 AM	0.95	<1	<2	8	<1	0.58
Dec 12, 2017 9:10:00 AM	0.81	<1	<2	7.5	<1	0.65
Dec 19, 2017 9:00:00 AM	0.84	<1	NA	7	<1	0.65

#### PMS-424

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 03, 2017 11:15:00 AM	0.87	<1	<2	6	<1	0.21
Jan 10, 2017 11:20:00 AM	0.81	<1	<2	6	<1	0.19
Jan 17, 2017 11:17:00 AM	0.71	<1	<2	5	<1	0.30
Jan 24, 2017 11:10:00 AM	1.05	<1	<2	5	<1	0.58
Jan 31, 2017 10:25:00 AM	0.90	<1	<2	6	<1	0.40
Feb 07, 2017 11:17:00 AM	0.90	<1	<2	5	<1	0.24
Feb 14, 2017 11:20:00 AM	0.86	<1	<2	5	<1	0.33
Feb 21, 2017 11:15:00 AM	0.68	<1	<2	6	<1	0.36
Feb 28, 2017 9:40:00 AM	0.73	<1	<2	5	<1	0.30
Mar 07, 2017 11:17:00 AM	0.82	<1	<2	6	<1	0.28
Mar 14, 2017 11:20:00 AM	0.75	<1	<2	6	<1	0.58
Mar 21, 2017 11:20:00 AM	0.65	<1	<2	7	<1	0.38
Mar 28, 2017 11:15:00 AM	0.82	<1	<2	7	<1	0.34
Apr 04, 2017 9:35:00 AM	0.94		<1	<2	6	
Apr 11, 2017 11:17:00 AM	0.97	<1	2	7	<1	0.29
Apr 18, 2017 11:15:00 AM	1.15	<1	<2	8	<1	0.83

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Apr 25, 2017 11:20:00 AM	0.86	<1	<2	8	<1	0.38
May 02, 2017 11:07:00 AM	0.96	<1	2	8	<1	0.36
May 09, 2017 11:20:00 AM	0.94	<1	<2	9	<1	0.31
May 16, 2017 11:20:00 AM	0.64	<1	<2	10	<1	0.24
May 23, 2017 9:40:00 AM	0.87	<1	<2	9	<1	0.56
May 30, 2017 10:39:00 AM	0.79	<1	2	9	<1	0.24
Jun 06, 2017 11:15:00 AM	0.97	<1	<2	11	<1	0.25
Jun 13, 2017 11:20:00 AM	0.64	<1	<2	11	<1	0.22
Jun 20, 2017 11:21:00 AM	0.77	<1	<2	11	<1	0.24
Jun 28, 2017 10:25:00 AM	0.83	<1	<2	10	<1	0.34
Jul 04, 2017 10:15:00 AM	GRAB	0.78	<1	<2	11	<1
Jul 11, 2017 10:25:00 AM	1.08	<1	2	12	<1	0.81
Jul 18, 2017 11:20:00 AM	1.12	<1	<2	13	<1	0.26
Jul 25, 2017 11:15:00 AM	1.00	<1	<2	14	<1	0.34
Aug 01, 2017 11:23:00 AM	1.01	<1	<2	15	<1	0.31
Aug 08, 2017 10:17:00 AM	1.09	<1	<2	14	<1	0.25
Aug 15, 2017 9:50:00 AM	1.00	<1	<2	14	<1	0.30
Aug 22, 2017 10:45:00 AM	1.06	<1	<2	15	<1	0.49
Aug 29, 2017 10:20:00 AM	1.15	<1	2	15	<1	0.27
Sep 05, 2017 11:16:00 AM	1.15	<1	<2	16	<1	0.73
Sep 12, 2017 10:20:00 AM	0.93	<1	<2	16	<1	0.39
Sep 19, 2017 11:20:00 AM	0.86	<1	4	16	<1	0.24
Sep 26, 2017 11:20:00 AM	0.85	<1	<2	15	<1	0.58
Oct 03, 2017 10:26:00 AM	0.81	<1	4	15	<1	0.44
Oct 10, 2017 11:20:00 AM	0.81	<1	2	14	<1	0.21
Oct 17, 2017 10:35:00 AM	0.51	<1	4	13	<1	0.21
Oct 24, 2017 11:15:00 AM	0.97	<1	<2	13	<1	0.46
Oct 31, 2017 11:20:00 AM	0.63	<1	6	12	<1	0.37
Nov 07, 2017 11:20:00 AM	0.66	<1	4	11	<1	0.37
Nov 14, 2017 11:25:00 AM	0.66	<1	<2	10	<1	0.28
Nov 21, 2017 9:55:00 AM	0.56	<1	2	9	<1	0.41
Nov 28, 2017 11:20:00 AM	0.77	<1	<2	9	<1	0.64
Dec 05, 2017 11:05:00 AM	0.75	<1	4	9	<1	0.65
Dec 12, 2017 9:50:00 AM	0.68	<1	<2	7.5	<1	0.59
Dec 19, 2017 10:25:00 AM	0.68	<1	NA	8	<1	0.92
Dec 27, 2017 10:10:00 AM	0.64	<1	NA	6	<1	0.45

**PMS-425**

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 03, 2017 10:59:00 AM	0.51	<1	<2	6	<1	0.27
Jan 10, 2017 11:08:00 AM	0.57	<1	<2	6	<1	0.23
Jan 17, 2017 11:05:00 AM	0.72	<1	<2	6	<1	0.28
Jan 24, 2017 11:20:00 AM	0.84	<1	<2	6	<1	0.71
Jan 31, 2017 10:15:00 AM	0.88	<1	8	6	<1	0.46
Feb 07, 2017 11:05:00 AM	0.71	<1	<2	6	<1	0.29
Feb 14, 2017 11:07:00 AM	0.90	<1	<2	6	<1	0.32
Feb 21, 2017 11:00:00 AM	0.67	<1	<2	7	<1	0.36
Feb 28, 2017 9:25:00 AM	0.63	<1	<2	6	<1	0.26
Mar 07, 2017 11:00:00 AM	0.61	<1	2	7	<1	0.29
Mar 14, 2017 11:05:00 AM	0.66	<1	2	7	<1	0.48
Mar 21, 2017 11:05:00 AM	0.65	<1	<2	7	<1	0.55
Mar 28, 2017 11:00:00 AM	0.78	<1	<2	7	<1	0.55
Apr 04, 2017 9:25:00 AM	0.91	<1		<2	7	<1
Apr 11, 2017 11:00:00 AM	0.90	<1	<2	8	<1	0.32
Apr 18, 2017 11:00:00 AM	1.17	<1	<2	9	<1	1.0
Apr 25, 2017 11:05:00 AM	0.76	<1	<2	9	<1	0.33
May 02, 2017 10:55:00 AM	0.92	<1	<2	9	<1	0.48
May 09, 2017 10:55:00 AM	0.82	<1	<2	10	<1	0.30
May 16, 2017 11:00:00 AM	0.70	<1	4	11	<1	0.26
May 23, 2017 9:30:00 AM	0.83	<1	<2	10	<1	0.39
May 30, 2017 10:15:00 AM	0.72	<1	<2	10	<1	0.30
Jun 06, 2017 11:00:00 AM	0.82	<1	2	13	<1	0.26
Jun 13, 2017 11:00:00 AM	0.76	<1	<2	13	<1	0.21
Jun 20, 2017 11:00:00 AM	0.76	<1	<2	13	<1	0.27
Jun 28, 2017 10:00:00 AM	0.68	<1	<2	12	<1	2.6
Jul 04, 2017 9:49:00 AM	GRAB	0.73	<1	<2	13	<1
Jul 11, 2017 10:10:00 AM	0.86	<1	<2	13	<1	0.36
Jul 18, 2017 11:03:00 AM	0.93	<1	<2	15	<1	0.25
Jul 25, 2017 11:03:00 AM	0.95	<1	<2	15	<1	0.37
Aug 01, 2017 11:10:00 AM	0.89	<1	<2	16	<1	0.31
Aug 08, 2017 9:55:00 AM	0.73	<1	<2	15	<1	0.21
Aug 15, 2017 9:30:00 AM	0.80	<1	<2	16	<1	0.20
Aug 22, 2017 10:24:00 AM	0.83	<1	<2	15	<1	0.44

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Aug 29, 2017 10:00:00 AM	0.84	<1	<2	15	<1	0.28
Sep 05, 2017 11:03:00 AM	1.06	<1	<2	17	<1	0.28
Sep 12, 2017 9:55:00 AM	0.72	<1	<2	17	<1	0.79
Sep 19, 2017 11:05:00 AM	0.83	<1	<2	17	<1	0.47
Sep 26, 2017 11:00:00 AM	0.71	<1	<2	16	<1	0.52
Oct 03, 2017 10:42:00 AM	0.72	<1	<2	16	<1	0.38
Oct 10, 2017 11:00:00 AM	0.66	<1	<2	15	<1	0.37
Oct 17, 2017 10:20:00 AM	0.61	<1	<2	14	<1	0.29
Oct 24, 2017 11:03:00 AM	0.43	<1	<2	13	<1	0.47
Oct 31, 2017 11:05:00 AM	0.22	<1	4	13	<1	0.33
Nov 07, 2017 11:05:00 AM	0.32	<1	22	12	<1	0.35
Nov 14, 2017 11:05:00 AM	0.21	<1	24	11	<1	0.31
Nov 21, 2017 9:45:00 AM	0.30	<1	12	10	<1	0.43
Nov 28, 2017 10:50:00 AM	0.30	<1	14	10	<1	0.64
Dec 05, 2017 10:55:00 AM	0.40	<1	2	10	<1	0.82
Dec 12, 2017 10:05:00 AM	0.32	<1	22	8.5	<1	0.76
Dec 19, 2017 10:10:00 AM	0.32	<1	NA	9	<1	0.71
Dec 27, 2017 10:00:00 AM	0.36	<1	NA	7	<1	0.58

## PMS-426

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 24, 2017 11:40:00 AM	1.20	<1	<2	5	<1	0.59
Jan 31, 2017 10:00:00 AM	0.96	<1	<2	5	<1	0.22
Feb 07, 2017 10:48:00 AM	0.89	<1	<2	5	<1	0.36
Feb 14, 2017 10:46:00 AM	0.91	<1	<2	5	<1	0.28
Feb 21, 2017 10:42:00 AM	0.65	<1	<2	6	<1	0.39
Feb 28, 2017 9:10:00 AM	0.91	<1	4	6	<1	0.35
Mar 07, 2017 10:45:00 AM	0.84	<1	<2	6	<1	0.26
Mar 14, 2017 10:40:00 AM	0.60	<1	4	6	<1	0.51
Mar 21, 2017 10:43:00 AM	0.69	<1	<2	7	<1	0.42
Mar 28, 2017 10:40:00 AM	0.93	<1	<2	7	<1	0.31
Apr 04, 2017 9:00:00 AM	0.96	<1		<2	7	<1
Apr 11, 2017 10:42:00 AM	0.80	<1	4	8	<1	0.33
Apr 18, 2017 10:43:00 AM	1.15	<1	<2	8	<1	0.84

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Apr 25, 2017 10:45:00 AM	0.76	<1	4	9	<1	0.47
May 02, 2017 10:34:00 AM	0.86	<1	4	10	<1	0.36
May 09, 2017 10:34:00 AM	0.85	<1	10	10	<1	0.33
May 16, 2017 10:38:00 AM	0.84	<1	14	10	<1	0.25
May 23, 2017 9:05:00 AM	0.94	<1	<2	10	<1	0.46
May 30, 2017 9:44:00 AM	0.66	<1	2	11	<1	0.39
Jun 06, 2017 10:45:00 AM	0.49	<1	18	14	<1	0.34
Jun 13, 2017 10:45:00 AM	0.76	<1	18	13	<1	0.37
Jun 20, 2017 10:41:00 AM	0.81	<1	4	12	<1	0.47
Jun 28, 2017 9:20:00 AM	0.76	<1	10	13	<1	1.3
Jul 04, 2017 9:28:00 AM	GRAB	0.84	<1	2	14	<1
Jul 11, 2017 9:50:00 AM	1.10	<1	2	13	<1	0.40
Jul 18, 2017 10:47:00 AM	1.09	<1	6	14	<1	0.38
Jul 25, 2017 10:50:00 AM	0.98	<1	8	15	<1	0.25
Aug 01, 2017 10:50:00 AM	1.05	<1	6	15	<1	0.66
Aug 08, 2017 9:31:00 AM	1.05	<1	10	15	<1	0.27
Aug 15, 2017 9:15:00 AM	0.73	<1	<2	17	<1	0.31
Aug 22, 2017 9:39:00 AM	0.85	<1	850	16	<1	0.32
Aug 29, 2017 9:35:00 AM	1.22	<1	20	16	<1	0.32
Sep 05, 2017 10:43:00 AM	1.04	<1	4	17	<1	0.44
Sep 12, 2017 9:25:00 AM	0.99	<1	<2	17	<1	0.65
Sep 19, 2017 10:47:00 AM	0.83	<1	4	17	<1	0.34
Sep 26, 2017 10:40:00 AM	0.84	<1	8	16	<1	0.45
Oct 03, 2017 9:50:00 AM	0.79	<1	8	16	<1	0.74
Oct 10, 2017 10:45:00 AM	0.76	<1	30	15	<1	0.28
Oct 17, 2017 10:05:00 AM	0.68	<1	6	13	<1	0.25
Oct 24, 2017 10:45:00 AM	1.15	<1	8	13	<1	0.45
Oct 31, 2017 10:48:00 AM	0.58	<1	4	12	<1	0.44
Nov 07, 2017 10:50:00 AM	0.82	<1	2	11	<1	0.37
Nov 14, 2017 10:50:00 AM	0.41	<1	52	10	<1	0.72
Nov 21, 2017 9:25:00 AM	0.78	<1	4	9	<1	0.82
Nov 28, 2017 10:30:00 AM	1.00	<1	6	9	<1	0.83
Dec 05, 2017 10:40:00 AM	0.95	<1	<2	9	<1	0.63
Dec 12, 2017 10:25:00 AM	0.92	<1	8	7	<1	0.70
Dec 19, 2017 9:50:00 AM	0.63	<1	NA	7	<1	1.1
Dec 27, 2017 9:30:00 AM	0.91	<1	NA	6	<1	0.47

**PMS-427**

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 03, 2017 9:30:00 AM	0.89	<1	2	5	<1	0.21
Jan 10, 2017 9:44:00 AM	0.74	<1	<2	5	<1	0.22
Jan 17, 2017 9:20:00 AM	0.52	<1	<2	6	<1	0.26
Jan 24, 2017 10:22:00 AM	1.18	<1	<2	5	<1	0.39
Jan 31, 2017 9:10:00 AM	0.95	<1	<2	5	<1	0.23
Feb 07, 2017 9:28:00 AM	0.98	<1	<2	5	<1	0.34
Feb 14, 2017 9:17:00 AM	0.84	<1	2	5	<1	0.28
Feb 21, 2017 9:13:00 AM	0.75	<1	<2	6	<1	0.32
Feb 28, 2017 10:55:00 AM	1.03	<1	<2	6	<1	0.34
Mar 07, 2017 9:20:00 AM	1.03	<1	<2	6	<1	0.35
Mar 14, 2017 9:13:00 AM	0.95	<1	<2	6	<1	0.42
Mar 21, 2017 9:15:00 AM	0.74	<1	<2	6	<1	0.28
Mar 28, 2017 9:28:00 AM	1.02	<1	<2	6	<1	0.32
Apr 04, 2017 10:10:00 AM	0.91	<1		<2	6	<1
Apr 11, 2017 9:20:00 AM	0.95	<1	<2	7	<1	0.34
Apr 18, 2017 9:16:00 AM	1.14	<1	<2	7	<1	0.75
Apr 25, 2017 9:20:00 AM	0.98	<1	<2	9	<1	0.37
May 02, 2017 9:13:00 AM	0.99	<1	<2	8	<1	0.37
May 09, 2017 9:14:00 AM	1.09	<1	<2	9	<1	0.38
May 16, 2017 9:07:00 AM	0.88	<1	4	9	<1	0.28
May 23, 2017 10:50:00 AM	0.92	<1	<2	9	<1	0.29
May 30, 2017 11:45:00 AM	0.64	<1	<2	9	<1	0.33
Jun 06, 2017 9:17:00 AM	1.07	<1	<2	9	<1	0.33
Jun 13, 2017 9:30:00 AM	0.79	<1	4	10	<1	0.24
Jun 20, 2017 9:15:00 AM	0.80	<1	2	11	<1	0.25
Jun 28, 2017 11:41:00 AM	0.89	<1	<2	11	<1	0.45
Jul 04, 2017 11:34:00 AM	GRAB	0.94	<1	<2	12	<1
Jul 11, 2017 11:15:00 AM	0.83	<1	<2	13	<1	0.30
Jul 18, 2017 9:17:00 AM	0.71	<1	<2	13	<1	0.31
Jul 25, 2017 9:16:00 AM	0.87	<1	4	14	<1	0.25
Aug 01, 2017 9:13:00 AM	0.71	<1	4	15	<1	0.33
Aug 08, 2017 11:24:00 AM	0.77	<1	14	15	<1	0.30
Aug 15, 2017 11:00:00 AM	1.00	<1	<2	15	<1	0.33
Aug 22, 2017 11:41:00 AM	0.79	<1	6	16	<1	0.46

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Aug 29, 2017 11:40:00 AM	1.00	<1	32	16	<1	0.40
Sep 05, 2017 9:23:00 AM	0.94	<1	<2	16	<1	0.27
Sep 12, 2017 8:30:00 AM	0.91	<1	<2	16	<1	0.39
Sep 19, 2017 9:42:00 AM	0.95	<1	<2	15	<1	0.23
Sep 26, 2017 9:10:00 AM	0.91	<1	<2	15	<1	0.30
Oct 03, 2017 9:15:00 AM	0.93	<1	<2	14	<1	0.32
Oct 10, 2017 9:27:00 AM	0.85	<1	<2	14	<1	0.26
Oct 17, 2017 8:20:00 AM	0.64	<1	4	13	<1	0.24
Oct 24, 2017 9:18:00 AM	0.99	<1	<2	12	<1	0.43
Oct 31, 2017 9:37:00 AM	0.75	<1	2	11	<1	0.40
Nov 07, 2017 9:23:00 AM	0.71	<1	4	10	<1	0.39
Nov 14, 2017 9:33:00 AM	0.76	<1	<2	9	<1	0.40
Nov 21, 2017 10:25:00 AM	0.42	<1	<2	9	<1	0.47
Nov 28, 2017 10:00:00 AM	0.97	<1	6	9	<1	0.73
Dec 05, 2017 9:18:00 AM	1.01	<1	<2	8	<1	0.65
Dec 12, 2017 9:00:00 AM	0.71	<1	4	7	<1	0.65
Dec 19, 2017 8:45:00 AM	0.38	<1	NA	8	<1	0.61
Dec 27, 2017 11:15:00 AM	0.64	<1	NA	6	<1	0.45

#### PMS-428

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 10, 2017 10:37:00 AM	1.17	<1	<2	4	<1	0.37
Jan 17, 2017 10:27:00 AM	1.29	<1	<2	4	<1	0.40
Jan 24, 2017 10:50:00 AM	1.34	<1	<2	4	<1	0.34
Jan 31, 2017 9:45:00 AM	1.24	<1	<2	5	<1	0.28
Feb 07, 2017 10:27:00 AM	1.36	<1	<2	4	<1	0.28
Feb 14, 2017 10:10:00 AM	1.24	<1	<2	4	<1	0.31
Feb 21, 2017 9:55:00 AM	1.05	<1	<2	5	<1	0.39
Feb 28, 2017 9:55:00 AM	1.51	<1	2	5	<1	0.38
Mar 07, 2017 10:27:00 AM	1.32	<1	<2	5	<1	0.34
Mar 14, 2017 9:48:00 AM	1.55	<1	<2	5	<1	0.50
Mar 21, 2017 9:50:00 AM	1.20	<1	<2	5	<1	0.32
Mar 28, 2017 10:00:00 AM	1.30	<1	<2	5	<1	0.37
Apr 04, 2017 8:45:00 AM	1.34	<1		<2	5	<1
Apr 11, 2017 9:55:00 AM	1.25	<1	<2	7	<1	0.32

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Apr 18, 2017 9:48:00 AM	1.49	<1	<2	7	<1	0.86
Apr 25, 2017 10:25:00 AM	1.26	<1	<2	6	<1	0.41
May 02, 2017 9:50:00 AM	1.31	<1	<2	7	<1	0.31
May 09, 2017 9:55:00 AM	1.30	<1	<2	7	<1	0.43
May 16, 2017 9:45:00 AM	1.20	<1	4	7	<1	0.31
May 23, 2017 8:50:00 AM	0.75	<1	<2	8	<1	0.56
May 30, 2017 11:00:00 AM	1.19	<1	<2	8	<1	0.38
Jun 06, 2017 10:00:00 AM	1.12	<1	<2	8	<1	0.47
Jun 13, 2017 10:25:00 AM	1.07	<1	<2	7	<1	0.34
Jun 20, 2017 9:55:00 AM	1.21	<1	2	9	<1	0.32
Jun 28, 2017 10:50:00 AM	1.32	<1	<2	10	<1	0.39
Jul 04, 2017 10:40:00 AM	GRAB	1.31	<1	<2	12	<1
Jul 11, 2017 9:25:00 AM	1.30	<1	<2	12	<1	0.36
Jul 18, 2017 9:53:00 AM	1.09	<1	<2	12	<1	0.32
Jul 25, 2017 10:30:00 AM	1.34	<1	<2	13	<1	0.28
Aug 01, 2017 9:50:00 AM	1.28	<1	2	13	<1	0.37
Aug 08, 2017 10:48:00 AM	1.15	<1	4	13	<1	0.24
Aug 15, 2017 8:55:00 AM	1.29	<1	<2	14	<1	0.30
Aug 22, 2017 11:09:00 AM	1.82	<1	<2	14	<1	0.35
Aug 29, 2017 10:45:00 AM	1.45	<1	<2	14	<1	0.29
Sep 05, 2017 9:55:00 AM	1.35	<1	<2	15	<1	0.30
Sep 12, 2017 9:10:00 AM	1.29	<1	<2	15	<1	0.45
Sep 19, 2017 10:30:00 AM	1.46	<1	<2	15	<1	0.30
Sep 26, 2017 9:50:00 AM	1.11	<1	<2	15	<1	0.40
Oct 03, 2017 8:45:00 AM	0.93	<1	2	14	<1	0.46
Oct 10, 2017 9:57:00 AM	1.11	<1	<2	13	<1	0.34
Oct 17, 2017 9:35:00 AM	0.79	<1	<2	12	<1	0.28
Oct 24, 2017 9:57:00 AM	1.44	<1	<2	10	<1	0.52
Oct 31, 2017 10:32:00 AM	0.97	<1	<2	10	<1	0.47
Nov 07, 2017 10:34:00 AM	1.22	<1	<2	9	<1	0.38
Nov 14, 2017 10:28:00 AM	1.27	<1	<2	8	<1	0.48
Nov 21, 2017 9:15:00 AM	1.19	<1	<2	7	<1	0.46
Nov 28, 2017 8:55:00 AM	1.43	<1	<2	7	<1	1.0
Dec 05, 2017 9:50:00 AM	1.41	<1	<2	7	<1	0.84
Dec 12, 2017 9:30:00 AM	1.25	<1	2	6	<1	0.62
Dec 19, 2017 9:25:00 AM	1.23	<1	NA	6	<1	1.0
Dec 27, 2017 9:09:00 AM	1.18	<1	NA	5	<1	0.53

**PMS-429**

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Jan 10, 2017 8:45:00 AM	0.39	<1	LA	6	<1	0.26
Jan 17, 2017 8:33:00 AM	0.78	<1	<2	6	<1	0.25
Jan 24, 2017 10:00:00 AM	0.72	<1	<2	6	<1	0.39
Jan 31, 2017 8:40:00 AM	0.70	<1	<2	7	<1	0.20
Feb 14, 2017 8:23:00 AM	0.81	<1	<2	5	<1	0.27
Feb 21, 2017 8:25:00 AM	0.69	<1	<2	6	<1	0.34
Feb 28, 2017 8:35:00 AM	0.71	<1	<2	6	<1	0.38
Mar 07, 2017 8:30:00 AM	0.68	<1	<2	7	<1	0.31
Mar 14, 2017 8:30:00 AM	0.70	<1	<2	7	<1	0.27
Mar 21, 2017 8:26:00 AM	0.56	<1	<2	7	<1	0.46
Mar 28, 2017 8:45:00 AM	0.64	<1	<2	8	<1	0.37
Apr 04, 2017 10:25:00 AM	0.59	<1		<2	8	<1
Apr 11, 2017 8:25:00 AM	0.70	<1	<2	8	<1	0.34
Apr 18, 2017 8:30:00 AM	0.79	<1	<2	9	<1	0.72
Apr 25, 2017 8:30:00 AM	0.69	<1	<2	9	<1	0.34
May 02, 2017 8:25:00 AM	0.63	<1	<2	10	<1	0.27
May 09, 2017 8:23:00 AM	0.50	<1	<2	11	<1	0.38
May 16, 2017 8:25:00 AM	0.33	<1	<2	11	<1	0.25
May 23, 2017 10:40:00 AM	0.56	<1	2	12	<1	0.36
May 30, 2017 8:30:00 AM	0.78	<1	<2	11	<1	0.37
Jun 06, 2017 8:28:00 AM	0.88	<1	<2	12	<1	0.28
Jun 13, 2017 8:35:00 AM	0.54	<1	2	12	<1	0.26
Jun 20, 2017 8:30:00 AM	0.48	<1	<2	13	<1	0.25
Jun 28, 2017 8:25:00 AM	0.47	<1	<2	13	<1	0.33
Jul 04, 2017 8:13:00 AM	GRAB	0.79	<1	<2	13	<1
Jul 11, 2017 8:35:00 AM	0.77	<1	<2	14	<1	0.29
Jul 18, 2017 8:30:00 AM	0.80	<1	2	14	<1	0.34
Jul 25, 2017 8:35:00 AM	0.59	<1	4	15	<1	0.26
Aug 01, 2017 8:30:00 AM	0.79	<1	<2	15	<1	0.33
Aug 08, 2017 8:34:00 AM	0.75	<1	<2	15	<1	0.22
Aug 15, 2017 10:30:00 AM	0.63	<1	<2	17	<1	0.21
Aug 22, 2017 8:35:00 AM	0.76	<1	2	16	<1	0.40
Aug 29, 2017 8:26:00 AM	0.71	<1	6	16	<1	0.26
Sep 05, 2017 8:38:00 AM	0.92	<1	<2	17	<1	0.33

Sampled date	Chlorine Free mg/L	Ecoli MF/100 mLs	HPC CFU/mls	Temp °C	Total Coliform MF/100mLs	Turbidity NTU
Sep 12, 2017 11:05:00 AM	0.40	<1	4	18	<1	0.29
Sep 19, 2017 9:03:00 AM	0.56	<1	<2	17	<1	0.27
Sep 26, 2017 8:25:00 AM	0.44	<1	8	17	<1	0.25
Oct 03, 2017 11:20:00 AM	0.60	<1	<2	16.5	<1	0.27
Oct 10, 2017 8:43:00 AM	0.51	<1	4	15	<1	0.22
Oct 17, 2017 8:45:00 AM	0.48	<1	4	14	<1	0.20
Oct 24, 2017 8:37:00 AM	0.36	<1	12	13	<1	0.39
Oct 31, 2017 8:50:00 AM	0.25	<1	6	13	<1	0.43
Nov 07, 2017 8:42:00 AM	0.45	<1	26	12	<1	0.29
Nov 14, 2017 8:40:00 AM	0.43	<1	4	11	<1	0.33
Nov 21, 2017 11:05:00 AM	0.39	<1	4	10	<1	0.41
Nov 28, 2017 9:30:00 AM	0.56	<1	10	10	<1	0.73
Dec 05, 2017 11:33:00 AM	0.54	<1	<2	10	<1	0.59
Dec 12, 2017 8:30:00 AM	0.37	<1	<2	9	<1	0.54
Dec 19, 2017 11:15:00 AM	0.50	<1	NA	9	<1	0.83
Dec 27, 2017 10:40:00 AM	0.47	<1	NA	7	<1	0.45

## **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	2016-05-31 00:00	<1	<1	<1	30	30.8		<0.5	14	<1	9	16.1	40.6		
PMS-422	2016-08-30 00:00	1	<1	<1	25	28		<0.5	14	<1	9	18.4	41.8		
PMS-422	2016-10-18 00:00	<1	<1	<1	42	44		<0.5	22	<1	11	32.8	65.5		
PMS-422	2017-02-27 00:00	<1	<1	<1	30	31	33	<0.5	15	<1	<2	15.4	32.8	45	
PMS-422	2017-05-16 00:00	<1	<1	<1	31	33	34	<0.5	16	<1	<2	24	41.7	45	
PMS-422	2017-08-22 00:00	<1	<1	<1	25	25	33	<0.5	10	<1	<2	13	23	41	
PMS-422	2017-11-28 00:00	<1	<1	<1	35	36	31	<0.5	21	<1	2	37.6	61.8	40	
PMS-424	2016-05-31 00:00	<1	<1	<1	31	32.4		<0.5	15	<1	10	15.8	42.3		
PMS-424	2016-08-30 00:00	1	<1	<1	29	31		<0.5	15	<1	9	18.3	43		
PMS-424	2016-10-18 00:00	1	<1	<1	51	53		<0.5	24	<1	9	37.2	69.9		
PMS-424	2017-02-27 00:00	<1	<1	<1	34	36	38	<0.5	17	<1	<2	23	43.2	50	
PMS-424	2017-05-16 00:00	<1	<1	<1	34	36	39	<0.5	17	<1	<2	24.4	43.2	50	
PMS-424	2017-08-22 00:00	<1	<1	<1	26	27	38	<0.5	11	<1	<2	14.3	25.9	46	
PMS-424	2017-11-28 00:00	<1	<1	<1	44	46	36	<0.5	15	<1	<2	28.1	46.1	40	
PMS-425	2016-05-31 00:00	<1	<1	<1	39	39.1		<0.5	8	<1	6	22.7	38.2		
PMS-425	2016-08-30 00:00	1	<1	<1	35	38		<0.5	8	<1	7	23.2	38.5		
PMS-425	2016-10-18 00:00	1	<1	<1	59	61		<0.5	16	<1	7	42.2	66.1		
PMS-425	2017-02-27 00:00	<1	<1	<1	44	46	46	<0.5	18	<1	2	27.8	48.5	48	
PMS-425	2017-05-16 00:00	1	<1	<1	39	41	47	<0.5	21	<1	2	33.7	57.2	53	
PMS-425	2017-08-22 00:00	<1	<1	<1	34	34	46	<0.5	13	<1	<2	21	33.7	51	
PMS-425	2017-11-28 00:00	1	<1	<1	65	67	47	<0.5	21	<1	2	65.2	88	57	

## Metal Analysis - Spring

	Sample Description	PMS-421	PMS-426		
		12192 McMynn Ave.	McKechnie Road	Canadian Guideline Limit	Reason Guideline Established
	Sample Date	02/05/2017 9:01	02/05/2017 10:36		
Aluminum Total	µg/L	90	100	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	2.9	1000	health
Boron Total	µg/L	<10	<10	5000	health
Cadmium Total	µg/L	<0.2	<0.2	5	health
Calcium Total	µg/L	884	1410	none	
Chromium Total	µg/L	<0.05	0.07	50	health
Cobalt Total	µg/L	<0.5	<0.5	none	
Copper Total	µg/L	10.2	0.9	≤1000	aesthetic
Iron Total	µg/L	57	74	≤ 300	aesthetic
Lead Total	µg/L	<0.5	<0.5	10	health
Magnesium Total	µg/L	91	94	none	
Manganese Total	µg/L	4.6	5.4	≤ 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	103	116	none	
Selenium Total	µg/L	<0.5	<0.5	50	health
Silver Total	µg/L	<0.5	<0.5	none	
Sodium Total	µg/L	5560	5150	≤ 200,000	aesthetic
Zinc Total	µg/L	3.4	<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	24/10/2017 9:06	24/10/2017 10:46		
Aluminum Total	µg/L	90	93	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	2.7	2.8	1000	health
Boron Total	µg/L	<10	<10	5000	health
Cadmium Total	µg/L	<0.2	<0.2	5	health
Calcium Total	µg/L	909	1390	none	
Chromium Total	µg/L	<0.05	0.07	50	health
Cobalt Total	µg/L	<0.5	<0.5	none	
Copper Total	µg/L	9.8	0.8	≤1000	aesthetic
Iron Total	µg/L	58	66	≤ 300	aesthetic
Lead Total	µg/L	<0.5	<0.5	10	health
Magnesium Total	µg/L	100	99	none	
Manganese Total	µg/L	2.3	2.3	≤ 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	117	124	none	
Selenium Total	µg/L	<0.5	<0.5	50	health
Silver Total	µg/L	<0.5	<0.5	none	
Sodium Total	µg/L	5300	5450	≤ 200,000	aesthetic
Zinc Total	µg/L	3.0	<3.0	≤ 5000	aesthetic

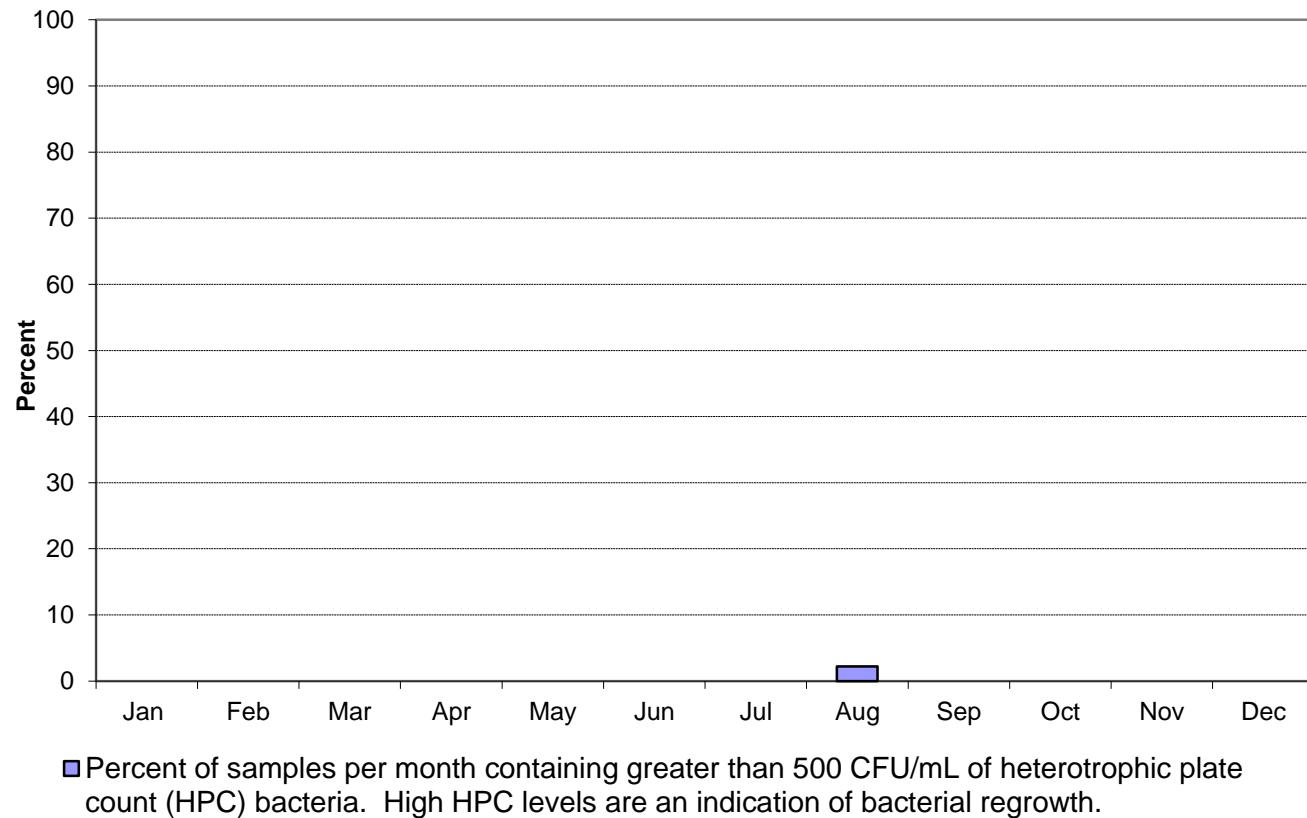
## Vinyl Chloride Analysis

Sample Site Number	Sample Reported Name	Sampled date	Vinyl Chloride ppb
PMS-I	Pitt Meadows Sampling Point (PMS-I)	13-Jun-17	<0.00040
PMS-I	Pitt Meadows Sampling Point (PMS-I)	14-Nov-18	<0.00040

## **APPENDIX – 4**

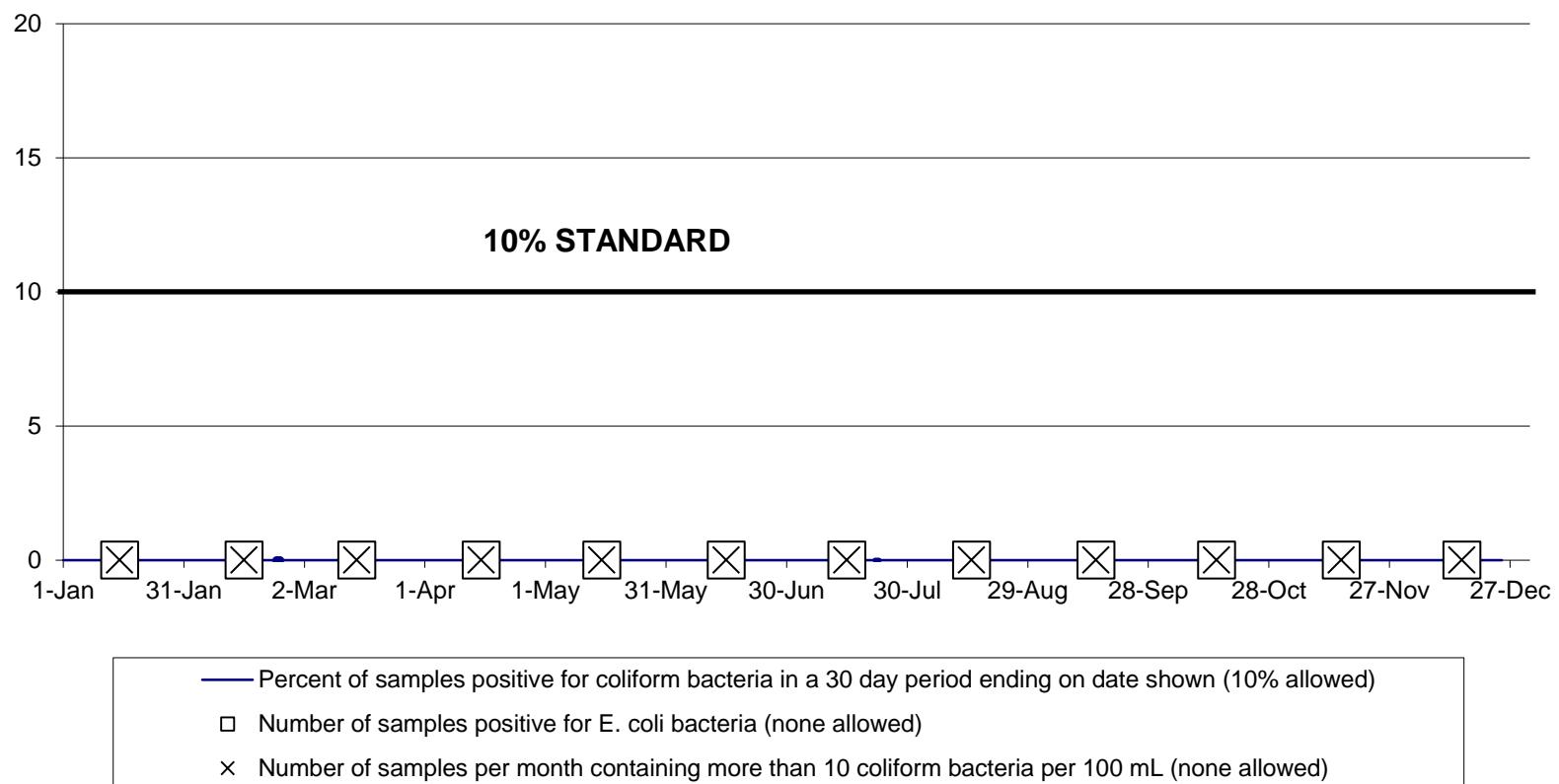
### **BACTERIOLOGICAL ANALYSIS OF POTABLE WATER SAMPLES**

## CITY OF PITT MEADOWS - MONTHLY HPC COUNTS FOR 2017

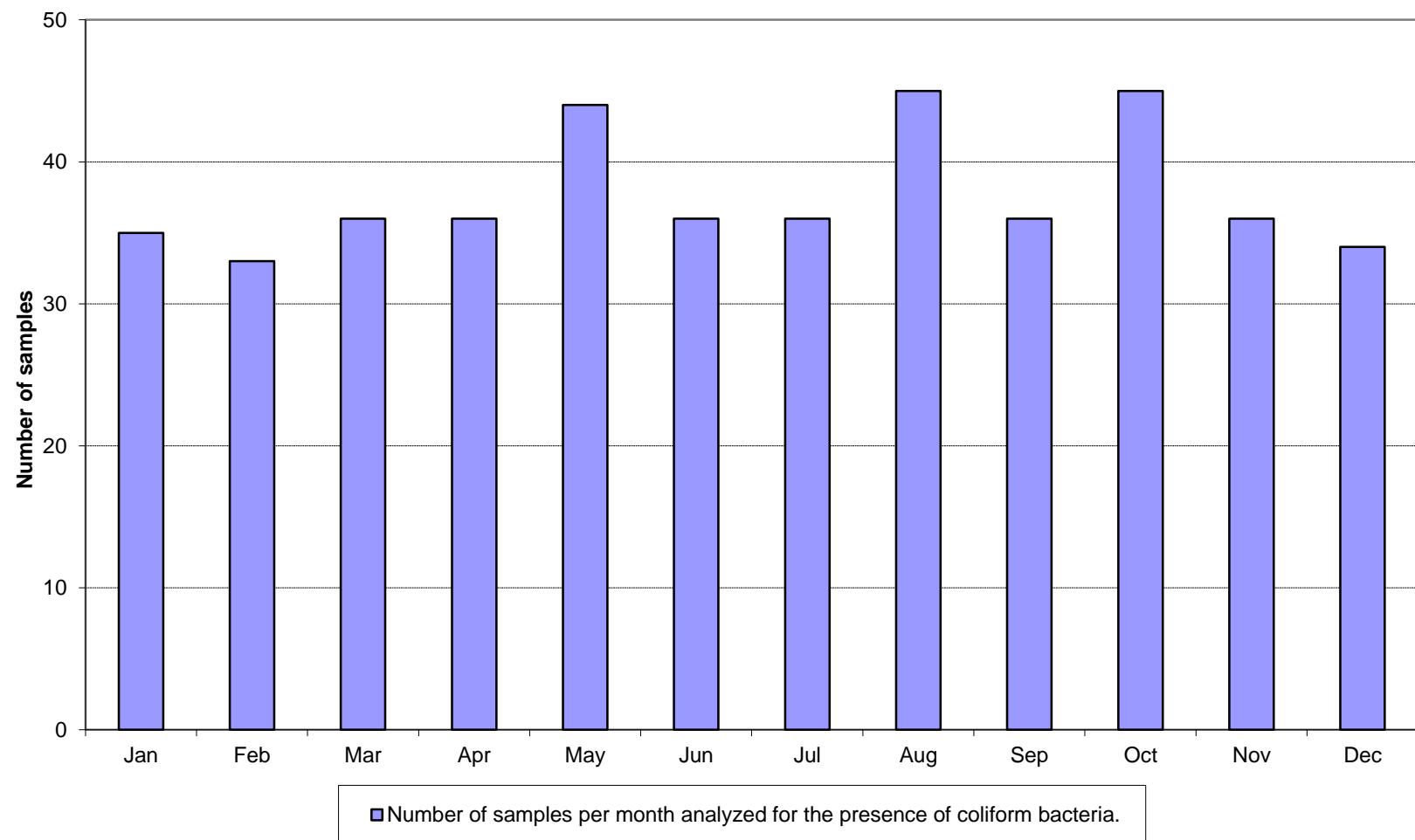


## CITY OF PIT MEADOWS - 2017

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



## CITY OF PIT MEADOWS - 2017



## **APPENDIX – 5**

**WEEKLY SAMPLE RESULTS – METRO VANCOUVER SAMPLE  
STATION GVS-072 IN MAPLE RIDGE AND 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
2017-01-05 10:03	1.1	<1	<2	4	<1	0.26
2017-01-11 08:39	0.75	<1	<2	4	<1	0.26
2017-01-20 08:39	0.56	<1	<2	5	<1	1.4
2017-01-23 13:06	0.99	<1	<2	6	<1	0.38
2017-01-31 11:01	0.62	<1	<2	6	<1	0.27
2017-02-09 08:54	0.61	<1	<2	4	<1	0.3
2017-02-16 08:21	0.89	<1	24	5	<1	0.34
2017-02-23 08:29	0.93	<1	2	4	<1	0.42
2017-02-24 11:41	0.89	<1	<2	6	<1	0.49
2017-02-27 13:00	0.83	<1	<2	5	<1	0.29
2017-03-03 08:15	0.87	<1	<2	5	<1	0.35
2017-03-09 12:16	0.71	<1	4	5	<1	0.38
2017-03-14 12:10	1.1	<1	<2	4	<1	0.4
2017-03-21 13:29	0.79	<1	<2	5	<1	0.35
2017-03-22 12:25	0.83	<1	<2	5	<1	0.36
2017-03-27 12:06	0.78	<1	<2	6	<1	0.39
2017-04-03 12:22	0.89	<1	4	6	<1	0.44
2017-04-06 10:08	0.78	<1	<2	5	<1	0.37
2017-04-10 08:27	0.77	<1	<2	6	<1	0.48
2017-04-21 07:10	1.1	<1	<2	6	<1	0.52
2017-04-28 08:37	0.84	<1	<2	7	<1	0.52
2017-05-05 09:08	0.81	<1	<2	8	<1	0.41
2017-05-11 08:25	0.76	<1	<2	8	<1	0.43
2017-05-18 10:18	0.87	<1	<2	7	<1	0.39
2017-05-20 11:31	0.81	<1	<2	7	<1	1.8
2017-05-21 08:14	0.91	<1	<2	8	<1	0.32
2017-05-26 10:20	0.69	<1	2	10	<1	0.27
2017-06-02 10:04	0.97	<1	<2	11	<1	0.35
2017-06-09 12:57	0.78	<1	<2	10	<1	0.36
2017-06-16 10:22	1	<1	<2	9	<1	0.32
2017-06-21 08:23	0.61	<1	18	11	<1	0.42
2017-06-29 08:27	0.71	<1	76	12	<1	0.35
2017-07-05 08:52	1.4	<1	<2	14	<1	0.37
2017-07-07 12:02	0.88	<1	<2	14	<1	0.3

2017-07-11 11:35	0.81	<1	<2	13	<1	0.38
2017-07-18 11:40	0.89	<1	28	14	<1	0.27
2017-07-25 12:13	1.1	<1	92	13	<1	0.34
2017-08-03 11:26	0.92	<1	LA	15	<1	0.25
2017-08-08 11:40	0.81	<1	<2	15	<1	0.23
2017-08-10 09:43	0.82	<1	34	13	<1	0.32
2017-08-17 09:58	1.1	<1	<2	15	<1	0.22
2017-08-18 11:05	0.78	<1	2	13	<1	0.26
2017-08-21 11:56	0.62	<1	8	15	<1	0.24
2017-08-28 11:14	0.79	<1	450	17	<1	0.43
2017-09-07 11:15	0.82	<1	4	18	<1	0.33
2017-09-11 11:12	1	<1	<2	17	<1	0.35
2017-09-14 08:23	0.74	<1	<2	16	<1	0.28
2017-09-19 11:57	0.86	<1	<2	15	<1	0.31
2017-09-27 11:12	0.95	<1	NA	15	<1	0.27
2017-10-05 11:26	0.91	<1	<2	14	<1	0.33
2017-10-12 10:53	0.86	<1	<2	13	<1	0.28
2017-10-19 09:39	1	<1	<2	8	<1	0.5
2017-10-24 11:29	0.71	<1	<2	10	<1	0.53
2017-10-27 11:31	0.7	<1	2	10	<1	0.55
2017-11-01 11:44	0.61	<1	4	10	<1	0.45
2017-11-07 10:57	0.74	<1	<2	8	<1	0.36
2017-11-09 09:30	0.82	<1	<2	8	<1	0.31
2017-11-15 11:37	0.8	<1	<2	7	<1	0.36
2017-11-23 09:38	1.1	<1	<2	6	<1	0.71
2017-11-30 10:33	0.98	<1	<2	6	<1	0.76
2017-12-08 11:12	0.94	<1	<2	6	<1	0.83
2017-12-15 11:05	0.89	<1	4	5	<1	0.66
2017-12-22 09:00	0.88	<1	NA	5	<1	0.62

## **APPENDIX – 6**

### **SOURCE WATER QUALITY – COQUITLAM, SEYMOUR AND CAPILANO WATERSHEDS**

Physical and Chemical Analysis of Water Supply  
Greater Vancouver Water District

<b>Parameter</b>	<b>Untreated</b>		<b>SCFP Treated</b>		<b>Canadian Guideline Limit</b>	<b>Reason Guideline Established</b>
	<b>Average</b>	<b>Average</b>	<b>Range</b>	<b>Days Guideline Exceeded</b>		
	<b>Average</b>	<b>Average</b>	<b>Range</b>	<b>Days Guideline Exceeded</b>		
Alkalinity as CaCO <sub>3</sub> (mg/L)	2.7	11.3	5.6-24.3		none	
Aluminum Dissolved (µg/L)	72	30	12-53		none	
Aluminum Total (µg/L)	123	33	13-58		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	2.7	2.2-3.3	0	1000	Health
Boron Total (µg/L)	<10	<10	<10		5	
Bromate (mg/L)		<0.01	<0.01	0	0.01	Health
Bromide (mg/L)		<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	1110	4780	2620-9050		none	
Carbon Organic - Dissolved (mg/L)	1.6	0.6	0.5-0.9		none	
Carbon Organic - Total (mg/L)	1.6	0.6	0.5-0.9		none	
Chlorate (mg/L)		0.03	0.01-0.05	0	1	Health
Chloride (mg/L)	<0.6	2.3	1.9-3	0	≤ 250	Aesthetic
Chromium Total (µg/L)	<0.15	<0.05	<0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	16	<2	<1-4		none	
Color - True (TCU)	11	<1	<1-4	0	≤ 15	Aesthetic
Conductivity (µmhos/cm)	11	32	21-53		none	
Copper Total (µg/L)	2.4	<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 <sub>3</sub> (mg/L)	3.4	12.6	7.1-23.4		none	
Iron Dissolved (µg/L)	36	<5	<5-7		none	
Iron Total (µg/L)	94	<6	<5-15	0	≤ 300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Magnesium Total (µg/L)	160	158	132-205		none	
Manganese Dissolved (µg/L)	5.7	1.8	0.9-3.3		none	
Manganese Total (µg/L)	6.7	3.5	2-6.9	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	0.03-0.14	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	3	Health
pH (pH units)	6.5	7.3	7.1-7.6	0	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Dissolved Reactive (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Total (mg/L)	<0.005	<0.005	<0.005		none	
Potassium Total (µg/L)	149	150	114-201		none	
Residue Total (mg/L)	16	29	21-36		none	
Residue Total Dissolved (mg/L)	16	23	15-31	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	9	21	16-29		none	
Residue Total Volatile (mg/L)	7	7	5-9		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO <sub>2</sub> (mg/L)	3.0	3.0	2.6-3.4		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (mg/L)	0.55	1.41	1.24-1.65	0	≤ 200	Aesthetic
Sulphate (mg/L)	0.7	1.0	0.7-1.2	0	≤ 500	Aesthetic
Turbidity (NTU)	0.98	0.12	0.07-1			
Turbidity IFE (NTU) <sup>1</sup>				4 <sup>1</sup>	≤ 1.0	Health
UV254 (Abs/cm)	0.069	0.009	0.005-0.015		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 on-line 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 breakheat 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 2017.

Physical and Chemical Analysis of Water Supply  
 Greater Vancouver Water District

## 2017 - Seymour Water System

<b>Parameter</b>	<b>Untreated</b>	<b>SCFP Treated</b>			<b>Canadian Guideline Limit</b>	<b>Reason Guideline Established</b>
	<b>Average</b>	<b>Average</b>	<b>Range</b>	<b>Days Guideline Exceeded</b>		
Alkalinity as CaCO <sub>3</sub> (mg/L)	3.3	11.3	5.4-22.5		none	
Aluminium Dissolved (µg/L)	65	31	12-57		none	
Aluminum Total (µg/L)	235	32	13-61	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)	4.4	2.7	2.1-3.2	0	1000	Health
Boron Total (µg/L)	<10	<10	<10	0	5	
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)	1500	4870	2540-9230		none	
Carbon Organic - Dissolved (mg/L)	1.5	0.6	0.5-0.9		none	
Carbon Organic - Total (mg/L)	1.7	0.6	0.5-0.9		none	
Chlorate (mg/L)	<0.01	<0.03	<0.01-0.04	0	1	Health
Chloride (mg/L)	<0.5	2.3	1.9-3	0	≤250	Aesthetic
Chromium Total (µg/L)	<0.19	<0.05	<0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	23	<2	<1-3		none	
Color - True (TCU)	11	<1	<1-3	0	≤15	Aesthetic
Conductivity (µmhos/cm)	12	32	21-53		none	
Copper Total (µg/L)	32.8	<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 <sub>3</sub> (mg/L)	4.4	12.8	6.9-23.9		none	
Iron Dissolved (µg/L)	76	<5	<5-5		none	
Iron Total (µg/L)	222	<6	<5-15	0	≤300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Magnesium Total (µg/L)	156	159	131-209		none	
Manganese Dissolved (µg/L)	5.0	3.5	1.5-5.6		none	
Manganese Total (µg/L)	9.2	4.7	2.1-8.1	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)	0.07	0.08	0.03-0.15	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01-0.01	0	3	Health
pH (pH units)	6.6	7.3	7.1-7.5	1	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Dissolved Reactive (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Total (mg/L)	<0.007	<0.005	<0.005		none	
Potassium Total (µg/L)	183	153	115-198		none	
Residue Total (mg/L)	21	25	21-32		none	
Residue Total Dissolved (mg/L)	17	23	18-30	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	13	18	14-25		none	
Residue Total Volatile (mg/L)	9	7	5-9		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO <sub>2</sub> (mg/L)	2.9	3.0	2.6-3.4		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (mg/L)	0.5	1.4	1.23-1.60	0	≤ 200	Aesthetic
Sulphate (mg/L)	1.2	1.0	0.7-1.2	0	≤ 500	Aesthetic
Turbidity (NTU)	2.7	0.11	0.07-0.15			
Turbidity IFE (NTU) <sup>1</sup>				4 <sup>1</sup>	≤ 1.0	Health
UV254 (Abs/cm)	0.067	0.009	0.006-0.015		none	
Zinc Total (µg/L)	<3.8	<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 357 days in 2017.

Physical and Chemical Analysis of Water Supply  
 Greater Vancouver Water District

## 2017 - Coquitlam Water System

<b>Parameter</b>	<b>Untreated</b>		<b>Treated</b>		<b>Canadian Guideline Limit</b>	<b>Reason Guideline Exceeded Established</b>
	<b>Average</b>	<b>Average</b>	<b>Range</b>	<b>Days Guideline Exceeded</b>		
Alkalinity as CaCO <sub>3</sub> (mg/L)	1.7	10.1	7.4-15.2		none	
Aluminum Dissolved (µg/L)	64	66	38-78		none	
Aluminum Total (µg/L)	95	91	51-136		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)	2.5	2.45	2.2-2.6	0	1000	Health
Boron Total (µg/L)	<10	<10	<10	0	5	Health
Bromate (mg/L)		<0.01	<0.01	0	0.01	Health
Bromide (mg/L)		<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	797	798	683-912		none	
Carbon Organic - Dissolved (mg/L)	1.5	1.4	1-1.8		none	
Carbon Organic - Total (mg/L)	2.0	1.5	1.1-1.9		none	
Chlorate (mg/L)		<0.04	<0.01-0.11	0	1	Health
Chloride (mg/L)	<0.5	1.9	1.5-3	0	≤250	Aesthetic
Chromium Total (µg/L)	<0.10	<0.08	<0.05-0.15	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	14	<2	<1.5		none	
Color - True (TCU)	9	<1	<1-4	0	≤15	Aesthetic
Conductivity (µmhos/cm)	8	27	21-33		none	
Copper Total (µg/L)	3.6	<0.5	<0.5-0.5		≤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 <sub>3</sub> (mg/L)	2.4	2.3	2-2.7		none	
Iron Dissolved (µg/L)	21	23	14-38		none	
Iron Total (µg/L)	51	52	33-75	0	≤300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Magnesium Total (µg/L)	94	94	71-109		none	
Manganese Dissolved (µg/L)	3.9	2.6	1.2-4.1		none	
Manganese Total (µg/L)	4.3	3.1	1.7-4.4	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)	0.09	0.09	0.05-0.13	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01-0.02	0	3	Health
pH (pH units)	6.3	7.5	7.1-8.3	0	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Dissolved Reactive (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Total (mg/L)	<0.005	<0.005	<0.005		none	
Potassium Total (µg/L)	110	110	99-118		none	
Residue Total (mg/L)	13	29	26-31		none	
Residue Total Dissolved (mg/L)	12	25	19-30	0	≤500	Aesthetic
Residue Total Fixed (mg/L)	7	20	17-24		none	
Residue Total Volatile (mg/L)	6	9	8-11		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO <sub>2</sub> (mg/L)	2.3	2.3	2-2.6		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (mg/L)	0.45	5.33	4.72-5.92	0	≤200	Aesthetic
Sulphate (mg/L)	<0.6	<0.6	<0.5-0.7	0	≤500	Aesthetic
Turbidity (NTU)	0.45	0.38	0.18-1.4	19	≤1.0	Health
UV 254 - Apparent (Abs/cm)	0.069	0.024	0.012-0.055	0	20	Health
UV 254 nm (Abs/cm)	0.064	<0.019	<0.005-0.050			
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 on-line 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 GVWD 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 un-filtered source. Coquitlam source was operational for 365 days in 2017.

## **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	20-Nov-17	5		<0.5	<0.5	<0.5
Azinphos-Methyl	µg/L	20-Nov-17	20		<2.0	<2.0	<2.0
Bendiocarb	µg/L	20-Nov-17	40		<2	<2	<2
Benzene	µg/L	13-Jun-17	5		<0.5	<0.5	<0.5
Benzo(a)pyrene	µg/L	13-Jun-17	0.04		<0.0050	<0.0050	<0.0050
Bromoxynil	µg/L	20-Nov-17	5		<0.50	<0.50	<0.50
Carbaryl	µg/L	20-Nov-17	90		<5	<5	<5
Carbofuran	µg/L	20-Nov-17	90		<5	<5	<5
Carbon Tetrachloride	µg/L	13-Jun-17	2		<0.50	<0.50	<0.50
Cyanobacterial toxins—Microcystin-LR	µg/L	Apr through Nov 2017	1.5		<0.20	<0.20	<0.20
Chlorpyrifos	µg/L	20-Nov-17	90		<2.0	<2.0	<2.0
Diazinon	µg/L	20-Nov-17	20		<2	<2	<2
Dicamba	µg/L	20-Nov-17	120		<1.0	<1.0	<1.0
Dichlofop-Methyl	µg/L	20-Nov-17	9		<0.90	<0.90	<0.90
Dichlorobenzene, 1,2-	µg/L	13-Jun-17	200	≤ 3	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	13-Jun-17	5	≤ 1	<1.0	<1.0	<1.0
Dichloroethane, 1,2-	µg/L	13-Jun-17	5		<1.0	<1.0	<1.0
Dichloroethylene, 1,1-	µg/L	13-Jun-17	14		<1.0	<1.0	<1.0
Dichloromethane	µg/L	13-Jun-17	50		<5.0	<5.0	<5.0
Dichlorophenol, 2,4-	µg/L	13-Jun-17	900	≤ 0.3	<0.10	<0.10	<0.10
Dichlorophenoxyacetic acid, 2,4-(2,4-D)	µg/L	20-Nov-17	100		<1.0	<1.0	<1.0
Dimethoate	µg/L	20-Nov-17	20		<2	<2	<2
Diquat	µg/L	20-Nov-17	70		<7.0	<7.0	<7.0
Diuron	µg/L	20-Nov-17	150		<10	<10	<10
Ethylbenzene	µg/L	13-Jun-17	140	≤ 1.6	<0.5	<0.5	<0.5
Glyphosate	µg/L	20-Nov-17	280		<10	<10	<10
Malathion	µg/L	20-Nov-17	190		<2.0	<2.0	<2.0
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	µg/L	20-Nov-17	100		<2.0	<2.0	<2.0
Methyl t-butyl ether (MTBE)	µg/L	13-Jun-17		≤ 15	<0.5	<0.50	<0.50
Metolachlor	µg/L	20-Nov-17	50		<5	<5	<5
Metribuzin	µg/L	20-Nov-17	80		<5.0	<5.0	<5.0
Monochlorobenzene	µg/L	13-Jun-17	80	≤ 30	<1.0	<1.0	<1.0
N-Nitroso dimethylamine (NDMA)	µg/L	20-Nov-17	0.04		<0.0009	<0.0009	<0.0009
Nitrilotriacetic Acid (NTA)	µg/L	20-Nov-17	400		<50.0	<50.0	<50.0
Paraquat (as Dichloride)	µg/L	20-Nov-17	10		<5.0	<1.0	<1.0
Pentachlorophenol	µg/L	20-Nov-17	60	≤ 30	<0.10	<0.10	<0.10
Phorate	µg/L	20-Nov-17	2		<1	<1	<1
Picloram	µg/L	20-Nov-17	190		<5.0	<5.0	<5.0

41

45

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	Units	Date Sampled	MAC	AO	Capilano	Seymour	Coquitlam
Simazine	µg/L	20-Nov-17	10		<2	<2	<2
Terbufos	µg/L	20-Nov-17	1		<1	<1	<1
Tetrachloroethylene	µg/L	13-Jun-17	10		<1.0	<1.0	<1.0
Tetrachlorophenol, 2,3,4,6-	µg/L	20-Nov-17	100	≤ 1	<0.10	<0.10	<0.10
Toluene	µg/L	13-Jun-17	60	24	<0.45	<0.45	<0.45
Trichloroethylene	µg/L	13-Jun-17	5		<1.0	<1.0	<1.0
Trichlorophenol, 2,4,6-	µg/L	20-Nov-17	5	≤ 2	<0.10	<0.10	<0.10
Trifluralin	µg/L	20-Nov-17	45		<5	<5	<5
Uranium	µg/L	20-Nov-17	20		0.0270	0.0160	0.0420
Vinyl Chloride	µg/L	13-Jun-17	2		<0.40	<0.40	<0.40
Xylene (Total)	µg/L	13-Jun-17	90	≤ 20	<0.75	<0.75	<0.75

### Analysis of Source Water for PAHs

Parameters	Units	Capilano		Seymour		Coquitlam	
		13-June	16-Oct	12-June	16-Oct	14-June	16-Oct
Acenaphthene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Acenaphthylene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Anthracene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Benzo(a)anthracene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Benzo(b)fluoranthene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Benzo(k)fluoranthene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Benzo(g,h,i)perylene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Benzo(a)pyrene <sup>1</sup>	µg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Dibenzo(a,h)anthracene	µg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Fluorene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Indeno(1,2,3-c,d)pyrene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010
Naphthalene	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	µg/L	<0.050	<0.020	<0.050	<0.020	<0.050	<0.020
Pyrene	µg/L	<0.050	<0.010	<0.050	<0.010	<0.050	<0.010

### Analysis of Source Water for Radioactivity

Radioactivity	Units	Date Sampled	MAC <sup>1</sup>	Capilano		Seymour		Coquitlam	
				MDA <sup>2</sup>	Activity	MDA <sup>2</sup>	Activity	MDA <sup>2</sup>	Activity
Gross Alpha	Bq/L	6-Nov-17	<0.5	0.04	<0.04	0.04	<0.04	0.04	<0.040
Gross Beta	Bq/L	6-Nov-17	<1.0	0.06	<0.06	0.05	<0.05	0.06	<0.06
Cobalt-60	Bq/L	6-Nov-17	N/A	0.56	<0.56	0.60	<0.60	0.48	<0.48
Cesium-134	Bq/L	6-Nov-17	N/A	0.62	<0.62	0.68	<0.68	0.50	<0.50
Cesium-137	Bq/L	6-Nov-17	10	0.60	0.60	0.55	<0.55	0.46	<0.46
Iodine-131	Bq/L	6-Nov-17	6	0.44	<0.44	0.54	<0.54	0.38	<0.38
Lead-210	Bq/L	6-Nov-17	0.2	0.11	<0.11	0.13	<0.13	0.11	<0.11
Radium-226	Bq/L	6-Nov-17	0.5	0.01	<0.01	0.01	<0.01	0.01	<0.01
Radon-222	Bq/L	6-Nov-17	None Required	0.83	<0.83	0.81	<0.81	0.87	<0.87
Strontium-90	Bq/L	6-Nov-17	5	0.04	<0.04	0.04	<0.04	0.04	<0.04
Tritium (H-3)	Bq/L	6-Nov-17	7000	5.18	<5.18	5.11	<5.11	5.00	<5.00

**Footnotes:**

<sup>1</sup>MAC from Guidelines for Canadian Drinking Water Quality (GCDWQ), Oct. 2014

<sup>2</sup>MDA Minimum Detectable Activity

## **APPENDIX – 8**

### **2017 OPERATING PERMIT**



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*

