2017 Annual Water Quality Report

Operations Division
City of Port Moody

Foreword

Under the *British Columbia Drinking Water Protection Act* and the *British Columbia Drinking Water Protection Regulation (BCDWPA and BCDWPR)* the City of Port Moody is required to conduct drinking water quality monitoring, and to publish the results in an annual report. A summary of water quality sampling, as well as an overview of projects and events as they relate to drinking water in the City of Port Moody, is provided in this report.

Please visit the following web sites for further information:

- Health Canada
  http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php

- Ministry of Health
  http://www.health.gov.bc.ca/protect/dw_index.html

- Health link BC File #56 – Persons with compromised or Weakened Immune Systems:
  http://www.healthlinkbc.ca/healthfiles/hfile56.stm

- Metro Vancouver
  http://www.metrovancouver.org/services/water/Pages/default.aspx

- City of Port Moody
  http://www.portmoody.ca

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Table of Contents

List of Tables

List of Figures

Acronyms

AO:	Aesthetic Objective
ASTTBC:	Applied Science Technicians and Technologists of British Columbia
BCDWPA:	*British Columbia Drinking Water Protection Act*
BCDWPR:	*British Columbia Drinking Water Protection Regulation*
DBP:	Disinfection By-Products
DWMP:	*Metro Vancouver Drinking Water Management Plan*
E.coli:	*Escherichia coli*
EOCP:	Environmental Operators Certification Program
GCDWQ:	*Guidelines for Canadian Drinking Water Quality*
HAA:	Haloacetic Acid
HPC:	Heterotrophic Plate Count
MAC:	Maximum Acceptable Concentration
Mg/l:	Milligrams per Liter
NTU:	Nephelometric Turbidity Units
PPB:	Parts Per Billion
PPM:	Parts Per Million
PRV:	Pressure Regulating Valve
PVC:	Polyvinyl Chloride
SCADA:	Supervisory Control and Data Acquisition
SCFP:	Seymour – Capilano Filtration Plant
THM:	Trihalomethane
UDF:	Uni-directional Flushing
WQMRP:	*Water Quality Monitoring and Reporting Plan for Metro Vancouver and Member Municipalities*
YTD:	Year-to-Date

Executive Summary

The City of Port Moody supplies drinking water to residential, industrial, commercial, and institutional customers within city limits. In 2017, the City purchased and distributed just over 5.1 million cubic metres of treated drinking water from Metro Vancouver.

This report fulfills the requirements for the City as set out in the *Drinking Water Protection Act* by giving an overview of the City's water distribution system and key performance indicators. Metro Vancouver collects and analyzes water samples from the distribution systems on behalf of the City of Port Moody. This report includes a summary and discussion of these results, and a complete record of 2017 water quality sampling results.

In accordance with the *Water Quality Monitoring and Reporting Plan for Metro Vancouver and Member Municipalities (WQMRP),* Metro Vancouver collects water samples from Port Moody's distribution system and analyzes them for chemical, physical, and bacterial parameters. The sample results for Port Moody's water were well under their respective Maximum Acceptable Concentration (MAC) values.

As part of its commitment to continual improvement, reliable service, and a high level of water quality, the City completes operational and capital improvement programs on an ongoing basis. In 2017, the City undertook:

- weekly inspections and maintenance of all water distribution facilities;
- water main flushing throughout approximately 50% of the City;
- water main and service repairs and renewals; and
- a valve exercising program.

These programs are continually evaluated and adjusted to ensure that high quality drinking water is delivered with maximum efficiency.

1.0 Water Distribution System

1.1 System Infrastructure

The tables in this section provide a snapshot of the City of Port Moody's water distribution system. All of the components listed are operated and maintained by City of Port Moody staff.

Table #1: Water Distribution System Assets

Total length of all water mains	Approximately 120km
Fire Hydrants	Approximately 600
Pressure Regulating Valve (PRV) Stations	15
Pump Stations	3
Reservoirs	3
Rechlorination Stations	2

In addition to pipes, fire hydrants, and critical components, there are many other smaller components to Port Moody's water distribution system, including:

- water meters;
- air valves;
- blowdown chambers;
- line valves;
- sampling stations; and
- automatic flushing units.

All of these components work together to distribute safe, high-quality drinking water throughout the city. As of December 31, 2017, the net book value of all water distribution system infrastructure in Port Moody was $21,026,528.

1.2 Staff Certification

The City's water system is monitored, operated, and maintained by a team of qualified personnel who are certified by the EOCP and the Applied Science Technologists and Technicians of British Columbia (ASTTBC). Port Moody's water distribution system is classified as a Class III system by the Environmental Operators Certification Program (EOCP), and is required to have a minimum number and level of certified staff. The City exceeds these requirements, with some staff certified as Level III and Level IV water distribution operators.

2.0 2017 Event Summary

2.1 Source Water Quality

Water quality from Metro Vancouver's Seymour/Capilano Water Treatment Plant and Coquitlam Lake sources met or exceeded all of the recommendations listed in the GCDWQ at all times during 2017. Generally, Metro Vancouver's source water quality:

- met or exceeded standards set by the GCDWQ as well as the BCDWPA and BCDWPR for bacteriological, physical, and chemical water quality;
- was below detection limits for herbicides, pesticides, and volatile organic compounds; and
- had safe, normal background levels of radioactive compounds.

2.2 Water Main Breaks

The City repaired five water main breaks in 2017. These occurred near the following locations:

Table #2: Water Main Break Locations

Location	Size (mm)	Pipe Material
642 Ioco Road	100mm	Cast Iron
2002 Highview Place	150mm	Cast Iron
Seaforth Way	150mm	Ductile Iron
3009 Murray Street	250mm	Cast Iron
3354 Henry Street	150mm	Cast Iron

The City strives to make repairs immediately and to be on-site within one half hour on weekdays from 07:00 to 15:30 and within one hour on weekends, holidays, and weekdays from 15:30 to 07:00.

After repairs are completed, the water main is disinfected per the AWWA C651-99 *AWWA Standard for Disinfecting Water Mains* (AWWA, 2000). Repaired water mains are then pressure tested. Following completion of these procedures, the water main is flushed until field water quality parameters match background values.

3.0 Water Main Flushing Program

The City of Port Moody conducts uni-directional flushing to maintain a high level of water quality in the distribution system. Uni-directional flushing involves strategically closing valves and opening fire hydrants in sections of the distribution system in order to attain high water velocities in target water mains. This produces a scouring action that is more effective at cleaning the interior pipe wall than regular flushing and consumes less water. In 2017, the City completed uni-directional flushing on approximately 60 kilometres of water main, or 50% of the total water distribution system.

4.0 Water Quality Sampling and Testing

Per the *Water Quality Monitoring and Reporting Plan for Metro Vancouver and Member Municipalities*, sampling and analysis for numerous water quality parameters are conducted on the City of Port Moody's distribution system on a regular basis by Metro Vancouver staff on behalf of the City. This monitoring is conducted for bacterial, chemical, and physical characteristics.

The BCDWPR requires one monthly sample per 1,000 population. The City's 2017 population was approximately 34,000, meaning that 34 monthly samples were required to be taken. Port Moody exceeded the requirements for sampling, with an average of approximately 52 samples taken every month in 2017, and no fewer than 37 were taken in any given month.

In 2017, a total of 624 samples were collected from the City's distribution system. Appendix #2 shows the location of sampling stations.

4.1 Chemical and Physical Quality

Water quality sampling for chemical and physical parameters, including disinfection by-products, vinyl chloride, and metals, is carried out on varying schedules. Table #3 contains information modified from Metro Vancouver's *WQMRP*, and sets out a schedule requiring "approximately 10% of the sample sites in each municipal system to be sampled for the following parameters at the frequency shown (Metro Vancouver, 2008)."

Table #3: Chemical and Physical Monitoring in Municipal Distribution Systems

Parameter	Location	Frequency
Free Chlorine Residual	All	Tests run when bacteriological samples are taken
Copper	Municipal Distribution System**	Semi-annually
Haloacetic Acids	Municipal Sites – cross-section, representative of all three sources, minimum of one per municipality.	Quarterly
Iron	Representative municipal sites – unlined iron and steel mains.	Semi-annually
Lead	Municipal Distribution System**	Semi-annually
Odour	Any or all sites	Complaint Basis*
pH	Municipal Sites – cross-section, representative of all sources, minimum of three per municipality.	Quarterly
Taste	Any or all sites.	Complaint Basis*
Temperature	Representative municipal sites.	Quarterly
Trihalomethanes	Municipal Sites – cross-section, representative of all sources, minimum of three per municipality.	Quarterly
Turbidity	Municipal Sites – All	Collected with bacteriological samples
Vinyl Chloride	Municipal sites where PVC pipe is used in the distribution system – minimum of one per potentially affected system.	Semi-annually
Zinc	Municipal Distribution System**	Semi-annually

* If a complaint comes to Metro Vancouver, Metro Vancouver will bring it to the attention of the relevant municipality.

** The GCDWQ stipulate that samples for metals analysis should be from a flushed location. This provides rationale to sample for metals in the distribution system as opposed to locations in buildings.

4.1.1 Metals

Metals can enter the drinking water system from either the source watershed or in the distribution system itself. Historically, the City of Port Moody's drinking water has contained very low concentrations of metal compounds. Metro Vancouver completes metals sampling semi-annually according to the *WQMRP.*

A complete record of 2017 metals sampling results can be found in Appendix #3.

4.1.2 Disinfection By-Products

Disinfection By-Product (DBP) formation occurs when chlorine in drinking water reacts with dissolved organic compounds. These reactions produce two main groups of DBP compounds, Trihalomethanes (THM) and Haloacetic Acids (HAA). Monitoring for DBPs is conducted on a quarterly basis as set out by Metro Vancouver's *WQMRP*.

A complete record of 2017 DBP sampling results can be found in Appendix #4.

4.1.3 Vinyl Chloride

Approximately 660 metres of water main, located in the Klahanie Drive area, is constructed with polyvinyl chloride pipe (PVC). Studies have shown that under extreme conditions, PVC water mains can leach vinyl chloride into drinking water. The *GCDWQ* set a MAC for vinyl chloride at 0.002 mg/l. The City takes samples from these water mains and submits them to Metro Vancouver's laboratory for analysis on a semi-annual basis. All vinyl chloride monitoring results obtained in 2017 were well below MAC values and equipment detection limits.

A complete record of 2017 Vinyl Chloride sampling results can be found in Appendix #5.

4.2 Bacteriological Quality

All samples collected from the City's water distribution system are analyzed for three key indicators:

- total coliform;
- E. coli bacteria; and
- Heterotrophic (HPC) bacteria.

Total coliform and E. coli sampling results indicate whether adequate disinfection is present in the water distribution system, and are used to determine if water quality meets bacteriological guidelines.

Sample station PMY-514, near 200 Parkside Drive, had an annual average chlorine residual of 0.18 mg/L, which is slightly less than the lower limit of the aesthetic objective of maintaining 0.2 mg/L to 1.0 mg/L. This location, which is at the terminal end of a linear-shaped water distribution system, has been historically subject to slightly lower chlorine residual readings.

Improvements to the operation of PRVs, reservoirs, and uni-directional flushing practices are anticipated to yield an improvement in overall chlorine residuals in this area.

HPC bacteria provide an indicator of microbial growth in the distribution system and are used as an early warning to predict where water quality may suffer. There is no public health risk or MAC associated with HPC bacteria; however, elevated levels are not desirable.

The quantity of bacterial samples collected from municipal water distribution systems is based on the population served. Figures #1 and #2 display the number of bacteriological samples collected from the city's water distribution system and the percentage of samples collected that returned HPC results greater than 500 CFU/mls each month. Figure #3 demonstrates City compliance with the *BCDWPR* total coliform bacteria requirements. (Health Canada, 2010) (Metro Vancouver, 2008) (Province of British Columbia, 2011).

A complete record of 2017 bacteriological water quality sampling results can be found in Appendix #1.

Figure#1: Number of Bacterial Samples Analyzed per Month

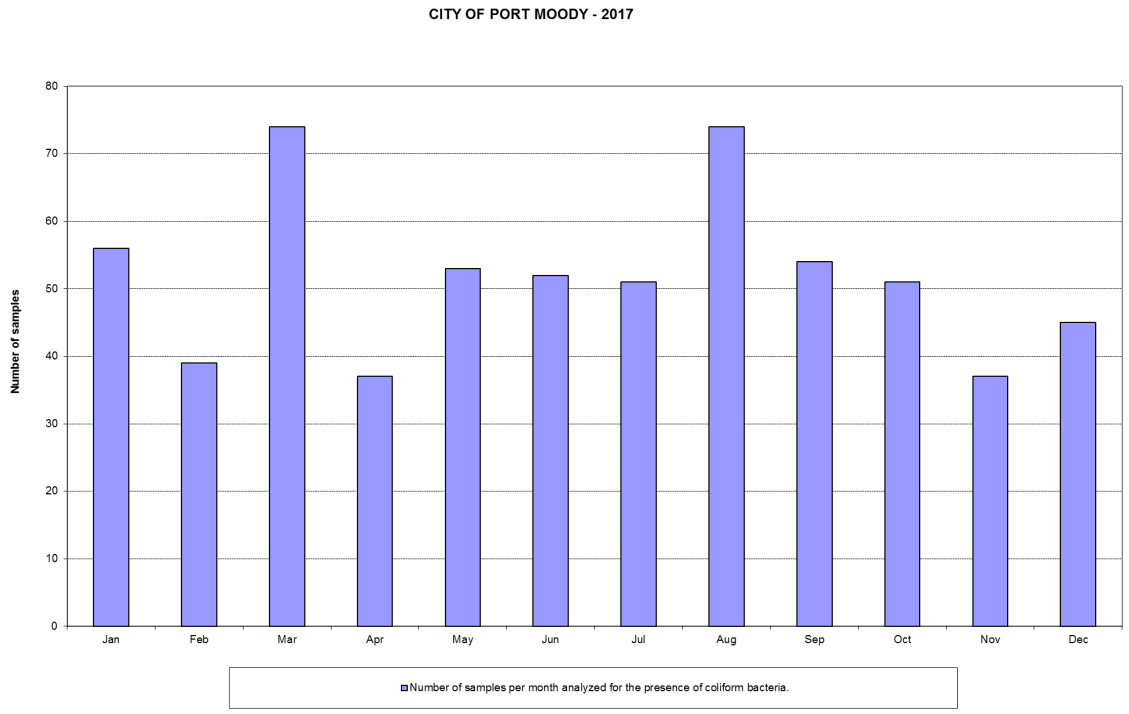


Figure #2: 2017 Monthly Heterotrophic Plate Count Results >500 CFU/mls

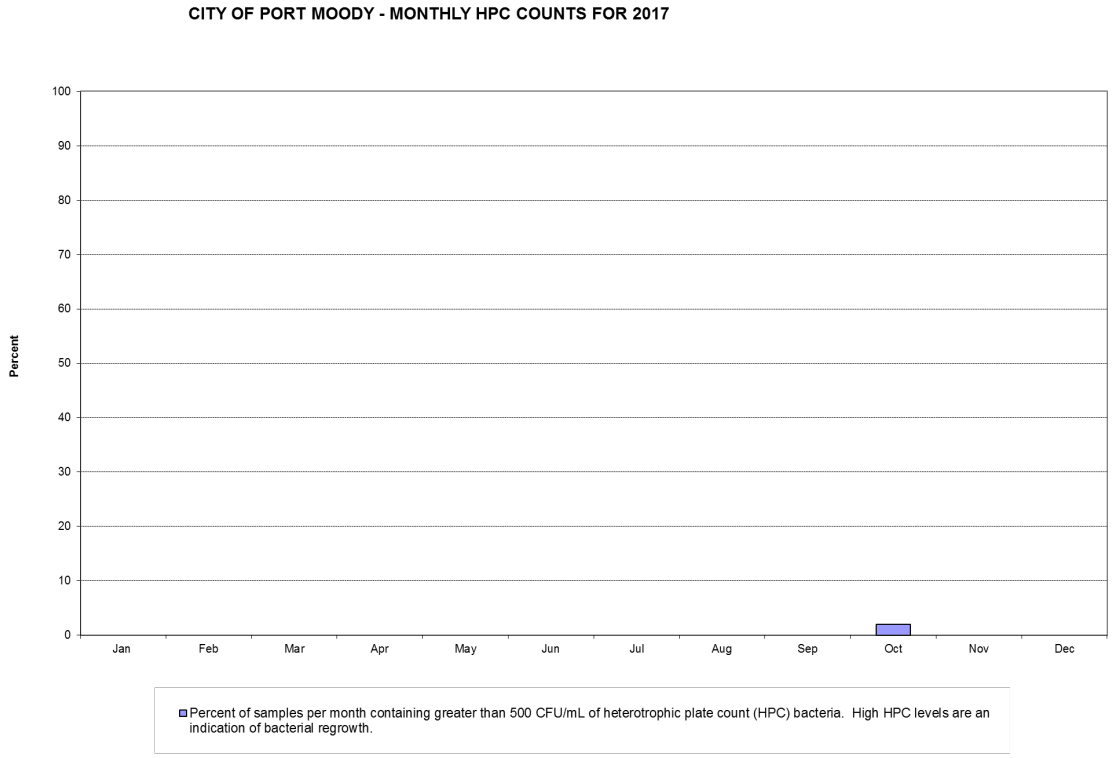
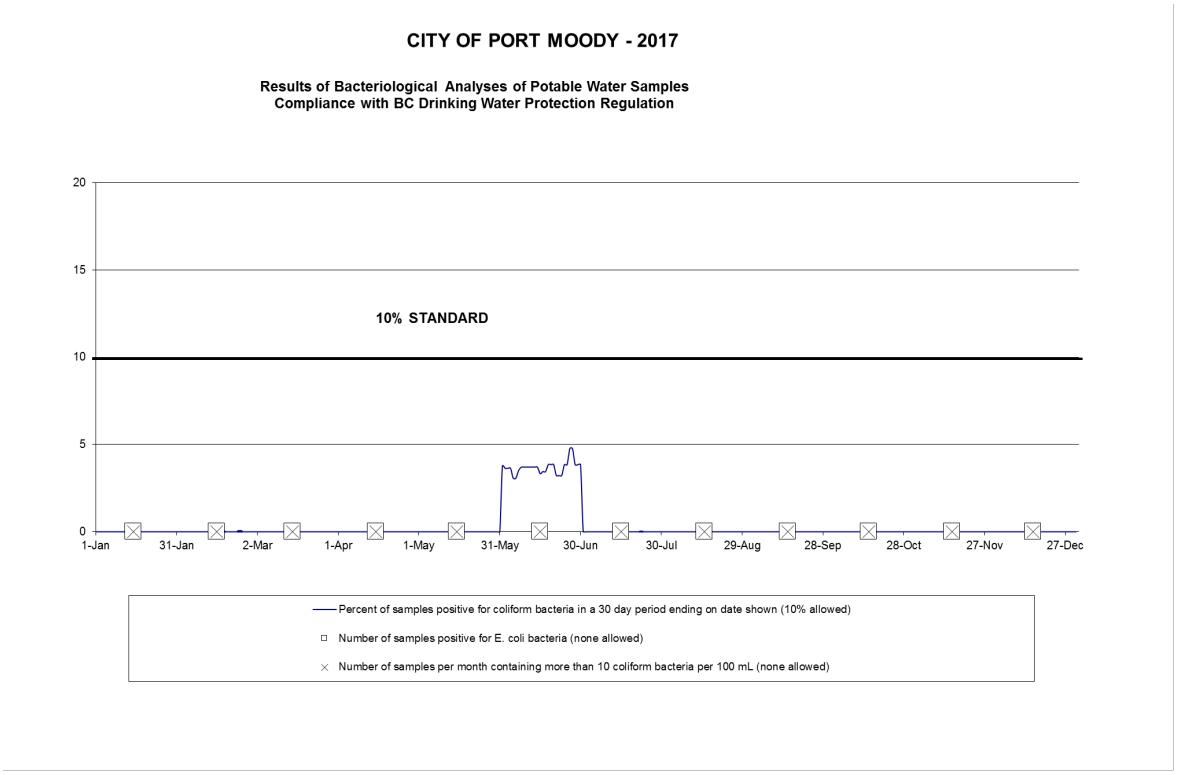


Figure #3: Results of Bacteriological Analysis of Potable Water Samples and Compliance with BCDWPR



4.3 Chlorine Residual

The water supplied to the City by Metro Vancouver is chlorinated at Metro Vancouver's water treatment facilities, and throughout their transmission system. The City rechlorinates water at the Ioco Road Rechlorination Station and at Chestnut Way Pump Station to provide for disinfection and to prevent bacterial regrowth in extended areas of the City's water distribution system. These facilities serve to maintain adequate chlorine residuals in the Pleasantside, Ioco, Sunnyside, Sentinel Hill, Heritage Mountain, and Heritage Woods neighbourhoods.

Maintaining adequate chlorine residual in a potable water distribution system is vital to preserving public health. The City strives to achieve a balance of aesthetics and disinfection when maintaining chlorine residuals.

5.0 Water Distribution System Projects

Port Moody completed a number of projects related to improving the City's water distribution system, including those shown in Table #4 below.

Table #4: 2017 Projects

Completed Water Distribution System Projects
Reservoir Cleaning – Chestnut Way
Security Upgrades – system wide
System Improvements – 151 Pressure Zone
Watermain Replacement – Glenayre Drive and College Park Way
Watermain Replacement – Mount Royal Drive
Watermain Replacement – Chateau Place
Electrical Upgrades – PRVs system wide

5.1 Drinking Water Management Plan

In 2011, the City of Port Moody adopted Metro Vancouver's *Drinking Water Management Plan (DWMP)*. Table #5 highlights key actions that Metro Vancouver and its member municipalities are undertaking as a result of the plan (Metro Vancouver, 2011).

Table #5: Drinking Water Management Plan Action Items

Metro Vancouver	Member Municipalities
Complete construction of the Seymour-Capilano Filtration Plant project	Complete re-assessment of the secondary disinfection component of municipal distribution systems in coordination with Metro Vancouver after completion of the Seymour-Capilano Filtration Plant project
Upgrade primary disinfection to include UV treatment for Coquitlam source water	Monitor water quality in all municipal distribution systems
Complete re-assessment of the secondary disinfection component of Metro Vancouver's distribution system after completion of the Seymour-Capilano Filtration Plant project	Maintain water quality in all municipal distribution systems via maintenance programs that include water main flushing, reservoir cleaning, and capital projects to eliminate dead ends where possible
Develop, implement, administer, and maintain backflow prevention and cross-connection control program	Develop, implement, administer, and maintain backflow prevention and cross-connection control programs
Where feasible, restore disturbed areas and deactivated watershed roads that are no longer required to minimize the risk of erosion and landslides	Reassess the merits of developing residential water metering programs and rebate programs for water efficient fixtures and appliances
Reduce the risk of microbiological or chemical contamination by restricting access to the source watersheds	Develop, implement, and enforce consistent water conservation bylaws including enhanced sprinkling regulations to address seasonal and peak day consumption issues
Initiate conceptual design of a new intake facility for the Coquitlam lake source to allow access to additional water supply	Renew and replace aging infrastructure to maintain required levels of service
Provide for additional capacity by securing full access to the Coquitlam source and consider expanding storage capacity in the Seymour and Capilano watersheds by 2050	Work with the general public and industry on water conservation and reuse initiatives, base and seasonal rate structures, and education initiatives
Implement a region wide water conservation program targeting ICI and agricultural sectors	Create and update municipal bylaws to encourage on-site rainwater collection and use for non-potable purposes
Evaluate and install facilities for rainwater collection, grey water reclamation, and reuse of wastewater from treatment facilities	
Develop and implement a joint water use plan for the Seymour and Capilano watersheds	
Undertake a cost-effective leak detection program	

6.0 Water Distribution System Emergency Plan

In the event of an emergency, such as an earthquake, the City may enact its Emergency Water Supply and Distribution Plan. This Plan is kept under separate cover. The goals outlined in this formal plan are as follows:

1. Rapidly restore service after an emergency.
2. Ensure adequate water service for fire suppression.
3. Minimize impact and loss to citizens.
4. Provide emergency public information.
5. Provide for the re-establishment of critical operations in a defined priority sequence.
6. Achieve the foregoing in a cost-effective manner.

The plan outlines strategies and priorities for meeting these goals based on the design and layout of the City's water distribution system as well as Port Moody's topography, and is intended to work in conjunction with the established organizational structure of the City's Emergency Operations Centre.

Conclusion

In 2017, drinking water in the City of Port Moody met or exceeded the requirements of both the *Guidelines for Canadian Drinking Water Quality* and the *British Columbia Drinking Water Act and Regulation*. Engineering and Operations staff at the City of Port Moody work to ensure safe, clean potable water for the City's residents at a reasonable cost.

The City works closely with stakeholders including residents, Fraser Health, and Metro Vancouver to ensure that safe, reliable, high-quality drinking water is delivered throughout Port Moody.

Works Cited

AWWA. (2000). ANSI/AWWA C651-99 – AWWA Standard for Disinfecting Water Mains. Denver: American Water Works Association.

Health Canada. (2010). *Guidelines for Canadian Drinking Water Quality.* Ottawa: Federal-Provincial-Teritorial Committee on Drinking Water of the Federal-Provincial-Teritorial Committee on Health and the Environment.

Health Canada. (2009). *Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Chlorine.* Ottawa: Health Canada.

Metro Vancouver. (2011). *Metro Vancouver Drinking Water Management Plan.* Burnaby: Metro Vancouver.

Metro Vancouver. (2008). *Water Quality Monitoring and Reporting Plan for Metro Vancouver and Member Municipalities.* Burnaby: Greater Vancouver Regional District.

Province of British Columbia. (2011). *British Columbia Drinking Water Protection Regulation.* Victoria.

Province of British Columbia. (2011). *Drinking Water Protection Regulation.* Victoria: Province of British Columbia.

Appendix #1

Bacterial Analysis

PMY 506 – 22 Crawford Bay

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
1-Jan-17	0.34	<1	NA	7	<1	0.24
4-Jan-17	0.49	<1	<2	5	<1	0.26
6-Jan-17	0.44	<1	<2	7	<1	0.29
9-Jan-17	0.52	<1	<2	6	<1	0.2
16-Jan-17	0.67	<1	<2	6	<1	0.24
26-Jan-17	0.45	<1	<2	6	<1	0.24
30-Jan-17	0.68	<1	<2	6	<1	0.84
6-Feb-17	0.68	<1	2	6	<1	0.28
14-Feb-17	0.59	<1	<2	6	<1	0.33
20-Feb-17	0.67	<1	<2	6	<1	0.43
27-Feb-17	0.63	<1	2	6	<1	0.31
3-Mar-17	0.59	<1	<2	6	<1	0.28
6-Mar-17	0.5	<1	<2	6	<1	0.35
9-Mar-17	0.58	<1	<2	7	<1	0.28
13-Mar-17	0.56	<1	<2	7	<1	0.32
16-Mar-17	0.51	<1	<2	7	<1	0.3
20-Mar-17	0.53	<1	<2	8	<1	0.42
23-Mar-17	0.29	<1	<2	8	<1	0.27
27-Mar-17	0.29	<1	<2	9	<1	0.34
3-Apr-17	0.51	<1	<2	8	<1	0.31
10-Apr-17	0.55	<1	<2	9	<1	0.31
18-Apr-17	0.37	<1	<2	10	<1	0.89
24-Apr-17	0.55	<1	<2	9	<1	0.36
1-May-17	0.34	<1	<2	10	<1	0.83
8-May-17	0.3	<1	<2	12	<1	0.64
16-May-17	0.34	<1	<2	12	<1	0.31
25-May-17	0.4	<1	<2	11	<1	0.21
27-May-17	0.18	<1	<2	10	<1	0.2
1-Jun-17	0.32	<1	4	11	3	0.45
5-Jun-17	0.4	<1	<2	13	<1	0.53
15-Jun-17	0.09	<1	<2	14	<1	0.3
21-Jun-17	0.15	<1	2	13	<1	0.35
28-Jun-17	0.14	<1	2	14	<1	0.35
5-Jul-17	0.09	<1	<2	16	<1	0.28
13-Jul-17	0.21	<1	<2	17	<1	0.23
18-Jul-17	0.23	<1	<2	15	<1	0.22
20-Jul-17	0.14	<1	4	17	<1	0.17
27-Jul-17	0.24	<1	<2	17	<1	0.27
2-Aug-17	0.16	<1	<2	17	<1	0.46
4-Aug-17	0.22	<1	<2	18	<1	0.27
9-Aug-17	0.09	<1	20	18	<1	0.28
11-Aug-17	0.21	<1	24	17	<1	0.59
16-Aug-17	0.13	<1	<2	18	<1	0.37
21-Aug-17	0.52	<1	2	17	<1	0.58
30-Aug-17	0.06	<1	<2	18	<1	0.25
6-Sep-17	0.4	<1	2	18	<1	0.32
13-Sep-17	0.18	<1	<2	19	<1	0.33
21-Sep-17	0.08	<1	6	19	<1	0.23
27-Sep-17	0.15	<1	NA	17	<1	0.4
29-Sep-17	0.29	<1	<2	17	<1	0.27
5-Oct-17	<0.04	<1	10	17	<1	0.27

13-Oct-17	0.05	<1	12	16	<1	0.33
20-Oct-17	0.15	<1	<2	14	<1	0.5
27-Oct-17	0.09	<1	2	14	<1	0.5
30-Oct-17	0.21	<1	4	13	<1	0.7
7-Nov-17	0.08	<1	56	11	<1	0.36
16-Nov-17	<0.04	<1	30	11	<1	0.27
20-Nov-17	0.08	<1	86	10	<1	0.26
30-Nov-17	0.06	<1	110	10	<1	0.55
13-Dec-17	0.18	<1	<2	9	<1	0.6
21-Dec-17	0.13	<1	NA	8	<1	0.53
29-Dec-17	0.49	<1	NA	7	<1	0.59

PMY 507 – 206 Edward Crescent

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
3-Jan-17	0.38	<1	<2	6	<1	0.27
6-Jan-17	0.38	<1	<2	6	<1	0.28
9-Jan-17	0.54	<1	2	5	<1	0.19
16-Jan-17	0.6	<1	<2	5	<1	0.23
23-Jan-17	0.54	<1	<2	5	<1	0.31
30-Jan-17	0.51	<1	<2	5	<1	0.42
6-Feb-17	0.47	<1	<2	5	<1	0.28
14-Feb-17	0.4	<1	<2	5	<1	0.25
20-Feb-17	0.5	<1	<2	5	<1	0.37
23-Feb-17	0.55	<1	<2	6	<1	0.28
27-Feb-17	0.39	<1	<2	6	<1	0.27
3-Mar-17	0.58	<1	<2	6	<1	0.27
6-Mar-17	0.56	<1	<2	5	<1	0.37
9-Mar-17	0.59	<1	<2	6	<1	0.3
13-Mar-17	0.53	<1	<2	6	<1	0.28
16-Mar-17	0.5	<1	<2	7	<1	0.35
20-Mar-17	0.39	<1	<2	7	<1	0.3
23-Mar-17	0.41	<1	<2	7	<1	0.29
27-Mar-17	0.36	<1	<2	8	<1	0.31
3-Apr-17	0.45	<1	<2	8	<1	0.45
10-Apr-17	0.39	<1	<2	8	<1	0.3
18-Apr-17	0.4	<1	<2	9	<1	1.4
24-Apr-17	0.45	<1	<2	8	<1	0.37
1-May-17	0.62	<1	<2	9	<1	0.29
8-May-17	0.38	<1	<2	10	<1	0.28
19-May-17	0.39	<1	<2	10	<1	0.25
25-May-17	0.44	<1	<2	11	<1	0.26
27-May-17	0.39	<1	2	9	<1	0.22
1-Jun-17	0.33	<1	<2	11	<1	0.25
5-Jun-17	0.34	<1	<2	12	<1	0.34
15-Jun-17	0.35	<1	<2	13	<1	0.25
21-Jun-17	0.39	<1	<2	11	<1	0.21
28-Jun-17	0.36	<1	<2	13	<1	0.48
5-Jul-17	0.21	<1	<2	15	<1	0.24
13-Jul-17	0.26	<1	<2	16	<1	0.26
18-Jul-17	0.26	<1	<2	16	<1	0.23

20-Jul-17	0.32	<1	<2	16	<1	0.19
21-Jul-17	0.26	<1	<2	16	<1	0.23
27-Jul-17	0.34	<1	4	16	<1	0.28
2-Aug-17	0.29	<1	<2	16	<1	0.32
4-Aug-17	0.2	<1	2	17	<1	0.21
9-Aug-17	0.33	<1	<2	16	<1	0.32
11-Aug-17	0.29	<1	<2	17	<1	0.22
16-Aug-17	0.27	<1	4	16	<1	0.33
21-Aug-17	0.28	<1	<2	16	<1	0.24
30-Aug-17	0.19	<1	<2	17	<1	0.23
6-Sep-17	0.53	<1	<2	17	<1	0.27
13-Sep-17	0.32	<1	<2	17	<1	0.25
15-Sep-17	0.52	<1	<2	17	<1	0.27
21-Sep-17	0.33	<1	2	17	<1	0.26
27-Sep-17	0.31	<1	NA	16	<1	0.26
29-Sep-17	0.29	<1	6	16	<1	0.2
5-Oct-17	0.15	<1	<2	15	<1	0.24
13-Oct-17	0.25	<1	<2	14	<1	0.28
20-Oct-17	0.37	<1	6	13	<1	0.48
26-Oct-17	0.26	<1	130	11	<1	2.3
27-Oct-17	0.21	<1	<2	12	<1	0.64
30-Oct-17	0.25	<1	22	12	<1	0.49
3-Nov-17	0.28	<1	<2	12	<1	0.91
7-Nov-17	0.2	<1	2	11	<1	0.38
16-Nov-17	0.49	<1	<2	10	<1	0.21
20-Nov-17	0.22	<1	6	10	<1	0.25
30-Nov-17	0.26	<1	4	9	<1	0.68
7-Dec-17	0.25	<1	<2	9	<1	0.61
13-Dec-17	0.33	<1	<2	8	<1	0.59
22-Dec-17	0.27	<1	NA	5	<1	0.53
29-Dec-17	0.36	<1	NA	6	<1	0.51

PMY 508 – 518 Ailsa Avenue

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
3-Jan-17	0.38	<1	<2	6	<1	0.16
6-Jan-17	0.41	<1	<2	7	<1	0.27
9-Jan-17	0.35	<1	<2	6	<1	0.17
16-Jan-17	0.42	<1	<2	5	<1	0.17
30-Jan-17	0.39	<1	<2	6	<1	0.4
6-Feb-17	0.41	<1	2	5	<1	0.24
14-Feb-17	0.38	<1	<2	5	<1	0.23
20-Feb-17	0.43	<1	<2	6	<1	0.13
23-Feb-17	0.98	<1	<2	6	<1	0.47
27-Feb-17	0.45	<1	<2	7	<1	0.15
3-Mar-17	0.38	<1	<2	6	<1	0.16
6-Mar-17	0.83	<1	<2	5	<1	0.25
9-Mar-17	0.58	<1	<2	7	<1	0.26
13-Mar-17	0.36	<1	<2	7	<1	0.16
15-Mar-17	0.38	<1	<2	6	<1	0.17
16-Mar-17	0.64	<1	<2	7	<1	0.24
20-Mar-17	0.41	<1	<2	8	<1	0.24
23-Mar-17	0.28	<1	<2	8	<1	0.19
27-Mar-17	0.47	<1	<2	8	<1	0.19
3-Apr-17	0.34	<1	<2	9	<1	0.17
10-Apr-17	0.37	<1	2	9	<1	0.32
18-Apr-17	0.34	<1	<2	10	<1	0.15
24-Apr-17	0.47	<1	<2	10	<1	0.24
1-May-17	0.25	<1	<2	10	<1	0.22
9-May-17	0.28	<1	<2	11	<1	0.27
16-May-17	0.24	<1	<2	11	<1	0.35
17-May-17	0.3	<1	<2	12	<1	0.31
25-May-17	0.42	<1	<2	13	<1	0.12
27-May-17	0.47	<1	<2	14	<1	0.16
1-Jun-17	0.33	<1	<2	13	<1	0.66
2-Jun-17	0.4	<1	<2	14	<1	0.32
5-Jun-17	0.35	<1	<2	14	<1	0.2
15-Jun-17	0.33	<1	<2	15	<1	0.19
21-Jun-17	0.25	<1	<2	14	<1	0.22
28-Jun-17	0.12	<1	<2	15	<1	0.19
5-Jul-17	0.29	<1	<2	16	<1	0.19
13-Jul-17	0.31	<1	<2	17	<1	0.22
18-Jul-17	0.29	<1	<2	16	<1	0.25
20-Jul-17	0.21	<1	<2	17	<1	0.17
27-Jul-17	0.54	<1	<2	17	<1	0.33
2-Aug-17	0.56	<1	4	16	<1	0.2
4-Aug-17	0.23	<1	<2	19	<1	0.19
9-Aug-17	0.36	<1	<2	16	<1	0.15
10-Aug-17	0.37	<1	<2	17	<1	0.19
11-Aug-17	0.43	<1	<2	17	<1	0.13
16-Aug-17	0.41	<1	2	17	<1	0.22
18-Aug-17	0.45	<1	2	18	<1	0.17
21-Aug-17	0.5	<1	<2	17	<1	0.15
30-Aug-17	0.24	<1	2	19	<1	0.18

6-Sep-17	0.32	<1	2	20	<1	0.2
13-Sep-17	0.12	<1	4	19	<1	0.19
16-Sep-17	0.18	<1	<2	19	<1	0.18
21-Sep-17	0.17	<1	<2	19	<1	0.18
27-Sep-17	0.07	<1	NA	18	<1	0.26
29-Sep-17	0.09	<1	2	17	<1	0.19
5-Oct-17	0.13	<1	8	15	<1	0.33
13-Oct-17	0.19	<1	32	15	<1	0.45
20-Oct-17	0.25	<1	<2	12	<1	0.2
26-Oct-17	0.1	<1	2	14	<1	0.17
30-Oct-17	0.13	<1	6	13	<1	0.2
3-Nov-17	0.14	<1	2	12	<1	0.4
7-Nov-17	0.15	<1	<2	12	<1	0.22
16-Nov-17	0.13	<1	<2	11	<1	0.15
20-Nov-17	0.22	<1	2	10	<1	0.24
30-Nov-17	0.07	<1	<2	10	<1	0.32
7-Dec-17	0.14	<1	<2	10	<1	0.21
13-Dec-17	0.09	<1	<2	9	<1	0.2
22-Dec-17	0.14	<1	NA	7	<1	0.25
30-Dec-17	0.18	<1	NA	6	<1	0.2

PMY 509 – 1240 Alderside Road

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
4-Jan-17	0.63	<1	10	5	<1	0.34
6-Jan-17	0.8	<1	<2	6	<1	0.27
9-Jan-17	0.95	<1	<2	5	<1	0.17
16-Jan-17	0.99	<1	2	5	<1	0.21
26-Jan-17	0.85	<1	<2	6	<1	0.23
30-Jan-17	1	<1	<2	6	<1	0.22
6-Feb-17	1.1	<1	<2	5	<1	0.23
14-Feb-17	1.1	<1	<2	5	<1	0.26
20-Feb-17	1.1	<1	<2	6	<1	0.37
27-Feb-17	1	<1	<2	6	<1	0.29
3-Mar-17	0.93	<1	<2	6	<1	0.27
6-Mar-17	0.91	<1	<2	7	<1	0.35
9-Mar-17	0.96	<1	<2	7	<1	0.31
13-Mar-17	0.86	<1	2	6	<1	0.32
16-Mar-17	0.5	<1	<2	7	<1	0.31
20-Mar-17	0.86	<1	<2	8	<1	0.35
23-Mar-17	0.55	<1	<2	8	<1	0.28
27-Mar-17	0.9	<1	<2	8	<1	0.32
3-Apr-17	0.88	<1	<2	9	<1	0.31
10-Apr-17	0.91	<1	<2	9	<1	0.31
18-Apr-17	0.75	<1	<2	10	<1	0.65
24-Apr-17	1.1	<1	<2	9	<1	0.35
1-May-17	0.61	<1	<2	10	<1	0.53
8-May-17	0.81	<1	<2	12	<1	0.56
16-May-17	0.34	<1	2	12	<1	0.26
25-May-17	0.97	<1	2	12	<1	0.28
27-May-17	0.54	<1	<2	11	<1	0.22
1-Jun-17	1.1	<1	<2	13	<1	0.25
5-Jun-17	0.9	<1	<2	10	<1	0.53
15-Jun-17	0.45	<1	2	14	<1	0.28
21-Jun-17	0.65	<1	<2	12	<1	0.3
28-Jun-17	0.59	<1	<2	14	<1	0.35
5-Jul-17	0.53	<1	<2	15	<1	0.33
13-Jul-17	1.1	<1	<2	16	<1	0.26
18-Jul-17	0.73	<1	<2	14	<1	0.34
20-Jul-17	1	<1	<2	17	<1	0.16
27-Jul-17	1.1	<1	<2	16	<1	0.31
2-Aug-17	0.96	<1	<2	16	<1	0.35
4-Aug-17	0.86	<1	<2	18	<1	0.31
9-Aug-17	0.57	<1	<2	17	<1	0.22
11-Aug-17	0.18	<1	<2	16	<1	0.47
16-Aug-17	0.93	<1	<2	17	<1	0.42
21-Aug-17	0.95	<1	<2	17	<1	0.3
30-Aug-17	1.2	<1	<2	18	<1	0.2
6-Sep-17	0.91	<1	<2	18	<1	0.28
13-Sep-17	1.1	<1	<2	18	<1	0.35
21-Sep-17	1.4	<1	<2	17	<1	0.18
21-Sep-17	0.8	<1	2	16	<1	0.24
27-Sep-17	0.62	<1	NA	16	<1	0.61
29-Sep-17	1.1	<1	<2	16	<1	0.56
5-Oct-17	0.93	<1	<2	16	<1	0.23

13-Oct-17	0.54	<1	<2	14	<1	0.62
20-Oct-17	0.64	<1	<2	14	<1	0.62
26-Oct-17	0.36	<1	<2	13	<1	0.38
30-Oct-17	0.9	<1	<2	12	<1	0.71
3-Nov-17	0.92	<1	<2	9	<1	0.58
7-Nov-17	0.88	<1	<2	11	<1	0.34
16-Nov-17	1	<1	<2	10	<1	0.24
20-Nov-17	1.1	<1	<2	9	<1	0.46
2-Dec-17	0.8	<1	<2	9	<1	0.67
7-Dec-17	0.57	<1	<2	8	<1	0.61
13-Dec-17	1.1	<1	<2	9	<1	0.72
21-Dec-17	0.99	<1	NA	7	<1	0.5
29-Dec-17	0.95	<1	NA	6	<1	0.82

PMY 510 – 2000 Panorama Drive

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
1-Jan-17	0.81	<1	NA	6	<1	0.25
3-Jan-17	0.71	<1	<2	6	<1	0.25
6-Jan-17	0.72	<1	<2	6	<1	0.23
9-Jan-17	0.75	<1	<2	6	<1	0.21
16-Jan-17	0.92	<1	<2	5	<1	0.23
23-Jan-17	0.85	<1	<2	5	<1	0.31
30-Jan-17	0.93	<1	<2	5	<1	0.71
6-Feb-17	0.85	<1	<2	5	<1	0.24
14-Feb-17	0.61	<1	<2	6	<1	0.29
20-Feb-17	0.7	<1	<2	6	<1	0.41
27-Feb-17	0.51	<1	<2	5	<1	0.27
3-Mar-17	0.4	<1	<2	6	<1	0.32
6-Mar-17	0.75	<1	<2	6	<1	0.32
9-Mar-17	0.87	<1	<2	6	<1	0.35
24-Apr-17	0.83	<1	<2	7	<1	0.4
1-May-17	0.64	<1	<2	8	<1	4.3
8-May-17	0.39	<1	<2	10	<1	0.32
19-May-17	0.9	<1	<2	10	<1	0.36
25-May-17	0.85	<1	<2	8	<1	0.31
27-May-17	1.1	<1	<2	10	<1	0.27
1-Jun-17	0.99	<1	<2	11	<1	0.48
5-Jun-17	0.97	<1	2	10	<1	0.34
15-Jun-17	0.55	<1	<2	11	<1	0.4
21-Jun-17	0.9	<1	<2	10	<1	0.27
28-Jun-17	1	<1	<2	10	<1	0.3
5-Jul-17	0.99	<1	2	12	<1	0.34
13-Jul-17	0.4	<1	<2	12	<1	0.25
18-Jul-17	0.74	<1	<2	13	<1	0.28
20-Jul-17	0.82	<1	<2	13	<1	0.34
27-Jul-17	0.99	<1	<2	13	<1	0.34
2-Aug-17	0.93	<1	<2	14	<1	0.25
4-Aug-17	0.85	<1	<2	15	<1	1.3
9-Aug-17	0.93	<1	<2	14	<1	0.23
11-Aug-17	0.76	<1	<2	15	<1	0.23
16-Aug-17	0.9	<1	<2	15	<1	0.62
21-Aug-17	1.1	<1	<2	15	<1	0.41
30-Aug-17	0.86	<1	<2	15	<1	0.47
6-Sep-17	0.91	<1	<2	16	<1	0.23
13-Sep-17	0.73	<1	<2	16	<1	0.29
21-Sep-17	0.93	<1	<2	15	<1	0.49
27-Sep-17	0.79	<1	NA	15	<1	0.36
29-Sep-17	0.94	<1	<2	15	<1	0.21
5-Oct-17	0.89	<1	<2	15	<1	0.5
13-Oct-17	0.42	<1	<2	14	<1	0.26
20-Oct-17	0.61	<1	<2	11	<1	0.61
26-Oct-17	0.49	<1	<2	11	<1	0.52
30-Oct-17	0.78	<1	<2	11	<1	0.45
7-Nov-17	0.38	<1	<2	11	<1	0.39
16-Nov-17	0.87	<1	2	9	<1	0.42
20-Nov-17	0.77	<1	<2	9	<1	0.41
2-Dec-17	0.26	<1	<2	9	<1	0.75

7-Dec-17	0.71	<1	<2	6	<1	0.71
13-Dec-17	0.19	<1	<2	7	<1	0.67
21-Dec-17	0.88	<1	NA	7	<1	0.78
31-Dec-17	0.63	<1	NA	5	<1	0.83

PMY 511 – 2701 Clarke Street

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
3-Jan-17	0.45	<1	<2	6	<1	0.29
6-Jan-17	0.39	<1	2	6	<1	0.28
9-Jan-17	0.74	<1	<2	5	<1	0.2
16-Jan-17	0.69	<1	<2	5	<1	0.27
23-Jan-17	0.62	<1	<2	5	<1	0.34
30-Jan-17	0.48	<1	<2	6	<1	0.4
6-Feb-17	0.58	<1	<2	5	<1	0.25
14-Feb-17	0.46	<1	<2	5	<1	0.24
20-Feb-17	0.55	<1	<2	6	<1	0.42
23-Feb-17	0.56	<1	<2	6	<1	0.27
27-Feb-17	0.51	<1	<2	6	<1	0.31
3-Mar-17	0.62	<1	<2	6	<1	0.27
6-Mar-17	0.95	<1	<2	5	<1	0.58
9-Mar-17	0.56	<1	<2	7	<1	0.35
13-Mar-17	0.57	<1	<2	6	<1	0.27
16-Mar-17	0.56	<1	2	7	<1	0.32
20-Mar-17	0.4	<1	<2	7	<1	0.32
23-Mar-17	0.51	<1	<2	7	<1	0.26
27-Mar-17	0.5	<1	<2	8	<1	0.3
3-Apr-17	0.47	<1	<2	8	<1	0.38
10-Apr-17	0.44	<1	4	8	<1	0.33
18-Apr-17	0.47	<1	<2	9	<1	0.78
24-Apr-17	0.49	<1	<2	8	<1	0.46
1-May-17	0.42	<1	2	9	<1	0.34
8-May-17	0.46	<1	<2	10	<1	0.26
19-May-17	0.55	<1	<2	10	<1	0.27
25-May-17	0.51	<1	<2	10	<1	0.24
27-May-17	0.49	<1	<2	11	<1	0.24
1-Jun-17	0.53	<1	<2	12	4	0.34
5-Jun-17	0.62	<1	<2	13	<1	0.37
15-Jun-17	0.78	<1	<2	13	<1	1.2
21-Jun-17	0.6	<1	<2	12	<1	0.25
28-Jun-17	0.44	<1	<2	12	<1	0.22
5-Jul-17	0.39	<1	<2	13	<1	0.26
13-Jul-17	0.31	<1	<2	15	<1	0.25
18-Jul-17	0.41	<1	<2	14	<1	0.23
20-Jul-17	0.36	<1	<2	14	<1	0.22
27-Jul-17	0.36	<1	<2	15	<1	0.31
2-Aug-17	0.29	<1	<2	15	<1	0.27
4-Aug-17	0.33	<1	<2	17	<1	0.23
9-Aug-17	0.33	<1	<2	16	<1	0.19
11-Aug-17	0.37	<1	<2	16	<1	0.24
16-Aug-17	0.33	<1	<2	15	<1	0.23
21-Aug-17	0.34	<1	<2	16	<1	0.29
30-Aug-17	0.37	<1	<2	17	<1	0.21
6-Sep-17	0.47	<1	<2	17	<1	0.26
13-Sep-17	0.4	<1	<2	17	<1	0.26
21-Sep-17	0.38	<1	<2	15	<1	0.26
27-Sep-17	0.2	<1	NA	16	<1	0.3
29-Sep-17	0.39	<1	<2	16	<1	0.19
5-Oct-17	0.37	<1	<2	15	<1	0.28

13-Oct-17	0.14	<1	<2	14	<1	0.27
20-Oct-17	0.48	<1	<2	13	<1	0.58
26-Oct-17	0.2	<1	<2	12	<1	0.45
30-Oct-17	0.14	<1	6	12	<1	0.46
7-Nov-17	0.19	<1	2	10	<1	0.35
16-Nov-17	0.23	<1	<2	10	<1	0.22
20-Nov-17	0.38	<1	<2	9	<1	0.44
2-Dec-17	0.87	<1	<2	8	<1	0.67
7-Dec-17	0.53	<1	2	7	<1	0.71
13-Dec-17	0.52	<1	<2	8	<1	0.56
22-Dec-17	0.28	<1	NA	7	<1	0.49
30-Dec-17	0.33	<1	NA	6	<1	0.5

PMY 512 – 202 Cecile Drive

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
3-Mar-17	0.58	<1	2	4	<1	0.36
9-Mar-17	0.58	<1	<2	5	<1	0.13
15-Mar-17	0.56	<1	2	5	<1	0.14
16-Mar-17	0.57	<1	<2	6	<1	0.19
20-Mar-17	0.62	<1	<2	6	<1	0.09
23-Mar-17	0.38	<1	<2	6	<1	0.07
27-Mar-17	0.51	<1	<2	7	<1	0.38
3-Apr-17	0.51	<1	<2	7	<1	0.16
10-Apr-17	0.44	<1	<2	7	<1	0.1
18-Apr-17	0.42	<1	<2	8	<1	0.12
24-Apr-17	0.63	<1	<2	7	<1	0.08
1-May-17	0.47	<1	<2	8	<1	0.28
8-May-17	0.35	<1	<2	9	<1	0.1
9-May-17	0.42	<1	<2	9	<1	0.46
16-May-17	0.56	<1	<2	10	<1	0.27
17-May-17	0.53	<1	<2	9	<1	0.23
25-May-17	0.52	<1	<2	12	<1	0.1
27-May-17	0.64	<1	<2	11	<1	0.08
1-Jun-17	0.61	<1	<2	12	<1	0.15
2-Jun-17	0.58	<1	2	12	<1	0.12
5-Jun-17	0.58	<1	<2	11	<1	0.1
15-Jun-17	0.48	<1	<2	13	<1	0.12
21-Jun-17	0.44	<1	<2	11	<1	0.13
28-Jun-17	0.51	<1	<2	12	<1	0.19
5-Jul-17	0.56	<1	<2	13	<1	0.17
13-Jul-17	0.61	<1	<2	13	<1	0.13
18-Jul-17	0.46	<1	<2	14	<1	0.26
20-Jul-17	0.48	<1	10	13	<1	0.1
27-Jul-17	0.62	<1	<2	13	<1	0.21
2-Aug-17	0.42	<1	<2	14	<1	0.24
4-Aug-17	0.49	<1	<2	15	<1	0.12
9-Aug-17	0.49	<1	<2	14	<1	0.11
10-Aug-17	0.56	<1	<2	14	<1	0.39
11-Aug-17	0.64	<1	<2	14	<1	0.11
16-Aug-17	0.57	<1	<2	14	<1	0.15
18-Aug-17	0.54	<1	<2	15	<1	0.13
21-Aug-17	0.58	<1	<2	15	<1	0.13
30-Aug-17	0.42	<1	<2	17	<1	0.16
6-Sep-17	0.49	<1	<2	16	<1	0.27
13-Sep-17	0.39	<1	<2	17	<1	0.2
16-Sep-17	0.45	<1	<2	17	<1	0.2
21-Sep-17	0.44	<1	<2	16	<1	0.22
27-Sep-17	0.28	<1	NA	16	<1	0.26
29-Sep-17	0.51	<1	2	15	<1	0.21
5-Oct-17	0.52	<1	<2	15	<1	0.27
13-Oct-17	0.36	<1	2	13	<1	0.32
20-Oct-17	0.41	<1	2	13	<1	0.22
26-Oct-17	0.41	<1	<2	10	<1	0.15
30-Oct-17	0.49	<1	<2	10	<1	0.2
3-Nov-17	0.5	<1	<2	10	<1	0.24
7-Nov-17	0.41	<1	<2	12	<1	0.21

16-Nov-17	0.6	<1	<2	10	<1	0.14
20-Nov-17	0.54	<1	<2	8	<1	0.2
2-Dec-17	0.83	<1	<2	8	<1	0.33
7-Dec-17	0.5	<1	<2	10	<1	0.32
13-Dec-17	0.44	<1	<2	8	<1	0.16
22-Dec-17	0.53	<1	NA	7	<1	0.23
30-Dec-17	0.54	<1	NA	4	<1	0.16

PMY 513 – 485 Guildford Way PRV

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
3-Jan-17	0.91	<1	2	4	<1	0.26
6-Jan-17	0.58	<1	<2	5	<1	0.28
9-Jan-17	0.95	<1	<2	4	<1	0.24
16-Jan-17	0.99	<1	<2	4	<1	0.25
23-Jan-17	0.93	<1	<2	4	<1	0.31
30-Jan-17	0.73	<1	<2	5	<1	0.32
6-Feb-17	0.7	<1	<2	4	<1	0.27
14-Feb-17	0.81	<1	<2	4	<1	0.29
20-Feb-17	0.83	<1	<2	5	<1	0.41
27-Feb-17	0.84	<1	<2	5	<1	0.34
3-Mar-17	0.96	<1	<2	5	<1	0.31
6-Mar-17	0.75	<1	<2	5	<1	0.34
9-Mar-17	0.98	<1	<2	6	<1	0.36
13-Mar-17	0.9	<1	<2	6	<1	0.38
16-Mar-17	0.55	<1	<2	6	<1	0.38
20-Mar-17	0.7	<1	2	6	<1	0.35
23-Mar-17	0.81	<1	<2	7	<1	0.35
27-Mar-17	0.72	<1	<2	7	<1	0.34
3-Apr-17	0.85	<1	<2	7	<1	0.48
10-Apr-17	0.74	<1	10	7	<1	0.36
18-Apr-17	0.53	<1	<2	8	<1	0.89
24-Apr-17	0.84	<1	2	7	<1	0.41
1-May-17	0.63	<1	<2	7	<1	0.29
9-May-17	0.84	<1	2	11	<1	0.29
19-May-17	0.84	<1	<2	9	<1	0.28
25-May-17	0.53	<1	<2	10	<1	0.31
27-May-17	0.88	<1	<2	9	<1	0.3
1-Jun-17	0.51	<1	<2	12	<1	0.4
5-Jun-17	0.91	<1	<2	10	<1	0.38
15-Jun-17	0.84	<1	<2	13	<1	0.43
21-Jun-17	0.78	<1	<2	12	<1	0.3
28-Jun-17	0.79	<1	<2	12	<1	0.29
5-Jul-17	0.84	<1	<2	12	<1	0.36
13-Jul-17	0.69	<1	<2	14	<1	0.27
18-Jul-17	0.7	<1	<2	13	<1	0.26
20-Jul-17	0.72	<1	<2	14	<1	0.23
27-Jul-17	0.69	<1	<2	14	<1	0.28
2-Aug-17	0.73	<1	<2	13	<1	0.23
4-Aug-17	0.38	<1	<2	16	<1	0.2
9-Aug-17	0.63	<1	<2	14	<1	0.26
11-Aug-17	0.72	<1	<2	14	<1	0.25
16-Aug-17	0.61	<1	<2	14	<1	0.28
21-Aug-17	0.91	<1	<2	14	<1	0.28
30-Aug-17	0.8	<1	<2	15	<1	0.33
6-Sep-17	0.75	<1	<2	18	<1	0.25
13-Sep-17	0.92	<1	<2	16	<1	0.27
21-Sep-17	0.64	<1	<2	16	<1	0.33
27-Sep-17	0.51	<1	NA	15	<1	0.25
29-Sep-17	0.82	<1	<2	15	<1	0.23
5-Oct-17	0.94	<1	<2	14	<1	0.61
13-Oct-17	0.74	<1	<2	12	<1	0.28

20-Oct-17	0.54	<1	<2	14	<1	0.71
26-Oct-17	0.69	<1	<2	13	<1	0.52
30-Oct-17	0.77	<1	<2	10	<1	0.57
7-Nov-17	0.71	<1	<2	11	<1	0.37
16-Nov-17	0.8	<1	<2	8	<1	0.35
20-Nov-17	0.64	<1	<2	7	<1	0.36
2-Dec-17	0.77	<1	2	7	<1	0.95
7-Dec-17	0.79	<1	<2	8	<1	0.71
13-Dec-17	0.68	<1	2	8	<1	0.62
21-Dec-17	0.78	<1	NA	7	<1	0.58
31-Dec-17	0.76	<1	NA	5	<1	0.57

PMY 514 – 200 Parkside Drive

Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
1-Jan-17	0.09	<1	NA	7	<1	0.24
4-Jan-17	0.2	<1	<2	6	<1	0.22
6-Jan-17	0.16	<1	<2	6	<1	0.29
9-Jan-17	0.14	<1	<2	5	<1	0.19
16-Jan-17	0.19	<1	<2	5	<1	0.24
23-Jan-17	0.24	<1	<2	5	<1	0.52
30-Jan-17	0.19	<1	<2	6	<1	0.31
6-Feb-17	0.21	<1	<2	5	<1	0.23
14-Feb-17	0.27	<1	<2	5	<1	0.25
20-Feb-17	0.14	<1	<2	6	<1	0.41
27-Feb-17	0.22	<1	<2	6	<1	0.27
3-Mar-17	0.25	<1	2	6	<1	0.33
6-Mar-17	0.13	<1	2	7	<1	0.36
9-Mar-17	0.19	<1	<2	7	<1	0.36
13-Mar-17	0.29	<1	<2	7	<1	0.27
16-Mar-17	0.18	<1	<2	7	<1	0.36
20-Mar-17	0.2	<1	<2	7	<1	0.3
23-Mar-17	0.14	<1	<2	7	<1	0.33
27-Mar-17	0.1	<1	<2	8	<1	0.33
3-Apr-17	0.08	<1	<2	8	<1	0.4
10-Apr-17	0.18	<1	<2	8	<1	0.29
18-Apr-17	0.12	<1	<2	9	<1	0.5
24-Apr-17	0.22	<1	4	8	<1	0.42
1-May-17	0.16	<1	<2	9	<1	0.44
8-May-17	0.12	<1	<2	10	<1	0.28
19-May-17	0.15	<1	<2	9	<1	0.25
25-May-17	0.29	<1	<2	10	<1	0.27
27-May-17	0.33	<1	<2	10	<1	0.29
1-Jun-17	0.13	<1	<2	10	<1	0.42
5-Jun-17	0.19	<1	2	10	<1	0.38
15-Jun-17	0.23	<1	<2	12	<1	0.32
21-Jun-17	0.14	<1	4	12	<1	0.24
28-Jun-17	0.1	<1	<2	12	<1	0.24
5-Jul-17	0.15	<1	<2	12	<1	0.28
13-Jul-17	0.22	<1	2	13	<1	0.29
18-Jul-17	0.28	<1	8	13	<1	0.36
20-Jul-17	0.14	<1	<2	14	<1	0.23
27-Jul-17	0.31	<1	36	13	<1	0.54
2-Aug-17	0.26	<1	<2	14	<1	0.44
4-Aug-17	0.14	<1	<2	16	<1	0.24
9-Aug-17	0.25	<1	<2	14	<1	0.3
11-Aug-17	0.15	<1	<2	15	<1	0.21
16-Aug-17	0.26	<1	<2	14	<1	0.28
21-Aug-17	0.17	<1	<2	15	<1	0.39
30-Aug-17	0.28	<1	6	16	<1	0.26
6-Sep-17	0.32	<1	<2	16	<1	0.23
13-Sep-17	0.23	<1	<2	16	<1	0.29
21-Sep-17	0.2	<1	8	16	<1	0.22
27-Sep-17	0.09	<1	NA	17	<1	0.26
29-Sep-17	0.21	<1	6	16	<1	0.18
5-Oct-17	0.18	<1	<2	15	<1	0.25

13-Oct-17	0.05	<1	12	15	<1	0.27
20-Oct-17	0.18	<1	72	10	<1	0.33
26-Oct-17	0.13	<1	520	10	<1	0.36
30-Oct-17	<0.04	<1	290	12	<1	0.49
7-Nov-17	0.09	<1	340	10	<1	0.35
16-Nov-17	0.08	<1	56	10	<1	0.26
20-Nov-17	0.1	<1	50	10	<1	0.24
2-Dec-17	0.05	<1	210	9	<1	0.59
7-Dec-17	0.2	<1	56	9	<1	0.62
13-Dec-17	0.24	<1	4	8	<1	0.55
21-Dec-17	0.1	<1	NA	8	<1	0.6
30-Dec-17	0.11	<1	NA	6	<1	0.51

PMY 515 – Hickory Reservoir

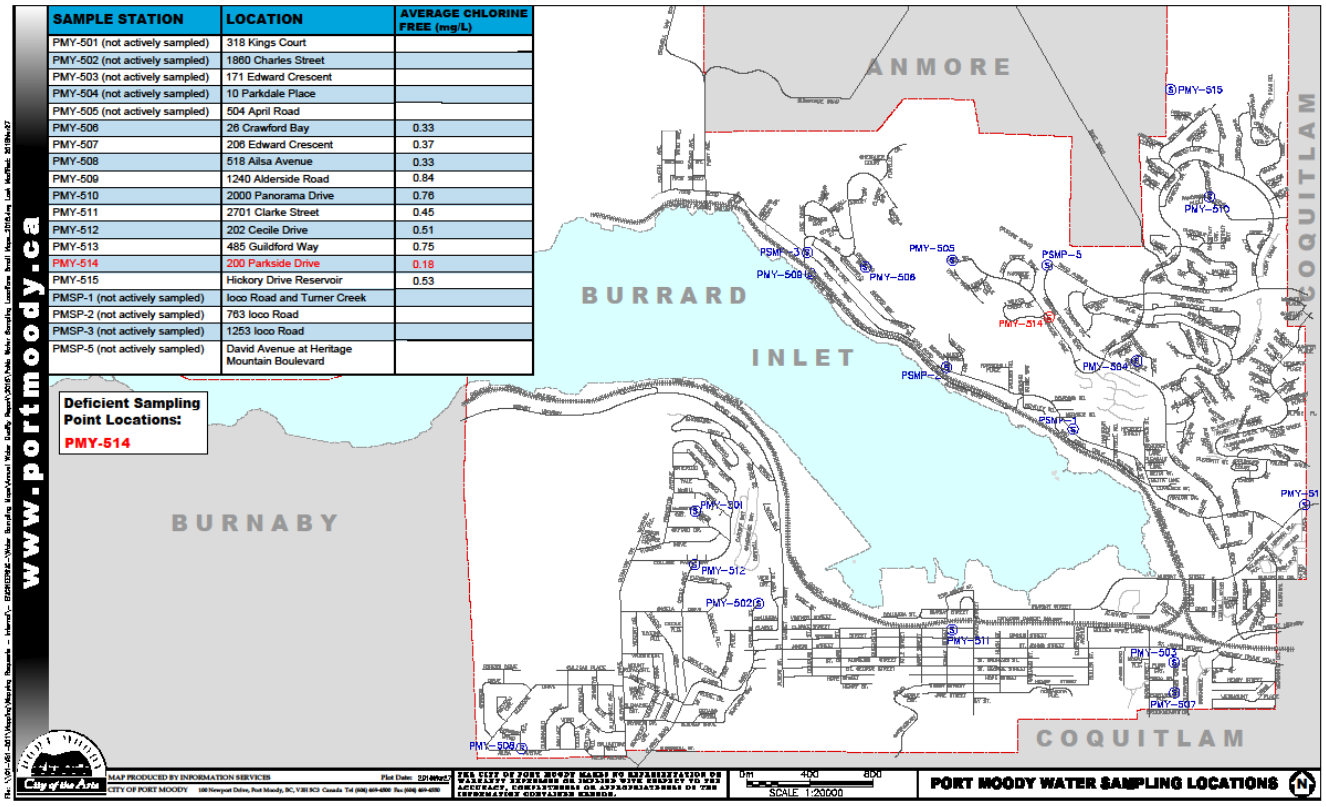
Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	HPC CFU/mls	Temperature °C	Total Coliform MF/100mLs	Turbidity NTU
3-Jan-17	0.6	<1	<2	5	<1	0.26
9-Jan-17	0.61	<1	<2	5	<1	0.25
16-Jan-17	0.63	<1	2	4	<1	0.35
26-Jan-17	0.58	<1	<2	5	<1	0.44
30-Jan-17	0.65	<1	<2	5	<1	0.69
6-Feb-17	0.69	<1	<2	5	<1	0.31
14-Feb-17	0.63	<1	<2	5	<1	0.3
20-Feb-17	0.67	<1	<2	5	<1	0.42
27-Feb-17	0.29	<1	<2	5	<1	0.35
3-Mar-17	0.26	<1	2	5	<1	0.34
9-Mar-17	0.58	<1	<2	6	<1	0.37
13-Mar-17	0.16	<1	2	6	<1	0.32
16-Mar-17	0.51	<1	<2	6	<1	0.35
20-Mar-17	0.49	<1	<2	6	<1	0.35
23-Mar-17	0.58	<1	<2	6	<1	0.39
27-Mar-17	0.46	<1	<2	6	<1	0.35
3-Apr-17	0.53	<1	2	7	<1	0.45
10-Apr-17	0.51	<1	<2	7	<1	0.38
18-Apr-17	0.46	<1	<2	8	<1	0.49
24-Apr-17	0.59	<1	<2	7	<1	0.63
1-May-17	0.23	<1	<2	7	<1	0.42
8-May-17	0.52	<1	32	9	<1	0.3
19-May-17	0.73	<1	<2	8	<1	0.31
25-May-17	0.62	<1	<2	8	<1	0.32
27-May-17	0.82	<1	2	9	<1	0.33
1-Jun-17	0.6	<1	<2	10	<1	0.5
5-Jun-17	0.63	<1	<2	9	<1	0.42
15-Jun-17	0.64	<1	<2	12	<1	0.44
21-Jun-17	0.48	<1	<2	12	<1	0.28
28-Jun-17	0.79	<1	14	10	<1	0.33
5-Jul-17	0.64	<1	<2	11	<1	0.32
13-Jul-17	0.32	<1	<2	12	<1	0.31
18-Jul-17	0.55	<1	2	13	<1	0.32
20-Jul-17	0.64	<1	<2	13	<1	0.29
27-Jul-17	0.54	<1	<2	13	<1	0.38
2-Aug-17	0.51	<1	<2	14	<1	0.36
4-Aug-17	0.43	<1	<2	15	<1	0.32
9-Aug-17	0.47	<1	<2	14	<1	0.25
11-Aug-17	0.56	<1	<2	14	<1	0.25
16-Aug-17	0.46	<1	<2	14	<1	0.41
21-Aug-17	0.68	<1	<2	14	<1	0.32
30-Aug-17	0.51	<1	<2	16	<1	0.25
6-Sep-17	0.55	<1	<2	16	<1	0.24
13-Sep-17	0.54	<1	<2	16	<1	0.3
21-Sep-17	0.59	<1	<2	15	<1	0.3
27-Sep-17	0.56	<1	NA	15	<1	0.39
29-Sep-17	0.64	<1	<2	15	<1	0.32
5-Oct-17	0.79	<1	<2	14	<1	0.29
13-Oct-17	0.49	<1	<2	13	<1	0.34
20-Oct-17	0.45	<1	<2	10	<1	0.31
26-Oct-17	0.44	<1	<2	10	<1	0.42

30-Oct-17	0.56	<1	<2	11	<1	0.56
7-Nov-17	0.39	<1	<2	9	<1	0.48
16-Nov-17	0.44	<1	<2	9	<1	0.34
20-Nov-17	0.44	<1	<2	8	<1	0.6
2-Dec-17	0.37	<1	<2	7	<1	0.91
7-Dec-17	0.5	<1	<2	6	<1	0.82
13-Dec-17	0.3	<1	<2	6	<1	0.67
21-Dec-17	0.37	<1	NA	4	<1	0.63

Appendix #2

Sample Station Locations

SAMPLE STATION	LOCATION	AVERAGE CHLORINE FREE (mg/L)
PMY-501 (not actively sampled)	318 Kings Court	
PMY-502 (not actively sampled)	1860 Charles Street	
PMY-503 (not actively sampled)	171 Edward Crescent	
PMY-504 (not actively sampled)	10 Parkdale Place	
PMY-505 (not actively sampled)	504 April Road	
PMY-506	26 Crawford Bay	0.33
PMY-507	206 Edward Crescent	0.37
PMY-508	518 Ailsa Avenue	0.33
PMY-509	1240 Alderside Road	0.84
PMY-510	2000 Panorama Drive	0.76
PMY-511	2701 Clarke Street	0.45
PMY-512	202 Cecile Drive	0.51
PMY-513	485 Guildford Way	0.75
PMY-514	200 Parkside Drive	0.18
PMY-515	Hickory Drive Reservoir	0.53
PMSP-1 (not actively sampled)	Ioco Road and Turner Creek	
PMSP-2 (not actively sampled)	763 Ioco Road	
PMSP-3 (not actively sampled)	1253 Ioco Road	
PMSP-5 (not actively sampled)	David Avenue at Heritage Mountain Boulevard	



Sample Station	Location
PMY-501 (*not actively sampled)*	318 Kings Court
PMY-502 (not actively sampled)	1860 Charles Street
PMY-503 (not actively sampled)	171 Edward Crescent
PMY-504 *(not actively sampled)*	10 Parkdale Place
PMY-505 *(not actively sampled)*	504 April Road
PMY-506	26 Crawford Bay
PMY-507	206 Edward Crescent
PMY-508	518 Ailsa Avenue
PMY-509	1240 Alderside Road
PMY-510	2000 Panorama Drive
PMY-511	2701 Clarke Street
PMY-512	202 Cecile Drive
PMY-513	485 Guildford Way
PMY-514	200 Parkside Drive
PMY-515	Hickory Drive Reservoir
PMSP-1 *(not actively sampled)*	Ioco Road and Turner Creek
PMSP-2 *(not actively sampled)*	763 Ioco Road
PMSP-3 *(not actively sampled)*	1253 Ioco Road
PMSP-5 *(not actively sampled)*	David Avenue at Heritage Mountain Boulevard

Appendix #3

Metals Monitoring

2017 Metals Monitoring Data for GCDWQ Parameters

		PMY-507	PMY-508	PMY-509	PMY-510	PMY-512
	Sample Description	206 Edward Crescent	518 Ailsa Avenue	1240 Alderside Road	2000 Panorama Drive	202 Cecile Drive
	Sample Date	01/05/2017 7:15	01/05/2017 9:07	01/05/2017 10:47	01/05/2017 10:08	01/05/2017 8:54
Aluminum Total	*µg/L*	87	21	97	533	26
Antimony Total	*µg/L*	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic Total	*µg/L*	<0.5	<0.5	<0.5	<0.5	<0.5
Barium Total	*µg/L*	2.3	3.5	2.5	4.4	3.2
Boron Total	*µg/L*	<10	<10	<10	<10	<10
Cadmium Total	*µg/L*	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium Total	*µg/L*	921	4640	916	904	4370
Chromium Total	*µg/L*	<0.05	0.21	0.24	0.39	0.19
Cobalt Total	*µg/L*	<0.5	<0.5	<0.5	<0.5	<0.5
Copper Total	*µg/L*	2.7	3.4	6.0	172	12.5
Iron Total	*µg/L*	61	58	77	427	8
Lead Total	*µg/L*	<0.5	<0.5	<0.5	1.4	<0.5
Magnesium Total	*µg/L*	97	162	96	132	154
Manganese Total	*µg/L*	2.3	1.3	2.6	85.2	0.9
Mercury Total	*µg/L*	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum Total	*µg/L*	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel Total	*µg/L*	<0.5	<0.5	<0.5	<0.5	<0.5
Potassium Total	*µg/L*	105	141	108	124	141
Selenium Total	*µg/L*	<0.5	<0.5	<0.5	<0.5	<0.5
Silver Total	*µg/L*	<0.5	<0.5	<0.5	<0.5	<0.5
Sodium Total	*µg/L*	5810	1340	6980	5800	1340
Zinc Total	*µg/L*	<3.0	<3.0	<3.0	<3.0	<3.0

		PMY-507	PMY-507 Duplicate	PMY-508	PMY-509	PMY-510	PMY-512
	Sample Description	206 Edward Crescent	206 Edward Crescent Field Dup	518 Ailsa Avenue	1240 Alderside Road	2000 Panorama Drive	202 Cecile Drive
	Sample Date	26/10/2017 9:45	26/10/2017 9:45	26/10/2017 13:00	26/10/2017 11:19	26/10/2017 10:30	26/10/2017 13:15
Aluminum Total	µg/L	301	312	21	76	84	26
Antimony Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium Total	µg/L	4.2	4.3	3.6	2.7	2.7	3.5
Boron Total	µg/L	<10	<10	<10	<10	<10	<10
Cadmium Total	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium Total	µg/L	986	996	4430	1040	916	4210
Chromium Total	µg/L	0.09	0.10	0.11	<0.05	<0.05	<0.05
Cobalt Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper Total	µg/L	3.2	3.1	5.0	1.9	7.2	27.7
Iron Total	µg/L	299	306	84	59	57	7
Lead Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Magnesium Total	µg/L	124	125	176	103	104	169
Manganese Total	µg/L	49.8	50.6	2.9	0.8	1.7	2.1
Mercury Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Potassium Total	µg/L	128	134	203	121	123	199
Selenium Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sodium Total	µg/L	4540	4540	1690	6040	5000	1720
Zinc Total	µg/L	3.4	3.1	<3.0	<3.0	<3.0	<3.0

Appendix #4

Disinfection By-Product Monitoring

2017 Trihalomethane Monitoring Results

Sample	Station	Date Sampled	THM (ppb)				
			Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes
PMY-506	22 Crawford Bay	27-02-17	<1	<1	<1	32	33
PMY-506	22 Crawford Bay	16-05-17	1	<1	<1	43	45
PMY-506	22 Crawford Bay	21-08-17	<1	<1	<1	27	27
PMY-506	22 Crawford Bay	30-11-17	<1	<1	<1	40	41
PMY-507	206 Edward Crescent	27-02-17	<1	<1	<1	24	25
PMY-507	206 Edward Crescent	19-05-17	<1	<1	<1	25	25
PMY-507	206 Edward Crescent	21-08-17	<1	<1	<1	25	25
PMY-507	206 Edward Crescent	30-11-17	<1	<1	<1	30	30
PMY-508	518 Ailsa Avenue	27-02-17	<1	<1	<1	21	21
PMY-508	518 Ailsa Avenue	16-05-17	<1	<1	<1	24	25
PMY-508	518 Ailsa Avenue	21-08-17	<1	<1	<1	28	29
PMY-508	518 Ailsa Avenue	30-11-17	<1	<1	<1	33	34

2017 Haloacetic Acid Monitoring Results

Sample	Station	Date Sampled	HAA (ppb)					
			Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid
PMY-506	22 Crawford Bay	27-02-17	<0.5	17	<1	2	20.4	41
PMY-506	22 Crawford Bay	16-05-17	<0.5	21	<1	2	33.8	56.7
PMY-506	22 Crawford Bay	21-08-17	<0.5	8	<1	<2	15.4	24.4
PMY-506	22 Crawford Bay	30-11-17	<0.5	6	<1	<2	16.4	23.4
PMY-507	206 Edward Crescent	27-02-17	<0.5	10	<1	<2	10.8	23.2
PMY-507	206 Edward Crescent	19-05-17	<0.5	17	<1	<2	19.6	37.7
PMY-507	206 Edward Crescent	21-08-17	<0.5	6	<1	<2	11.6	19.2
PMY-507	206 Edward Crescent	30-11-17	<0.5	7	<1	<2	13.2	21.6
PMY-508	518 Ailsa Avenue	27-02-17	<0.5	8	<1	<2	11.9	22.3
PMY-508	518 Ailsa Avenue	16-05-17	<0.5	12	<1	<2	14.1	28.5
PMY-508	518 Ailsa Avenue	21-08-17	<0.5	6	<1	<2	6.6	13.5
PMY-508	518 Ailsa Avenue	30-11-17	<0.5	5	<1	<2	22	27.9

Appendix #5

Vinyl Chloride Monitoring

2016 Vinyl Chloride Monitoring Results

Address	Sample Reported Name	Sampled date	Vinyl Chloride (mg/L)
100-Block Klahanie Drive	PMY-1 (Hydrant #2129)	16-Jun-17	<0.00040
400-Block Klahanie Drive	PMY-2 (Hydrant # 2131)	16-Jun-17	<0.00040
100-Block Klahanie Drive	PMY-1 (Hydrant #2129)	16-Nov-17	<0.00040
400-Block Klahanie Drive	PMY-2 (Hydrant # 2131)	16-Nov-17	<0.00040