SQUAMISH
HARDWIRED *for* ADVENTURE

2017 DRINKING WATER QUALITY

ANNUAL REPORT

DISTRICT OF SQUAMISH
June 2018
FINAL

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Executive Summary

This report summarizes the District of Squamish's water quality program for 2017. The District of Squamish's Water Supply and Distribution (WS&D) is governed by the province of British Columbia's Drinking Water Protection Act and Regulation, Water Sustainability Act and Ground Water Protection Regulation, as well as a Permit to Operate, issued by Vancouver Coastal Health. In 2017, water samples were tested weekly for *E. coli* and total coliform bacteria and semi-annually for numerous physical and chemical parameters to ensure the water quality met the applicable *Guidelines for Canadian Drinking Water Quality* set out by Health Canada and the potable water quality standards of the BC Drinking Water Protection Act.

The Squamish WS&D system is operated and maintained by the District of Squamish Water Utility Operations Team and is monitored 24 hours/day 365 days/year via the Supervisory Control and Data Acquisition (SCADA) system to ensure optimal and uninterrupted service to the community. In addition, the District of Squamish continues active programs relating to water conservation, unidirectional flushing and cross connection control in effort to reduce the demand on the water supply system and ensure the provision of clean drinking water to the community. 2017 saw the implementation of several Operational and Capital Improvement/Renewal initiatives intended to increase system reliability and ensure long-term sustainability. Examples of such projects included the renewal of several sections of watermain throughout the distribution network, installation of new water quality sampling stations in the network, installation of isolation mechanism and procedure for back-up and activation of emergency surface water sources, and optimization of our maintenance and water quality monitoring program to achieve operational efficiencies. In January, the Province of BC approved the expansion of the Groundwater Protection Zone (GPZ) to the 1-year capture zone, which limits use of land within the GPZ to specific activities.

1.0 Introduction

The purpose of this report is to increase the understanding of the District's efforts to provide potable drinking water to its residents and provide the results of the water quality testing that occurred in 2017. It also serves to raise awareness of the importance of protecting our drinking water sources.

As a water purveyor in British Columbia, the District of Squamish is regulated by the Drinking Water Protection (DWP) Act and Regulation. This Annual Drinking Water Quality Report is a requirement of the DWP Act and Regulation and of Vancouver Coastal Health (VCH), as one of many conditions to the District's Permit to Operate. Samples collected from source water and the distribution system are analyzed and referenced to the applicable *Guidelines for Canadian Drinking Water Quality* set out by Health Canada, and the DWP Act and Regulation.

2.0 General Description

The District of Squamish has the ability to draw water from three sources that include one primary groundwater source, and two surface water sources reserved for emergency backup. All water supplies are equipped with either primary or secondary chlorine disinfection. The distribution system consists of seven reservoirs, sixteen pressure reducing valve (PRV) stations, five control valves, four pump stations and over 145 km of watermain. The system is required to deliver potable water to over 20,000 residents, over 700 industrial, commercial and institutional (ICI) customers, and Indian Reserves within the District of Squamish (see Appendix B - District of Squamish Water Distribution Map). In 2017, the District provided 4.176 million cubic meters (m^3) of potable water for consumption with an Average Daily Demand (ADD) of 11,440,000 L/day and Maximum Daily Demand (MDD) of 17,230,000 L/day.

The District employs a Supervisory Control And Data Acquisition (SCADA) program that continuously monitors the system, records data, and alerts District staff to areas of concern or faults in the system.

3.0 Water Source

The District of Squamish has the ability to obtain its water from three sources:

- Powerhouse Springs Well Field (Main Water Supply to both South and North Networks)
- Stawamus River (South Network Emergency Backup Water Supply)
- Mashiter Creek (North Network Emergency Backup Water supply)

Seven groundwater wells at the Powerhouse Springs Well Field supply the District's water system. In the event that the Well Field were to be compromised or be unable to meet the distribution system demands (due to a watermain break, pump failure or major fire flow demand or other emergency) water can be drawn from Stawamus River and/or Mashiter Creek. These surface water sources are available as backup only. In 2017, there was no surface water use in the District of Squamish's water system.

3.1 Powerhouse Springs Well Site

Powerhouse Springs well site, located near the confluence of Ring/Powerhouse Creek and the Mamquam River, contains seven ground water wells that draw from the Ring Creek Aquifer. A full description of the system's potential is described in the *District of Squamish – Water Master Plan*, which can be found on the District's website. Secondary chlorination is provided to ensure the microbial safety of the water as it travels throughout the distribution network by maintaining a chlorine residual above 0.20mg/l.

3.1.1 Ring Creek Aquifer

The Ring Creek Aquifer provides a steady supply of water recharged by rainfall and snowmelt seepage through the lava flow (31%), and seepage from Ring Creek and Skookum Creek (69%)[1]. A Hydrogeological Assessment conducted in 2014 concluded that the water withdrawn by Powerhouse Springs Well Field is at "low risk of containing pathogens". As such, primary disinfection of the Powerhouse Springs water is unnecessary.

3.1.2 Powerhouse Springs Wells Rehabilitation

Powerhouse Springs Well #3, which was rehabilitated in 2015, has been taken off line, due to poor performance post-rehabilitation. A new well will be drilled in the well field in 2018 to regain lost capacity.

3.1.3 Powerhouse Springs Chlorination of Drinking Water

The groundwater that is pumped out of the Powerhouse Springs well field is chlorinated with sodium hypochlorite to achieve a secondary disinfection Free Chlorine Residual to ensure the safety of the water as it travels throughout the distribution network.

In addition to manually monitoring, free chlorine residuals are continuously measured using online chlorine analyzers and monitored by the SCADA system at six locations within the network to alert the crews of potential issues.

3.2 Emergency Surface Water Sources: Stawamus River & Mashiter Creek

Please note: <u>The District of Squamish did not require the use of raw surface water sources to supplement water distribution in 2017</u>.

The District of Squamish has two additional water sources in the event that the demand for water exceeds the limit of the Powerhouse Springs well field: Stawamus River and Mashiter Creek. Although the Stawamus River and Mashiter Creek used to be the primary supply of potable water to the District prior to the development of the Powerhouse Springs well field, it is now only maintained for back up and emergency purposes. Resuming their use as a primary source would require expensive capital upgrades and ongoing treatment costs. Water samples from both raw surface water sources were tested weekly for *E. coli* and total coliform from January to June. With consultation with the District's VCH Drinking Water

[1] Powerhouse Springs Well Protection Plan, Piteau Associates Engineering Ltd, 2014

Officer, bacteriological sampling was reduced to monthly testing to achieve operational efficiencies. The District holds a water license for the Stawamus River and Mashiter Creek for 132 L/s and 184 L/s, respectively.

3.2.1 Treatment of Surface Water

Water drawn from the Stawamus River and Mashiter Creek is treated using sodium hypochlorite chlorination as a primary disinfectant. Surface water sources are prone to highly variable water quality, unlike groundwater taken from an aquifer. For this reason, VCH would be consulted to assess conditions and likely implement a Boil Water Advisory should water from either of the surface water sources enter the distribution system.

3.2.2 Manual Feed of Surface Sources into Network

To address concerns about automatic feed of surface sources into the distribution network during high demand periods, a double block and bleed configuration was installed at both surface water sources in 2017. This allows staff to control when surface water is introduced to the water distribution system. Operating procedures, reviewed by the DWO, were created in 2017 to instruct staff of the procedure.

3.3 Challenges

The District of Squamish is fortunate to live in an area with multiple sources of freshwater. There are challenges present which drives the importance for water conservation:

- Aging infrastructure causing water loss;
- Aquifer recharge rate may be adversely affected by climate change if the glaciers recede and snowpack is lower than usual;
- Increasing population causing increased consumption and requiring capital upgrades to maintain adequate fire flow capacity within the distribution system;
- Surface water sources are at risk of contamination from human and animal activity in the catchment area;
- Increased development rates causing water main and service breaks during ground disturbance construction activity.

4.0 Improvements & Maintenance

The District of Squamish maintains and continues to improve its water distribution system to provide the best service possible. The following were some of the key successes from 2017:

- Replacement of 2.6 km of watermain (valued at $1.65 M) to address fire flow and pressure deficiencies, and as part of the AC watermain replacement program. Watermains were replaced in Brackendale and Garibaldi Estates (Ross Rd, Arrowhead, Depot Rd and Government Rd);
- Installation of 1.4 km of new water main and 15 new fire hydrants (Development, valued at $0.58M);

- Replacement pump installed at Well #5 at PHS.
- New check valve on Well #1 at PHS due to failure of old check valve;
- Westway PRV station upgrade (end of service life renewal, as part of the District's annual PRV replacement program);
- Replacement and new installations of water distribution system turbidity and chlorine analyzers;
- Video inspection of five water reservoirs;
- Installation of new water quality sampling stations – Lomond Way, Friedel Crescent, View Place;
- Completed double block and bleed configuration at both surface water sources address concerns about automatic feed of surface sources into the distribution network during high demand periods;
- Cleaned out the sedimentation cells at Stawamus intake;
- CCC program progress;
- ICI Metering Program progress;
- Licensing of PHS wells under the Water Sustainability Act completed.

5.0 Standards & Testing Results for Water Supply System

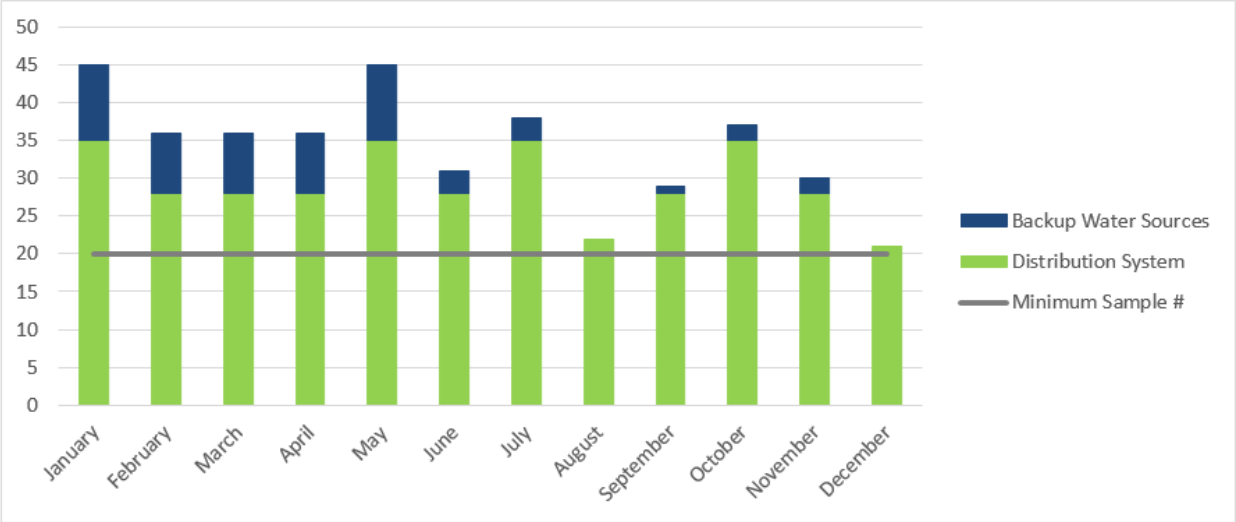
The District of Squamish holds a "Permit to Operate" a water supply system under VCH. The permit includes conditions that must be met in order to maintain this permit in good standing which are outlined in the following subsections. A copy of the permit is included in Appendix A - Permit to Operate.

5.1 Bacteriological Sampling

According to the Permit to Operate, the District of Squamish must complete a minimum bacteriological sampling frequency of 20 per month in its distribution system. In 2016, the same six locations throughout the distribution system were sampled weekly. In consultation with the District's DWO, in 2017 the schedule was modified to alternating sample locations weekly, to achieve better coverage throughout the expanded distribution network. Weekly schedules A and B each consist of six sample locations. Audit sampling sites (Health Unit and Westway Avenue) were discontinued in 2017.

In addition, weekly samples are collected from Powerhouse Springs well site and from the Stawamus and Mashiter raw backup surface water sources. Figure 1 shows the actual number of monthly samples analyzed for bacteriological testing in 2017. The bacteriological sample test results are summarized in Appendix C - Water Sample Results.

Figure 1. Number of monthly samples analyzed for bacteriological testing for the District of Squamish in 2017.



The average number of water samples tested per month was 29, which exceeded the minimum requirements of twenty samples per month required by the Permit to Operate a Water Supply System.

The water quality standards for potable water[2] is as follows:

Drinking Water Protection Act

DRINKING WATER PROTECTION REGULATION

[includes amendments up to B.C. Reg. 352/2005, December 9, 2005]

Parameter:	Standard:
Fecal coliform bacteria	No detectable fecal coliform bacteria per 100 ml
Escherichia coli	No detectable *Escherichia coli* per 100 ml
Total coliform bacteria	
(a) 1 sample in a 30 day period	No detectable total coliform bacteria per 100 ml
(b) more than 1 sample in a 30 day period	At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml

[2] http://www.bclaws.ca/civix/document/id/loo72/loo72/200_2003#section2

Summary of the bacteriological testing results for the District of Squamish in 2017 is shown in Table 1 and Table 2.

Table 1. Summary of the bacteriological testing results for the District of Squamish in 2017.

Water Distribution Sample Location	# of Samples	*E. coli* (EC/100 mL)			Total Coliform (TCU/100 mL)		
		minimum	maximum	average	minimum	maximum	average
Birken	50	<1	<1	<1	<1	<1	<1
Quest University	50	<1	<1	<1	<1	<1	<1
Rockridge	26	<1	<1	<1	<1	<1	<1
Perth	26	<1	<1	<1	<1	<1	<1
Progress Way	26	<1	<1	<1	<1	<1	<1
Guildford	26	<1	<1	<1	<1	<1	<1
Lomond	24	<1	<1	<1	<1	<1	<1
Parkway	24	<1	<1	<1	<1	<1	<1
Pemberton	24	<1	<1	<1	<1	<1	<1
Crumpit Woods	24	<1	<1	<1	<1	<1	<1
Powerhouse Springs (Pre-chlorination)	51	<1	<1	<1	<1	<1	<1
Total Samples	**351**						

Based on the 2017 results, there were no detectable *E.coli* or Total Coliform in the distribution system over the monitoring period.

Table 2. Summary of the bacteriological testing results at emergency backup surface water sources.

Additional Sample Locations	# of Samples	*E. coli* (EC/100 mL)			Total Coliform (TCU/100 mL)		
		minimum	maximum	average	minimum	maximum	average
Stawamus River (Raw Surface Water)	28	<1	3	1.4	8.6	1203.3	124.4
Mashiter Creek (Raw Surface Water)	27	<1	4.1	3.1	<1	107.6	11.18

Water from the backup water sources was not used in 2017 by the District of Squamish, however samples were monitored initially weekly, then monthly, for information in the event that their water use would be required.

5.2 Physical and Chemical Parameters

Water is tested for a wide range of physical and chemical parameters in a Full Spectrum Report carried out by an independent lab to ensure that potable water delivered in the District of Squamish meets the *Guidelines for Canadian Drinking Water Quality (GCDWQ)*. Water samples are tested semi-annually for

physical and chemical parameters at Powerhouse Springs, Stawamus River and Mashiter Creek (despite the latter two sources not in use in 2017). The results of the independent lab's reports for summer and fall 2017 are included in Appendix C - Water Sample Results.

Analysis results from samples taken from Powerhouse Springs, the primary water source, fell within the Maximum Allowable Concentration (MAC) or Aesthetic Objective (AO) for all physical and chemical parameters tested in 2017.

Samples are collected and analyzed for disinfection by-products at four (4) other sample locations. Disinfection by-products (DPB's) are chemical compounds that form when sodium hypochlorite reacts with organic matter dissolved in water. In general terms DPB's are not expected to be found in the District's potable water as it contains little to no organic matter. As expected, none of the samples analyzed showed levels of disinfection by-products in excess of the GCDWQ's MAC.

5.2.1 Corrosivity Factor in Water

In 2016, VCH published a flushing guideline to reduce potential lead exposure in drinking water. The most recent version of the flushing guideline can be found in Appendix D - VCH Advice re Lead in Drinking Water. As stated in VCH's flushing guideline, lead may enter the drinking water system from building plumbing (i.e., on private property) when water sits unused in the pipes, such as overnight or over weekends. This is particularly true for soft (low hardness) and slightly acidic (low pH and alkalinity) water typically found in many water systems in the South Coast of BC.

The current guideline for lead in drinking water is a maximum acceptable concentration (MAC) of 0.010 mg/L. The semi-annual Physical and Chemical Parameters test results indicated < 0.00050 mg/L of lead in the District's source water samples, which is well below the MAC. Even though the District's water source contains no detectable lead, it is soft (low in hardness), low in alkalinity, and exhibits a neutral to slightly basic pH (pH>7). These conditions may lead to a slightly corrosive environment. If water sits unused in building piping for extended periods, it can draw out metals, including lead, from metal fixtures and pipes in homes. The District encourages its residents to follow VCH's flushing guideline to reduce potential lead exposure.

6.0 Conditions of Permit to Operate a Water Supply System

6.1 Cross-Connection Control Program

The District of Squamish continues to operate its Cross Connection Control (CCC) Program in order to protect the safety of the drinking water system. Contamination of the potable water system can happen from backflow through cross connections with private plumbing systems. A cross connection is a physical connection between a potable water supply system and a source of contamination. Backflow or back-syphon is the undesired reverse flow of water coming back into the potable water supply system when there is negative pressure.

The District of Squamish is working to ensure the proper installation of backflow prevention assemblies to mitigate the hazards of cross connections. A backflow prevention assembly is a series of "one-way" valves that only allows water to flow in the desired direction and physically impedes reverse flow.

As of the preparation of this report, of the 378 customers entered into the online CCC Program management system, 237 properties have been surveyed to date, 728 backflow prevention devices are tracked and 151 accounts are compliant.

6.2 Well Protection Plan

Implementation of a Well Protection Plan is a condition of the District's Permit to Operate. The *Powerhouse Springs Well Protection Plan* was developed in May 2014 for the seven wells operating at Powerhouse Springs well field at the time. The Well Protection Plan can be found on the District's website. This plan follows the Province's "Well Protection Toolkit" which includes defining the well protection area, identifying potential contaminants, developing management strategies and contingency plans, and finally, implementing, monitoring and evaluating the plan.

In accordance with the recommendations, the District of Squamish performed routine maintenance on the wells that were underperforming (see section 3.1.2), and continues to monitor the wells using the SCADA system, and by testing the wells semi-annually for potential contaminants (results in section 5.1 and 5.2). Following one of the key administrative measures recommended in the Well Protection Plan, the Province of BC approved the expansion of the Groundwater Protection Zone (GPZ) to the 1-year capture zone. Approval of the expansion limits use of land within the GPZ to acceptable activities.

6.3 Unidirectional Flushing Program

The utilities waterworks crew conducts watermain flushing to maintain distribution system capacity and remove potential contaminant build-up. This program ensures 100% of the distribution system is flushed every four years. More frequent flushing is not required because of the high quality of water supplied to the system. This reduction in annual system flushing lowers the operational cost of the UDF program. In 2017, the Industrial/Dentville area was flushed, as well as all dead ends.

6.4 Online Monitoring

The District of Squamish uses the SCADA system to monitor multiple variables in the District's water network in real-time, ranging from the well field pump output to rainfall collection data. As such, District staff are able to continuously monitor the operation of the water supply system. Alarms are generated if control point values go below minimum or above maximum thresholds. The SCADA system allows for operational optimization by automatically controlling reservoir levels and the well pumps output to ensure that water is always available.

Surface water sources are monitored for turbidity at both the Stawamus River and Mashiter Creek using online turbidimeters. If the backup surface water were to be used, the chlorine levels would be measured

by on-line analyzers and communicated to SCADA after chlorine is added to the water entering the distribution system.

New and replacement water distribution system turbidity and chlorine analyzers were installed in 2017. (Chlorine analyzer at Alice Lake reservoir; turbidity analyzers at PHS, and Mashiter and Stawamus intakes)

6.5 Long-Term Water Supply Strategy

The *District of Squamish – Water Master Plan* was completed in July 2015. The *Water Master Plan* can be found on the District's website. This report analyzed the District's existing water system, estimated future demands to the year 2031 and provided recommendations for long-term strategies. Recommendations identified in the *Water Master Plan* were a long-term source development strategy, a water meter implementation strategy, a water conservation plan, a watermain renewal program, and made recommendations for Developer Cost Charge (DCC) projects.

The current water source capacity at the Powerhouse Springs Well field will be able to service the District under the future growth projections beyond 2031. When the demand exceeds the current water source capacity, the District has a number of options to provide the necessary water to its residents.

6.5.1 Water System Renewals and Upgrades

As mentioned in section 4.0, upgrades to the water distribution system were made in 2017 in Brackendale and Garibaldi Estates, and completion of the double block and bleed configurations to address concerns about automatic feed of surface sources into the distribution network during high demand periods. System maintenance and upgrades will continue in future years as per the report's recommendations and best asset management practices to maintain quality service to the District of Squamish.

6.5.2 Water Conservation

An important factor with the growth of the community and aging infrastructure will be the need to reduce per capita water consumption. This will assist in maintaining adequate water supply while keeping upgrade costs to a minimum. Outdoor water use is the primary target for water reduction. Water audits were conducted at District facilities with implementation of retrofits to low flow fixtures.

6.5.3 Water Metering

The District of Squamish is in the beginning stages of installing water meters for ICI customers. All new ICI and multi-family buildings are required to have a water meter included in their construction. Existing buildings are having the meters installed on existing connections, as part of a multi-year capital project that will progress as funds become available. The District received grant funding in 2017 to install meters.

6.6 Emergency Response and Contingency Plan

As per the requirements set out by the VCH's Permit to Operate, the District of Squamish reviews and submits is updates to its *Water System – Emergency Response and Contingency Plan (ERCP)* annually. This

document outlines the necessary steps that need to be taken by District staff in the event of an emergency situation.

The document outlines that in the event there is a threat to the quality of drinking water, VCH's Drinking Water Officer (DWO) will be informed. During an emergency, the DWO and other health authority staff will provide advice about public notification and monitoring water quality, however the District of Squamish Communications Department will take the lead role as spokesperson for media inquiries and releases.

7.0 Significant Events & Public Notification

There were no significant events affecting the District's supply and distribution system in 2017.

7.1 Drinking Water Advisory/Boil Water Advisory

No Drinking Water Advisories or Boil Water Advisories were issued in 2017.

8.0 Operator Qualifications and Training

According to the Drinking Water Protection Regulation, under the *Drinking Water Protection Act*, staff working within the water system must have a minimum level of certification under the Environmental Operators Certification Program (EOCP). This ensures that District staff are adequately trained to operate, maintain and repair water supply and distribution systems in order to maintain the safety and quality of drinking water that is delivered to the end user.

The District of Squamish Water Distribution System is registered with the EOCP as a Class 3 facility (WD-III). The District has a chlorination facility for secondary disinfection. The District of Squamish provides regular training opportunities to ensure staff maintain their certifications and supports its staff in achieving further education and training in their respective fields in order to provide the best service to its residents. Environmental Operators Certifications for Water Distribution and Water Treatment held for the District of Squamish in 2017 are shown in Table 3.

Table 3. Total number of District of Squamish Utility staff that hold certificates for each level of training in the Environmental Operators Certification Program.

Level of Certification	Water Distribution	Water Treatment
Operator in Training	2	1
Level 1	3	1
Level 2	5	1
Level 3	3	0
Level 4	0	1
Total	**13**	**4**

9.0 Conclusions

Overall, the District of Squamish delivers a very high quality of drinking water to its residents and end users. The District and all its members are fortunate to have access to the groundwater from the Ring Creek Aquifer as the source for our drinking water.

The District of Squamish meets all of the conditions set out by VCH for the Permit to Operate a Water Supply System. Bacteriological sampling was completed weekly. All results met the potable water quality standard of BC Drinking Water Protection Act and Regulation. Physical and chemical tests were carried out semi-annually and align with the *Guidelines for Canadian Drinking Water Quality*. The Cross Connection Control Program, Well Protection Plan and the Unidirectional Flushing Program were all carried out as outlined in the Conditions of the District's Permit to Operate. The SCADA system continues to monitor the water distribution system to ensure ongoing quality. Lastly, the District of Squamish has a long-term water supply strategy and an up to date *Emergency Response and Contingency Plan* for emergency events.

The District continues to work to maintain and upgrade the existing infrastructure while aiming to reduce the overall demand on the system through the Water Conservation Program. This will be particularly important with the District's rapidly growing population. Overall, the District of Squamish is proud of the water it delivers to its residents and aims to continue to strive for the highest quality standards possible as the District grows.

Appendix A - Permit to Operate

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

HEALTH PROTECTION

PERMIT TO OPERATE

A Water Supply System

Purveyor: District Of Squamish
Facility Name: District Of Squamish Waterworks

Conditions of Permit

Minimum bacteriological sampling frequency is 20 / month (distribution).
Test for physical and chemical parameters in accordance with your monitoring plan.
Operate in accordance with your Cross-Connection Control Program.
Implement your Well Protection Plan.
Maintain your Unidirectional Flushing Program annually
Maintain continuous on-line monitoring of the water disinfection process.
Maintain continuous on-line turbidity sampling for each surface water source.
Provide an update on your long-term water supply strategy.
Review and update the Emergency Response and Contingency Plan annually.

May 21, 1997
Effective Date
March 21, 2014
Revised Date

Drinking Water Officer

WATER FACILITY EVALUATION REPORT
Health Protection

Premises Name **District Of Squamish Waterworks**	Tel: (604) 815-6864 Fax:	
Premises Address 1009 Centennial Way Squamish, BC V0N 3G0	Inspection Date March 19, 2018	Time Spent 2 hours
Operator (Person in Charge) Bob Smith		
Inspection Type Evaluation		

Observed Violations
There are no observed violations.

Section Details

Comments

The bacteriological sample range report for 2017 again indicates excellent water quality was maintained throughout the year. Of the 335 samples on record, none were positive for total coliform or positive for E coli (0%), as you will note in the attached report.

The pH value of the water from the PHS wells has an approximate value of pH 7.4 which complies with the new Operational Guideline for pH recently revised under the GCDWQ.

With respect to the subject of what constitutes a domestic water system pursuant to the DWPR, VCH and DOS engineering staff have discussed strata and other development as a 'system within a system' and therefore exempt. VCH will review the service connection to these developments for the purpose of issuing a Construction Permit to the DOS as well as assessing the need for backflow protection.

VCH supports the DOS application to the Province of BC to expand the Groundwater Protection Zone to the 1 year capture zone. VCH notes well #4 is located within a roadway used by industrial traffic (logging roads) in a concrete pit. To date, no evidence of contamination has occurred (ie from gasoline or diesel fuel), however we recommend consideration be given to relocating the road around the lower extremity of the wells.

The DOS holds an EAO Project Certificate to withdraw water from the Mamquam Aquifer. This resource may be strategically important to the DOS supply beyond 2030. In view of the geologic setting of the test well, the Mamquam Aquifer is likely to be at risk for pathogens (GARP), thus extra precaution should be taken to minimize contamination risks including on-site wastewater systems.

With regard to the Stawamus River and Mashiter Creek surface water sources - VCH notes these supplies have been segregated from the municipal supply via a double block and bleed approach which complies with our requirements.

Thank you for the DOS draft Drinking Water Quality Monitoring Program (February 2018). VCH has reviewed this document and provided minor comments for the next draft.

The DOS Emergency Response and Contingency Plan as well as the Drinking Water Quality annual report are both good examples of effective communication. VCH will update our emergency contact list with the arrival of new staff (expected May 2018).

Hazard Rating For Your Facility:	☐ High	☐ Moderate	☒ Low

DWO	
DWO Printed Name	**Len Clarkson**

Sample Range Report

Vancouver Coastal Health

Facility Name: District Of Squamish Waterworks
Date Range: Jan 1 2017 to Dec 31 2017

Operator Bob Smith
Box 310
Squamish, BC V8B 0A3

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
41974 Birken Rd, Brackendale				
	04/01/2017	L1	L1	
	09/01/2017	L1	L1	
	16/01/2017	L1	L1	
	23/01/2017	L1	L1	
	30/01/2017	L1	L1	
	06/02/2017	L1	L1	
	14/02/2017	L1	L1	
	20/02/2017	L1	L1	
	27/02/2017	L1	L1	
	06/03/2017	L1	L1	
	13/03/2017	L1	L1	
	20/03/2017	L1	L1	
	27/03/2017	L1	L1	
	03/04/2017	L1	L1	
	10/04/2017	L1	L1	
	18/04/2017	L1	L1	
	24/04/2017	L1	L1	
	01/05/2017	L1	L1	
	08/05/2017	L1	L1	
	15/05/2017	L1	L1	
	23/05/2017	L1	L1	
	29/05/2017	L1	L1	
	05/06/2017	L1	L1	
	12/06/2017	L1	L1	
	19/06/2017	L1	L1	
	26/06/2017	L1	L1	
	04/07/2017	L1	L1	
	10/07/2017	L1	L1	
	17/07/2017	L1	L1	
	24/07/2017	L1	L1	
	31/07/2017	L1	L1	
	08/08/2017	L1	L1	
	14/08/2017	L1	L1	
	21/08/2017	L1	L1	
	28/08/2017	L1	L1	
	05/09/2017	L1	L1	
	11/09/2017	L1	L1	
	25/09/2017	L1	L1	

	02/10/2017	L1	L1
	10/10/2017	L1	L1
	23/10/2017	L1	L1
	14/11/2017	T	
	20/11/2017	L1	L1
	27/11/2017	L1	L1
	04/12/2017	L1	L1
	11/12/2017	L1	L1
	18/12/2017	L1	L1
	Total Positive :	**0**	**0**

Health Unit Office - audit, Downtown Squamish - Audit Site			
	04/01/2017	L1	L1
	18/01/2017	L1	L1
	23/01/2017	L1	L1
	31/01/2017	L1	L1
	06/02/2017	L1	L1
	20/02/2017	L1	L1
	28/02/2017	L1	L1
	06/03/2017	L1	L1
	20/03/2017	L1	L1
	27/03/2017	L1	L1
	05/04/2017	L1	L1
	10/04/2017	L1	L1
	19/04/2017	L1	L1
	10/05/2017	L1	L1
	15/05/2017	L1	L1
	23/05/2017	L1	L1
	05/06/2017	L1	L1
	12/06/2017	L1	L1
	10/07/2017	L1	L1
	17/07/2017	L1	L1
	Total Positive :	**0**	**0**

Perth Sample Station, Garibaldi Highlands			
	04/01/2017	L1	L1
	16/01/2017	L1	L1
	30/01/2017	L1	L1
	14/02/2017	L1	L1
	27/02/2017	L1	L1
	13/03/2017	L1	L1
	27/03/2017	L1	L1
	10/04/2017	L1	L1
	24/04/2017	L1	L1
	08/05/2017	L1	L1
	23/05/2017	L1	L1
	05/06/2017	L1	L1
	19/06/2017	L1	L1

04/07/2017	L1	L1
17/07/2017	L1	L1
31/07/2017	L1	L1
14/08/2017	L1	L1
28/08/2017	L1	L1
11/09/2017	L1	L1
25/09/2017	L1	L1
10/10/2017	L1	L1
23/10/2017	L1	L1
06/11/2017	L1	L1
04/12/2017	L1	L1
18/12/2017	L1	L1
Total Positive :	**0**	**0**

Quest University, University Lands

04/01/2017	L1	L1
09/01/2017	L1	L1
16/01/2017	L1	L1
23/01/2017	L1	L1
30/01/2017	L1	L1
06/02/2017	L1	L1
14/02/2017	L1	L1
20/02/2017	L1	L1
27/02/2017	L1	L1
06/03/2017	L1	L1
13/03/2017	L1	L1
20/03/2017	L1	L1
27/03/2017	L1	L1
03/04/2017	L1	L1
10/04/2017	L1	L1
18/04/2017	L1	L1
24/04/2017	L1	L1
01/05/2017	L1	L1
08/05/2017	L1	L1
15/05/2017	L1	L1
23/05/2017	L1	L1
29/05/2017	L1	L1
05/06/2017	L1	L1
12/06/2017	L1	L1
19/06/2017	L1	L1
26/06/2017	L1	L1
04/07/2017	L1	L1
10/07/2017	L1	L1
17/07/2017	L1	L1
24/07/2017	L1	L1
31/07/2017	L1	L1
08/08/2017	L1	L1
14/08/2017	L1	L1
21/08/2017	L1	L1
28/08/2017	L1	L1
05/09/2017	L1	L1
11/09/2017	L1	L1
18/09/2017	L1	L1

	25/09/2017	L1	L1
	02/10/2017	L1	L1
	16/10/2017	L1	L1
	23/10/2017	L1	L1
	30/10/2017	L1	L1
	06/11/2017	L1	L1
	14/11/2017	T	
	27/11/2017	L1	L1
	04/12/2017	L1	L1
	12/12/2017	L1	L1
	18/12/2017	L1	L1
	Total Positive :	**0**	**0**
Progress Way sample station, 38917 Progress Way			
	03/01/2017	L1	L1
	17/01/2017	L1	L1
	30/01/2017	L1	L1
	14/02/2017	L1	L1
	27/02/2017	L1	L1
	13/03/2017	L1	L1
	27/03/2017	L1	L1
	10/04/2017	L1	L1
	24/04/2017	L1	L1
	08/05/2017	L1	L1
	23/05/2017	L1	L1
	05/06/2017	L1	L1
	19/06/2017	L1	L1
	04/07/2017	L1	L1
	17/07/2017	L1	L1
	31/07/2017	L1	L1
	14/08/2017	L1	L1
	28/08/2017	L1	L1
	11/09/2017	L1	L1
	25/09/2017	L1	L1
	10/10/2017	L1	L1
	23/10/2017	L1	L1
	06/11/2017	L1	L1
	20/11/2017	L1	L1
	04/12/2017	L1	L1
	18/12/2017	L1	L1
	Total Positive :	**0**	**0**
Parkway Sample station, 40464 Park Crescent			
	09/01/2017	L1	L1
	23/01/2017	L1	L1
	06/02/2017	L1	L1
	20/02/2017	L1	L1
	06/03/2017	L1	L1
	20/03/2017	L1	L1

03/04/2017	L1	L1
18/04/2017	L1	L1
01/05/2017	L1	L1
15/05/2017	L1	L1
29/05/2017	L1	L1
12/06/2017	L1	L1
26/06/2017	L1	L1
10/07/2017	L1	L1
24/07/2017	L1	L1
08/08/2017	L1	L1
21/08/2017	L1	L1
05/09/2017	L1	L1
18/09/2017	L1	L1
02/10/2017	L1	L1
16/10/2017	L1	L1
30/10/2017	L1	L1
14/11/2017	T	
27/11/2017	L1	L1
11/12/2017	L1	L1
Total Positive :	**0**	**0**

Guilford sample station, East of Guilford & Valley Dr.

04/01/2017	L1	L1
16/01/2017	L1	L1
30/01/2017	L1	L1
14/02/2017	L1	L1
27/02/2017	L1	L1
13/03/2017	L1	L1
27/03/2017	L1	L1
10/04/2017	L1	L1
24/04/2017	L1	L1
08/05/2017	L1	L1
23/05/2017	L1	L1
05/06/2017	L1	L1
19/06/2017	L1	L1
04/07/2017	L1	L1
17/07/2017	L1	L1
31/07/2017	L1	L1
14/08/2017	L1	L1
28/08/2017	L1	L1
11/09/2017	L1	L1
25/09/2017	L1	L1
10/10/2017	L1	L1
23/10/2017	L1	L1
06/11/2017	L1	L1
20/11/2017	L1	L1
04/12/2017	L1	L1
18/12/2017	L1	L1
Total Positive :	**0**	**0**

Crumpet Woods

sample station, 2252 Windsail Pl			
	09/01/2017	L1	L1
	23/01/2017	L1	L1
	06/02/2017	L1	L1
	20/02/2017	L1	L1
	06/03/2017	L1	L1
	20/03/2017	L1	L1
	03/04/2017	L1	L1
	18/04/2017	L1	L1
	01/05/2017	L1	L1
	15/05/2017	L1	L1
	29/05/2017	L1	L1
	12/06/2017	L1	L1
	26/06/2017	L1	L1
	10/07/2017	L1	L1
	24/07/2017	L1	L1
	08/08/2017	L1	L1
	21/08/2017	L1	L1
	05/09/2017	L1	L1
	18/09/2017	L1	L1
	02/10/2017	L1	L1
	16/10/2017	L1	L1
	30/10/2017	L1	L1
	14/11/2017	T	
	27/11/2017	L1	L1
	11/12/2017	L1	L1
	Total Positive :	**0**	**0**

Rockridge sample station, across from 41215-Rockridge Pl.			
	03/01/2017	L1	L1
	16/01/2017	L1	L1
	30/01/2017	L1	L1
	14/02/2017	L1	L1
	27/02/2017	L1	L1
	13/03/2017	L1	L1
	27/03/2017	L1	L1
	10/04/2017	L1	L1
	24/04/2017	L1	L1
	08/05/2017	L1	L1
	23/05/2017	L1	L1
	05/06/2017	L1	L1
	19/06/2017	L1	L1
	04/07/2017	L1	L1
	17/07/2017	L1	L1
	31/07/2017	L1	L1
	14/08/2017	L1	L1
	28/08/2017	L1	L1
	11/09/2017	L1	L1
	25/09/2017	L1	L1
	10/10/2017	L1	L1
	23/10/2017	L1	L1

	06/11/2017	L1	L1
	20/11/2017	L1	L1
	04/12/2017	L1	L1
	18/12/2017	L1	L1
	Total Positive :	**0**	**0**

Lomond Sample Station, Garibaldi Highlands			
	09/01/2017	L1	L1
	23/01/2017	L1	L1
	06/02/2017	L1	L1
	20/02/2017	L1	L1
	06/03/2017	L1	L1
	20/03/2017	L1	L1
	03/04/2017	L1	L1
	18/04/2017	L1	L1
	01/05/2017	L1	L1
	15/05/2017	L1	L1
	29/05/2017	L1	L1
	12/06/2017	L1	L1
	26/06/2017	L1	L1
	10/07/2017	L1	L1
	24/07/2017	L1	L1
	08/08/2017	L1	L1
	21/08/2017	L1	L1
	05/09/2017	L1	L1
	18/09/2017	L1	L1
	02/10/2017	L1	L1
	30/10/2017	L1	L1
	14/11/2017	C	
	27/11/2017	L1	L1
	11/12/2017	L1	L1
	Total Positive :	**0**	**0**

38296 Westway Avenue - audit, Valleycliffe Audit Site			
	04/01/2017	L1	L1
	18/01/2017	L1	L1
	23/01/2017	L1	L1
	31/01/2017	L1	L1
	06/02/2017	L1	L1
	20/02/2017	L1	L1
	28/02/2017	L1	L1
	06/03/2017	L1	L1
	20/03/2017	L1	L1
	27/03/2017	L1	L1
	05/04/2017	L1	L1
	10/04/2017	L1	L1
	19/04/2017	L1	L1
	10/05/2017	L1	L1

	15/05/2017	L1	L1
	23/05/2017	L1	L1
	05/06/2017	L1	L1
	12/06/2017	L1	L1
	10/07/2017	L1	L1
	Total Positive :	**0**	**0**

Pemberton sample station, across from 1551 Pemberton Ave			
	09/01/2017	L1	L1
	23/01/2017	L1	L1
	06/02/2017	L1	L1
	20/02/2017	L1	L1
	06/03/2017	L1	L1
	20/03/2017	L1	L1
	03/04/2017	L1	L1
	18/04/2017	L1	L1
	15/05/2017	L1	L1
	29/05/2017	L1	L1
	12/06/2017	L1	L1
	10/07/2017	L1	L1
	24/07/2017	L1	L1
	08/08/2017	L1	L1
	21/08/2017	L1	L1
	05/09/2017	L1	L1
	18/09/2017	L1	L1
	02/10/2017	L1	L1
	16/10/2017	L1	L1
	30/10/2017	L1	L1
	14/11/2017	T	
	27/11/2017	L1	L1
	11/12/2017	L1	L1
	Total Positive :	**0**	**0**

Result Values: **E - estimated** **L - less than** **G - greater than**

Samples that contain total coliform:	0	0.00% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliform:	0	
Number of samples that contain total coliform in last 30 days:	0/0	
Total number of samples:	335	

Comments:

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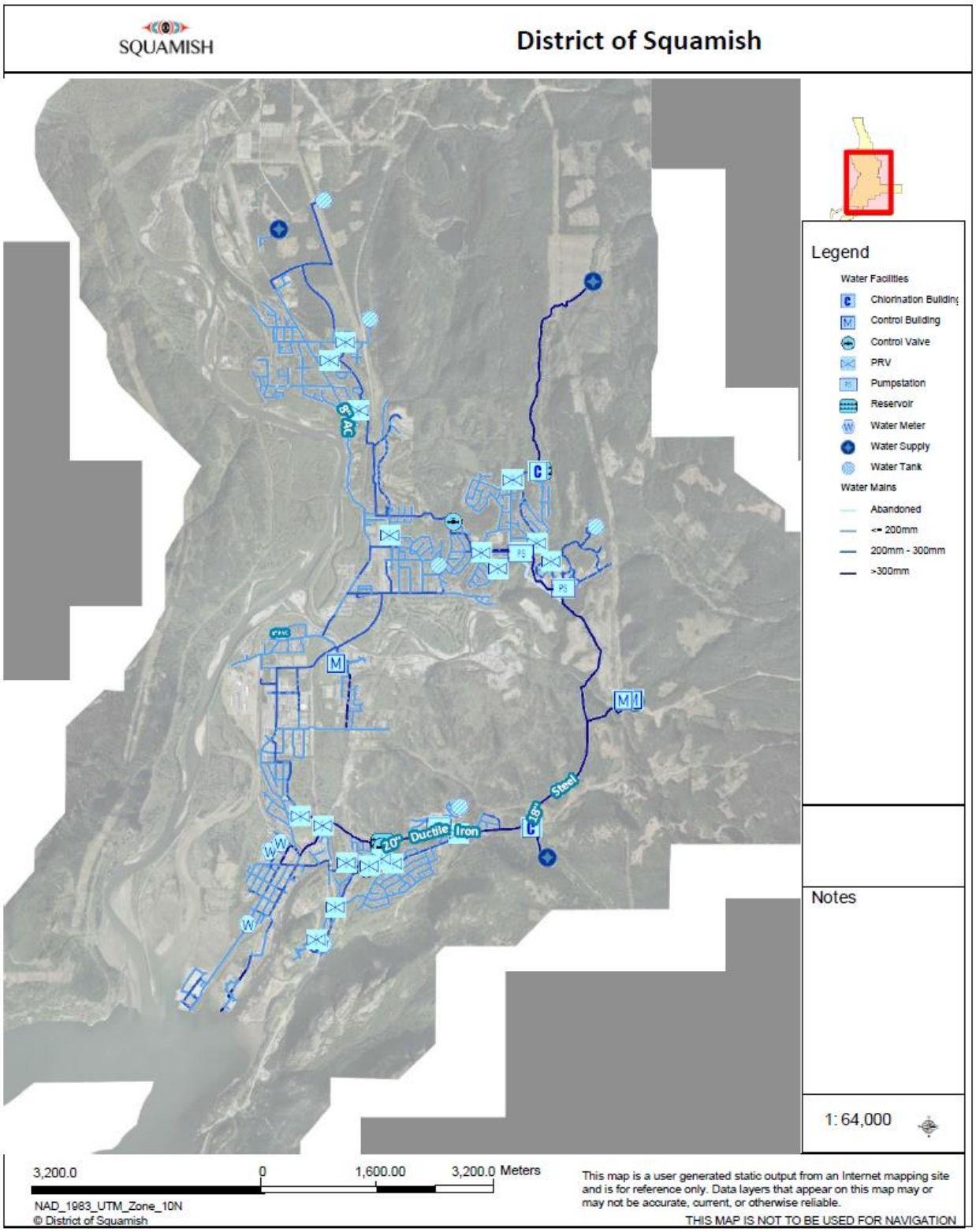
Environmental Health Officer
Mar 21 2018

FOR FURTHER INFORMATION PLEASE CALL: Len Clarkson (604) 892-2293

Appendix B - District of Squamish Water Distribution Map



Appendix C - Water Sample Results

1. Weekly Water Sample Results (bacteriological)
2. Semi-Annual ALS Full Spectrum Report June 2017
3. Semi-Annual ALS Full Spectrum Report November 2017

Weekly Bacteriological Water Sample Results

	Weekly (A&B)														
	Powerhouse Springs			Mashiter			Stawamus			Birken			Quest		
Sample Date	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)
3-Jan-17	<1	<1	0.07	9.8	<1	1.13	21.6	<1	0.26						
4-Jan-17										<1	<1	0.17	<1	<1	0.08
9-Jan-17	<1	<1	0	7.4	<1	1.13	13.4	<1	0.83	<1	<1	0.23	<1	<1	0.23
16-Jan-17	<1	<1	0.28	12.2	<1	1.73	137.6	3	1.2	<1	<1	0.77	<1	<1	0.28
23-Jan-17	<1	<1	0.15	5.1	<1	0.71	54.6	<1	2	<1	<1	0.36	<1	<1	0.09
30-Jan-17	<1	<1	0.95	7.4	<1	0.36	27.8	<1	0.68	<1	<1	0.19	<1	<1	0.09
6-Feb-17	<1	<1	0	2	<1	0	8.6	<1	0	<1	<1	0.28	<1	<1	0.17
14-Feb-17	<1	<1	0.4	7.4	<1	1.57	25.3	<1	0.4	<1	<1	0.25	<1	<1	0.25
20-Feb-17	<1	<1	0.22	3.1	<1	1.68	49.6	<1	0.99	<1	<1	0.52	<1	<1	0.13
27-Feb-17	<1	<1	0.07	5.2	<1	0.6	22.8	<1	0.45	<1	<1	0.32	<1	<1	0.07
6-Mar-17	<1	<1	0.48	3.1	<1	0.88	24.6	<1	0.33	<1	<1	0.26	<1	<1	0.06
13-Mar-17	<1	<1	0.21	5.2	<1	0.36	77.1	<1	0.29	<1	<1	1.07	<1	<1	0.45
20-Mar-17	<1	<1	0.11	1	<1	0.53	24.3	<1	0.47	<1	<1	0.08	<1	<1	0.11
27-Mar-17	<1	<1	0.13	4.1	<1	0.92	37.3	<1	0.29	<1	<1	0.52	<1	<1	0.19
3-Apr-17	<1	<1	0.46	3.1	<1	0.81	27.5	<1	0.91	<1	<1	0.38	<1	<1	0.06
10-Apr-17	<1	<1	0.07	3.1	<1	0.63	17.5	1	0.69	<1	<1	0.11	<1	<1	0.1
18-Apr-17	<1	<1	0.52	3	<1	1.27	81.3	<1	0.76	<1	<1	0.08	<1	<1	0.27
24-Apr-17	<1	<1	0.4	1	<1	0.85	55.7	<1	0.59	<1	<1	0.61	<1	<1	0.27
1-May-17	<1	<1	0.55	2	<1	0.692	43.1	<1	0.59	<1	<1	0.13	<1	<1	0.007
8-May-17	<1	<1	0.64	1	<1	0.83	461.1	<1	0.66	<1	<1	0.18	<1	<1	0.11
15-May-17	<1	<1	1.07	4.1	<1	1	93.3	<1	1.1	<1	<1	0.16	<1	<1	0.14
23-May-17	<1	<1	0.53	3.1	<1	0.84	39.1	<1	1.09	<1	<1	0.17	<1	<1	0.13
29-May-17	<1	<1	0.24	2	<1	0.89	54.7	<1	0.61	<1	<1	0.33	<1	<1	0.12
5-Jun-17	<1	<1	0.16	<1	<1	0.23	41.9	<1	0.39	<1	<1	0.17	<1	<1	0.16
12-Jun-17	<1	<1	0.71							<1	<1	0.65	<1	<1	0.84
19-Jun-17	<1	<1	0.22							<1	<1	0.43	<1	<1	0.27
26-Jun-17	<1	<1	0.12	64.4	4.1	1.35				<1	<1	0.36	<1	<1	0.4
4-Jul-17	<1	<1	0.08				73.3	1	0.98	<1	<1	0.69	<1	<1	0.17
10-Jul-17	<1	<1	0.29							<1	<1	0.36	<1	<1	0.31
17-Jul-17	<1	<1	0.1							<1	<1	0.21	<1	<1	0.12
24-Jul-17	<1	<1	0.15							<1	<1	0.19	<1	<1	0.18
31-Jul-17	<1	<1	0.2	107.6	2	0.74	238.2	1	0.68	<1	<1	0.39	<1	<1	0.19
8-Aug-17	<1	<1	0.32							<1	<1	0	<1	<1	0.29
14-Aug-17	<1	<1	0.2							<1	<1	0.12	<1	<1	0.008
21-Aug-17	<1	<1	0.06												
28-Aug-17	<1	<1	0.14							<1	<1	0.28	<1	<1	0.1
4-Sep-17	<1	<1	0.14				1203.3	<1	0.33	<1	<1	0.24	<1	<1	0.18
11-Sep-17	<1	<1	0.09							<1	<1	0.25	<1	<1	0.09
18-Sep-17	<1	<1	0.39							<1	<1	0.33	<1	<1	0.12
25-Sep-17	<1	<1	0.09							<1	<1	0.3	<1	<1	0.2
2-Oct-17	<1	<1	0.1	8.5	<1	0.44	488.4	1	2.3	<1	<1	0.12	<1	<1	0.1
10-Oct-17	<1	<1	0.1							<1	<1	0.56	<1	<1	0.36
16-Oct-17	<1	<1	0.08							<1	<1	0.19	<1	<1	0.08
23-Oct-17	<1	<1	0.14							<1	<1	0.15	<1	<1	0.13
30-Oct-17	<1	<1	0.07							<1	<1	0.19	<1	<1	0.11
6-Nov-17	<1	<1	0.05	14.8	<1	0.19	39.9	<1	0.87	<1	<1	0.31	<1	<1	0.2
13-Nov-17	<1	<1	0.16							<1	<1	0.19	<1	<1	0.15
20-Nov-17	<1	<1	0.13							<1`	<1	0.57	<1	<1	0.09
27-Nov-17	<1	<1	0.08							<1	<1	0.08	<1	<1	0.07
4-Dec-17	<1	<1	0.08							<1	<1	0.07	<1	<1	0.09
11-Dec-17	0	0	0.05							<1	<1	0.07	<1	<1	0.12
18-Dec-17	<1	<1	0.11							<1	<1	0.08	<1	<1	0.12

Weekly Bacteriological Water Sample Results (cont'd)

	Schedule A											
	Rockridge			Perth			Progress Way			Guildford		
Sample Date	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)
3-Jan-17	<1	<1	0.18				<1	<1	0.07			
4-Jan-17				<1	<1	0.24				<1	<1	0.27
16-Jan-17	<1	<1	0.54	<1	<1	0.23	<1	<1	0.44	<1	<1	0.23
30-Jan-17	<1	<1	0.22	<1	<1	0.14	<1	<1	0.08	<1	<1	0.09
14-Feb-17	<1	<1	0.18	<1	<1	0.06	<1	<1	0.2	<1	<1	0.11
27-Feb-17	<1	<1	0.37	<1	<1	0.1	<1	<1	0.07	<1	<1	0.11
13-Mar-17	<1	<1	0.13	<1	<1	0.38	<1	<1	0.6	<1	<1	1.09
27-Mar-17	<1	<1	0.19	<1	<1	0.07	<1	<1	0.31	<1	<1	0.12
10-Apr-17	<1	<1	0.2	<1	<1	0.32	<1	<1	0.2	<1	<1	0.18
24-Apr-17	<1	<1	0.26	<1	<1	0.79	<1	<1	0.51	<1	<1	0.72
8-May-17	<1	<1	0.54	<1	<1	0.31	<1	<1	0.97	<1	<1	0.39
23-May-17	<1	<1	0.14	<1	<1	0.57	<1	<1	0.5	<1	<1	0.64
5-Jun-17	<1	<1	0.19	<1	<1	0.18	<1	<1	0.22	<1	<1	0.27
19-Jun-17	<1	<1	0.13	<1	<1	0.63	<1	<1	0.25	<1	<1	0.49
4-Jul-17	<1	<1	0.29	<1	<1	0.11	<1	<1	0.2	<1	<1	0.28
17-Jul-17	<1	<1	0.12	<1	<1	0.1	<1	<1	0.08	<1	<1	0.14
31-Jul-17	<1	<1	0.21	<1	<1	0.25	<1	<1	0.36	<1	<1	0.22
14-Aug-17	<1	<1	0.5	<1	<1	0.15	<1	<1	0.65	<1	<1	0.54
28-Aug-17	<1	<1	0.11	<1	<1	0.16	<1	<1	0.08	<1	<1	0.14
11-Sep-17	<1	<1	0.09	<1	<1	0.17	<1	<1	0.11	<1	<1	0.11
25-Sep-17	<1	<1	0.35	<1	<1	0.13	<1	<1	0.12	<1	<1	0.15
10-Oct-17	<1	<1	0.76	<1	<1	0.23	<1	<1	0.91	<1	<1	0.17
23-Oct-17	<1	<1	0.1	<1	<1	0.17	<1	<1	0.35	<1	<1	0.28
6-Nov-17	<1	<1	0.16	<1	<1	0.17	<1	<1	0.15	<1	<1	0.15
20-Nov-17	<1	<1	0.19	<1	<1	0.34	<1	<1	0.18	<1	<1	0.55
4-Dec-17	<1	<1	0.35	<1	<1	0.33	<1	<1	0.12	<1	<1	0.08
18-Dec-17	<1	<1	0.1	<1	<1	0.08	<1	<1	0.05	<1	<1	0.05

	Schedule B											
	Lomond			Parkway			Pemberton			Crumpit Woods		
Sample Date	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)	Total Coliform per 100mL	*E. Coli* per 100mL	Turbidity (NTU)
9-Jan-17	<1	<1	0.92	<1	<1	0	<1	<1	0.11	<1	<1	0.26
23-Jan-17	<1	<1	0.16	<1	<1	0.07	<1	<1	0.1	<1	<1	0.19
6-Feb-17	<1	<1	0.32	<1	<1	0	<1	<1	0.33	<1	<1	0.14
20-Feb-17	<1	<1	0.74	<1	<1	0.13	<1	<1	0.32	<1	<1	0.26
6-Mar-17	<1	<1	0.38	<1	<1	0.09	<1	<1	0.12	<1	<1	0.1
20-Mar-17	<1	<1	0.22	<1	<1	0.012	<1	<1	0.08	<1	<1	0.1
3-Apr-17	<1	<1	0.23	<1	<1	0.43	<1	<1	0.13	<1	<1	0.44
18-Apr-17	<1	<1	0.45	<1	<1	0.76	<1	<1	0.6	<1	<1	0.81
1-May-17	<1	<1	0.28	<1	<1	0.17	<1	<1	0.57	<1	<1	0.1
15-May-17	<1	<1	0.36	<1	<1	1.46	<1	<1	0.31	<1	<1	0.12
29-May-17	<1	<1	0.5	<1	<1	0.29	<1	<1	0.31	<1	<1	0.25
12-Jun-17	<1	<1	0.76	<1	<1	0.32	<1	<1	0.38	<1	<1	0.56
26-Jun-17	<1	<1	0.41	<1	<1	0.16	<1	<1	0.3	<1	<1	0.23
10-Jul-17	<1	<1	0.18	<1	<1	0.07	<1	<1	0.36	<1	<1	0.22
24-Jul-17	<1	<1	0.17	<1	<1	0.17	<1	<1	0.26	<1	<1	0.14
8-Aug-17	<1	<1	0.16	<1	<1	0.25	<1	<1	0.14	<1	<1	0.08
4-Sep-17	<1	<1	0.1	<1	<1	0.21	<1	<1	0.23	<1	<1	0.07
18-Sep-17	<1	<1	0.28	<1	<1	0.28	<1	<1	0.16	<1	<1	0.16
2-Oct-17	<1	<1	0.07	<1	<1	0.12	<1	<1	0.16	<1	<1	0.13
16-Oct-17	<1	<1	0.1	<1	<1	0.08	<1	<1	0.16	<1	<1	0.17
30-Oct-17	<1	<1	0.17	<1	<1	0.1	<1	<1	0.19	<1	<1	0.28
13-Nov-17	<1	<1	0.2	<1	<1	0.15	<1	<1	0.34	<1	<1	0.09
27-Nov-17	<1	<1	0.13	<1	<1	0.08	<1	<1	0.15	<1	<1	0.09
11-Dec-17	<1	<1	0.13	<1	<1	0.17	<1	<1	0.06	<1	<1	0.07

DISTRICT OF SQUAMISH
39907 Government Road
PO Box 310
Squamish BC V8B 0A3
ATTN: Karine Le Du

Date: 06-JUL-17
PO No.:
WO No.: L1946962
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: PHS COMBINED
Sampled By: C.Wright
Date Collected: 22-JUN-17
Lab Sample ID: L1946962-1
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Alkalinity by Titration						
Alkalinity Species by Titration						
Alkalinity, Total (as CaCO3)	21.0		mg/L			29-JUN-17
Anions by Ion Chromatography						
Sulfate in Water by IC						
Sulfate (SO4)	7.35		mg/L		500	24-JUN-17
Nitrite in Water by IC (Low Level)						
*Nitrite (as N)	<0.0010		mg/L	1		24-JUN-17
Nitrate in Water by IC (Low Level)						
*Nitrate (as N)	0.0565		mg/L	10		24-JUN-17
Fluoride in Water by IC						
Fluoride (F)	0.083		mg/L	1.5		24-JUN-17
Chloride in Water by IC						
Chloride (Cl)	4.03		mg/L		250	24-JUN-17
Bromide in Water by IC (Low Level)						
Bromide (Br)	<0.050		mg/L			24-JUN-17
Total Metals in Water (DW)						
Total Metals in Water by CRC ICPMS						
Aluminum (Al)-Total	<0.010		mg/L		0.1	26-JUN-17
Antimony (Sb)-Total	<0.00050		mg/L	0.006		26-JUN-17
Arsenic (As)-Total	0.00060		mg/L	0.01		26-JUN-17
Barium (Ba)-Total	<0.020		mg/L	1		26-JUN-17
Boron (B)-Total	<0.10		mg/L	5		26-JUN-17
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		26-JUN-17
Calcium (Ca)-Total	6.53		mg/L			26-JUN-17
Chromium (Cr)-Total	<0.0020		mg/L	0.05		26-JUN-17
Copper (Cu)-Total	0.0128		mg/L		1.0	26-JUN-17
Iron (Fe)-Total	<0.030		mg/L		0.3	26-JUN-17
Lead (Pb)-Total	<0.00050		mg/L	0.01		26-JUN-17
Magnesium (Mg)-Total	1.14		mg/L			26-JUN-17
Manganese (Mn)-Total	<0.0020		mg/L		0.05	26-JUN-17
Potassium (K)-Total	1.28		mg/L			26-JUN-17
Selenium (Se)-Total	<0.0010		mg/L	0.05		26-JUN-17
Sodium (Na)-Total	4.9		mg/L		200	26-JUN-17
Uranium (U)-Total	<0.00010		mg/L	0.02		26-JUN-17
Zinc (Zn)-Total	<0.050		mg/L		5.0	26-JUN-17
Total Hg in Water by CVAFS LOR=50ppt						
Mercury (Hg)-Total	<0.00020		mg/L	0.001		23-JUN-17
Hardness						
Hardness (as CaCO3)	21.0	HTC	mg/L		500	29-JUN-17

DISTRICT OF SQUAMISH
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Date: 06-JUL-17
PO No.:
WO No.: L1946962
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: PHS COMBINED
Sampled By: C.Wright
Date Collected: 22-JUN-17
Lab Sample ID: L1946962-1
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Ammonia, Total (as N)	<0.0050		mg/L			29-JUN-17
Colour, True	<5.0		CU		15	23-JUN-17
Conductivity	74.5		uS/cm			29-JUN-17
Cyanide, Total	<0.0050		mg/L	0.2		29-JUN-17
Total Dissolved Solids	76		mg/L		500	27-JUN-17
Phosphorus (P)-Total	0.0390		mg/L			27-JUN-17
*Turbidity	<0.10		NTU			24-JUN-17
pH	7.50		pH		7-10.5	29-JUN-17

CDWQG = Health Canada Guideline Limits updated DECEMBER 2015

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Carla Fuginski
Account Manager

DISTRICT OF SQUAMISH
39907 Government Road
PO Box 310
Squamish BC V8B 0A3
ATTN: Karine Le Du

Date: 06-JUL-17
PO No.:
WO No.: L1946962
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: BIRKEN
Sampled By: C.Wright
Date Collected: 22-JUN-17
Lab Sample ID: L1946962-2
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		06-JUL-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			27-JUN-17
Bromodichloromethane	<0.0010		mg/L			27-JUN-17
Bromoform	<0.0010		mg/L			27-JUN-17
Dibromochloromethane	<0.0010		mg/L			27-JUN-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			04-JUL-17
Monochloroacetic Acid	<0.0050		mg/L			04-JUL-17
Bromochloroacetic Acid	<0.0010		mg/L			04-JUL-17
Dibromoacetic Acid	0.0011		mg/L			04-JUL-17
Dichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Trichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Surr: 2,3-Dibromopropionic Acid (SS)	89.8		%			04-JUL-17

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Carla Fuginski
Account Manager

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ATTN: Karine Le Du

Date: 06-JUL-17
PO No.:
WO No.: L1946962
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: LOMOND
Sampled By: C.Wright
Date Collected: 22-JUN-17
Lab Sample ID: L1946962-3
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		06-JUL-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			27-JUN-17
Bromodichloromethane	<0.0010		mg/L			27-JUN-17
Bromoform	<0.0010		mg/L			27-JUN-17
Dibromochloromethane	<0.0010		mg/L			27-JUN-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			04-JUL-17
Monochloroacetic Acid	<0.0050		mg/L			04-JUL-17
Bromochloroacetic Acid	<0.0010		mg/L			04-JUL-17
Dibromoacetic Acid	0.0013		mg/L			04-JUL-17
Dichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Trichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Surr: 2,3-Dibromopropionic Acid (SS)	102.8		%			04-JUL-17

CDWQG = Health Canada Guideline Limits updated **DECEMBER 2015**

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Carla Fuginski
Account Manager

DISTRICT OF SQUAMISH
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Squamish BC V8B 0A3
ATTN: Karine Le Du

Date: 06-JUL-17
PO No.:
WO No.: L1946962
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: PENNY LANE
Sampled By: C.Wright
Date Collected: 22-JUN-17
Lab Sample ID: L1946962-4
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		06-JUL-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			27-JUN-17
Bromodichloromethane	<0.0010		mg/L			27-JUN-17
Bromoform	<0.0010		mg/L			27-JUN-17
Dibromochloromethane	<0.0010		mg/L			27-JUN-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			04-JUL-17
Monochloroacetic Acid	<0.0050		mg/L			04-JUL-17
Bromochloroacetic Acid	<0.0010		mg/L			04-JUL-17
Dibromoacetic Acid	<0.0010		mg/L			04-JUL-17
Dichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Trichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Surr: 2,3-Dibromopropionic Acid (SS)	104.7		%			04-JUL-17

CDWQG = Health Canada Guideline Limits updated **DECEMBER 2015**

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Carla Fuginski
Account Manager

DISTRICT OF SQUAMISH
39907 Government Road
PO Box 310
Squamish BC V8B 0A3
ATTN: Karine Le Du

Date: 06-JUL-17
PO No.:
WO No.: L1946962
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: MUNICIPAL HALL
Sampled By: C.Wright
Date Collected: 22-JUN-17
Lab Sample ID: L1946962-5
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		06-JUL-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			27-JUN-17
Bromodichloromethane	<0.0010		mg/L			27-JUN-17
Bromoform	<0.0010		mg/L			27-JUN-17
Dibromochloromethane	<0.0010		mg/L			27-JUN-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			04-JUL-17
Monochloroacetic Acid	<0.0050		mg/L			04-JUL-17
Bromochloroacetic Acid	<0.0010		mg/L			04-JUL-17
Dibromoacetic Acid	0.0016		mg/L			04-JUL-17
Dichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Trichloroacetic Acid	<0.0010		mg/L			04-JUL-17
Surr: 2,3-Dibromopropionic Acid (SS)	77.3		%			04-JUL-17

CDWQG = Health Canada Guideline Limits updated DECEMBER 2015

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Carla Fuginski
Account Manager

Guidelines & Objectives

Sample Parameter Qualifier key listed:

Qualifier	Description
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Health Canada MAC Health Related Criteria Limits

Nitrate/Nitrite-N*	Criteria limit is 10 mg/L (1.0 mg/L if present as all Nitrite-N). High concentrations may contribute to blue baby syndrome in infants.
Lead*	A cumulative body poison, uncommon in naturally occurring hard waters.
Fluoride*	Present in fluoridated water supplies at 0.8 mg/L to reduce dental caries. Elevated levels causes fluorosis (mottling of teeth).
Total Coliforms*	Criteria is 0 CFU/100mL. Adverse health effects.
E. Coli*	Criteria is 0 CFU/100 mL. Certain E. Coli bacteria can be life threatening.

*Health Canada Canadian Drinking Water Quality Guidelines (MAC limit)

Aesthetic Objective Concentration Levels

Alkalinity	Acid neutralizing capacity. Usually a measure of carbonate and bicarbonates and calculated and reported as calcium carbonate.
Balance	Quality control parameter ratioing cations to anions
Bicarbonate	See Alkalinity. Report as the anion HCO3-1
Carbonate	See Alkalinity. Reported at the anion CO3-2
Calcium	See Hardness. Common major cation of water chemistry.
Chloride	Common major anion of water chemistry.
Conductance	Physical test measuring water salinity (dissolved ions or solids)
Hardness	Classical measure or capacity of water to precipitate soap (chiefly calcium and magnesium ions). Causes scaling tendency in water if carbonates/bicarbonates are present (if >200 mg/L). For drinking water purposes waters with results <200 mg/L are considered acceptable, results >200 mg/L are considered poor but can be tolerated. Results >500 mg/L are unacceptable.
Hydroxide	See alkalinity
Magnesium	See hardness. Common major cation of water chemistry. Elevated levels (>125 mg/L) may exert a cathartic or diuretic action.
pH	Measure of water acidity/alkalinity. Normal range is 7.0-8.5.
Potassium	Common major cation of water chemistry.
Sodium	Common major cation of water chemistry. Measure of salinity (saltiness).The aesthetic objective (not related to health) for sodium in drinking water is 200 mg/L. However, where sodium concentration of the drinking water exceeds 20 mg/L, it is recommended that any person on a sodium restricted diet consult with his/her physician or Medical Officer of Health concerning the use of that water.
Sulphate	Common major anion of water chemistry. Elevated levels may exert a cathartic or diuretic action.
Total Dissolved Solids	A measure of water salinity.
Iron	Causes staining to laundry and porcelain and astringent taste. Oxidizes to red-brown precipitate on exposure to air.
Manganese	Elevated levels may cause staining of laundry and porcelain.
Heterotrophic Plate Count	Criteria is 500 cfu/mL Measure of heterotrophic bacteria present.

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: DISTRICT OF SQUAMISH
39907 Government Road PO Box 310
Squamish BC V8B 0A3
Contact: Karine Le Du

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-VA	**Water**							
Batch R3758931								
WG2559170-23 CRM		**VA-ALK-TITR-CONTROL**						
Alkalinity, Total (as CaCO3)			100.5		%		85-115	29-JUN-17
WG2559170-21 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	29-JUN-17
BR-L-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-13 LCS								
Bromide (Br)			98.7		%		85-115	24-JUN-17
WG2556076-17 LCS								
Bromide (Br)			100.7		%		85-115	24-JUN-17
WG2556076-2 LCS								
Bromide (Br)			97.6		%		85-115	24-JUN-17
WG2556076-21 LCS								
Bromide (Br)			100.5		%		85-115	24-JUN-17
WG2556076-26 LCS								
Bromide (Br)			99.1		%		85-115	24-JUN-17
WG2556076-5 LCS								
Bromide (Br)			99.0		%		85-115	24-JUN-17
WG2556076-9 LCS								
Bromide (Br)			101.2		%		85-115	24-JUN-17
WG2556076-1 MB								
Bromide (Br)			<0.050		mg/L		0.05	24-JUN-17
WG2556076-12 MB								
Bromide (Br)			<0.050		mg/L		0.05	24-JUN-17
WG2556076-16 MB								
Bromide (Br)			<0.050		mg/L		0.05	24-JUN-17
WG2556076-20 MB								
Bromide (Br)			<0.050		mg/L		0.05	24-JUN-17
WG2556076-24 MB								
Bromide (Br)			<0.050		mg/L		0.05	24-JUN-17
WG2556076-4 MB								
Bromide (Br)			<0.050		mg/L		0.05	24-JUN-17
WG2556076-8 MB								
Bromide (Br)			<0.050		mg/L		0.05	24-JUN-17
CL-IC-N-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-13 LCS								
Chloride (Cl)			98.8		%		90-110	24-JUN-17
WG2556076-17 LCS								
Chloride (Cl)			98.6		%		90-110	24-JUN-17
WG2556076-2 LCS								
Chloride (Cl)			98.8		%		90-110	24-JUN-17
WG2556076-21 LCS								
Chloride (Cl)			98.8		%		90-110	24-JUN-17
WG2556076-26 LCS								
Chloride (Cl)			99.0		%		90-110	24-JUN-17
WG2556076-5 LCS								
Chloride (Cl)			98.8		%		90-110	24-JUN-17
WG2556076-9 LCS								
Chloride (Cl)			98.5		%		90-110	24-JUN-17
WG2556076-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-JUN-17
WG2556076-12 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-JUN-17
WG2556076-16 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-JUN-17
WG2556076-20 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-JUN-17
WG2556076-24 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-JUN-17
WG2556076-4 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-JUN-17
WG2556076-8 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-JUN-17
CN-T-CFA-VA	**Water**							
Batch R3759179								
WG2560356-2 LCS								
Cyanide, Total			92.7		%		80-120	29-JUN-17
WG2560356-1 MB								
Cyanide, Total			<0.0050		mg/L		0.005	29-JUN-17
COLOUR-TRUE-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COLOUR-TRUE-VA	**Water**							
Batch R3755283								
WG2555902-2 CRM		**VA-COLOUR-T**						
Colour, True			99.4		%		85-115	23-JUN-17
WG2555902-5 CRM		**VA-COLOUR-T**						
Colour, True			99.3		%		85-115	23-JUN-17
WG2555902-1 MB								
Colour, True			<5.0		CU		5	23-JUN-17
WG2555902-4 MB								
Colour, True			<5.0		CU		5	23-JUN-17
EC-PCT-VA	**Water**							
Batch R3758931								
WG2559170-24 CRM		**VA-EC-PCT-CONTROL**						
Conductivity			106.0		%		90-110	29-JUN-17
WG2559170-21 MB								
Conductivity			<2.0		uS/cm		2	29-JUN-17
F-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-13 LCS								
Fluoride (F)			94.5		%		90-110	24-JUN-17
WG2556076-17 LCS								
Fluoride (F)			94.6		%		90-110	24-JUN-17
WG2556076-2 LCS								
Fluoride (F)			94.4		%		90-110	24-JUN-17
WG2556076-21 LCS								
Fluoride (F)			95.0		%		90-110	24-JUN-17
WG2556076-26 LCS								
Fluoride (F)			95.0		%		90-110	24-JUN-17
WG2556076-5 LCS								
Fluoride (F)			94.6		%		90-110	24-JUN-17
WG2556076-9 LCS								
Fluoride (F)			94.5		%		90-110	24-JUN-17
WG2556076-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-JUN-17
WG2556076-12 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-JUN-17
WG2556076-16 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-JUN-17
WG2556076-20 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-JUN-17

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-24 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-JUN-17
WG2556076-4 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-JUN-17
WG2556076-8 MB								
Fluoride (F)			<0.020		mg/L		0.02	24-JUN-17
HAA-WP	**Water**							
Batch R3766341								
WG2563387-6 LCS								
Monobromoacetic Acid			101.6		%		50-130	04-JUL-17
Monochloroacetic Acid			105.0		%		50-130	04-JUL-17
Bromochloroacetic Acid			100.1		%		50-130	04-JUL-17
Dibromoacetic Acid			89.2		%		50-130	04-JUL-17
Dichloroacetic Acid			106.4		%		50-130	04-JUL-17
Trichloroacetic Acid			87.6		%		50-130	04-JUL-17
WG2563387-5 MB								
Monobromoacetic Acid			<0.0010		mg/L		0.001	04-JUL-17
Monochloroacetic Acid			<0.0050		mg/L		0.005	04-JUL-17
Bromochloroacetic Acid			<0.0010		mg/L		0.001	04-JUL-17
Dibromoacetic Acid			<0.0010		mg/L		0.001	04-JUL-17
Dichloroacetic Acid			<0.0010		mg/L		0.001	04-JUL-17
Trichloroacetic Acid			<0.0010		mg/L		0.001	04-JUL-17
Surrogate: 2,3-Dibromopropionic Acid (SS			105.4		%		50-130	04-JUL-17
HG-TOT-CVAFS-VA	**Water**							
Batch R3754929								
WG2555606-2 LCS								
Mercury (Hg)-Total			95.2		%		80-120	23-JUN-17
WG2555606-1 MB								
Mercury (Hg)-Total			<0.000050		mg/L		0.00005	23-JUN-17
MET-T-CCMS-VA	**Water**							
Batch R3757183								
WG2557041-2 LCS								
Aluminum (Al)-Total			100.2		%		80-120	26-JUN-17
Antimony (Sb)-Total			105.1		%		80-120	26-JUN-17
Arsenic (As)-Total			98.9		%		80-120	26-JUN-17
Barium (Ba)-Total			99.0		%		80-120	26-JUN-17

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA	**Water**							
Batch R3757183								
WG2557041-2 LCS								
Boron (B)-Total			95.8		%		80-120	26-JUN-17
Cadmium (Cd)-Total			102.7		%		80-120	26-JUN-17
Calcium (Ca)-Total			103.1		%		80-120	26-JUN-17
Chromium (Cr)-Total			101.6		%		80-120	26-JUN-17
Copper (Cu)-Total			96.9		%		80-120	26-JUN-17
Iron (Fe)-Total			100.3		%		80-120	26-JUN-17
Lead (Pb)-Total			99.0		%		80-120	26-JUN-17
Magnesium (Mg)-Total			107.3		%		80-120	26-JUN-17
Manganese (Mn)-Total			99.7		%		80-120	26-JUN-17
Potassium (K)-Total			102.9		%		80-120	26-JUN-17
Selenium (Se)-Total			99.9		%		80-120	26-JUN-17
Sodium (Na)-Total			99.6		%		80-120	26-JUN-17
Uranium (U)-Total			102.9		%		80-120	26-JUN-17
Zinc (Zn)-Total			94.8		%		80-120	26-JUN-17
WG2557041-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	26-JUN-17
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	26-JUN-17
Arsenic (As)-Total			<0.00010		mg/L		0.0001	26-JUN-17
Barium (Ba)-Total			<0.000050		mg/L		0.00005	26-JUN-17
Boron (B)-Total			<0.010		mg/L		0.01	26-JUN-17
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	26-JUN-17
Calcium (Ca)-Total			<0.050		mg/L		0.05	26-JUN-17
Copper (Cu)-Total			<0.00050		mg/L		0.0005	26-JUN-17
Iron (Fe)-Total			<0.010		mg/L		0.01	26-JUN-17
Lead (Pb)-Total			<0.000050		mg/L		0.00005	26-JUN-17
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	26-JUN-17
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	26-JUN-17
Potassium (K)-Total			<0.050		mg/L		0.05	26-JUN-17
Selenium (Se)-Total			<0.000050		mg/L		0.00005	26-JUN-17
Sodium (Na)-Total			<0.050		mg/L		0.05	26-JUN-17
Uranium (U)-Total			<0.000010		mg/L		0.00001	26-JUN-17
Zinc (Zn)-Total			<0.0030		mg/L		0.003	26-JUN-17

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA	**Water**							
Batch R3757333								
WG2557041-1 MB								
Chromium (Cr)-Total			0.00011	MB-LOR	mg/L		0.0001	27-JUN-17
NH3-F-VA	**Water**							
Batch R3758953								
WG2559467-10 LCS								
Ammonia, Total (as N)			96.6		%		85-115	29-JUN-17
WG2559467-9 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	29-JUN-17
NO2-L-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-13 LCS								
Nitrite (as N)			94.5		%		90-110	24-JUN-17
WG2556076-17 LCS								
Nitrite (as N)			93.9		%		90-110	24-JUN-17
WG2556076-2 LCS								
Nitrite (as N)			94.5		%		90-110	24-JUN-17
WG2556076-21 LCS								
Nitrite (as N)			93.7		%		90-110	24-JUN-17
WG2556076-26 LCS								
Nitrite (as N)			94.5		%		90-110	24-JUN-17
WG2556076-5 LCS								
Nitrite (as N)			94.4		%		90-110	24-JUN-17
WG2556076-9 LCS								
Nitrite (as N)			93.4		%		90-110	24-JUN-17
WG2556076-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	24-JUN-17
WG2556076-12 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	24-JUN-17
WG2556076-16 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	24-JUN-17
WG2556076-20 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	24-JUN-17
WG2556076-24 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	24-JUN-17
WG2556076-4 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	24-JUN-17
WG2556076-8 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-L-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-8 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	24-JUN-17
NO3-L-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-13 LCS								
Nitrate (as N)			99.2		%		90-110	24-JUN-17
WG2556076-17 LCS								
Nitrate (as N)			99.2		%		90-110	24-JUN-17
WG2556076-2 LCS								
Nitrate (as N)			99.4		%		90-110	24-JUN-17
WG2556076-21 LCS								
Nitrate (as N)			99.5		%		90-110	24-JUN-17
WG2556076-26 LCS								
Nitrate (as N)			99.3		%		90-110	24-JUN-17
WG2556076-5 LCS								
Nitrate (as N)			99.3		%		90-110	24-JUN-17
WG2556076-9 LCS								
Nitrate (as N)			98.8		%		90-110	24-JUN-17
WG2556076-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	24-JUN-17
WG2556076-12 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	24-JUN-17
WG2556076-16 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	24-JUN-17
WG2556076-20 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	24-JUN-17
WG2556076-24 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	24-JUN-17
WG2556076-4 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	24-JUN-17
WG2556076-8 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	24-JUN-17
P-T-PRES-COL-VA	**Water**							
Batch R3757233								
WG2557497-6 CRM		**VA-ERA-PO4**						
Phosphorus (P)-Total			107.5		%		80-120	27-JUN-17
WG2557497-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-PRES-COL-VA	**Water**							
Batch R3757233								
WG2557497-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	27-JUN-17
WG2557497-8 MS		**L1946962-1**						
Phosphorus (P)-Total			92.1		%		70-130	27-JUN-17
PH-PCT-VA	**Water**							
Batch R3758931								
WG2559170-22 CRM		**VA-PH7-BUF**						
pH			6.99		pH		6.9-7.1	29-JUN-17
SO4-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-13 LCS								
Sulfate (SO4)			99.9		%		90-110	24-JUN-17
WG2556076-17 LCS								
Sulfate (SO4)			99.8		%		90-110	24-JUN-17
WG2556076-2 LCS								
Sulfate (SO4)			99.8		%		90-110	24-JUN-17
WG2556076-21 LCS								
Sulfate (SO4)			100.0		%		90-110	24-JUN-17
WG2556076-26 LCS								
Sulfate (SO4)			100.0		%		90-110	24-JUN-17
WG2556076-5 LCS								
Sulfate (SO4)			99.9		%		90-110	24-JUN-17
WG2556076-9 LCS								
Sulfate (SO4)			99.7		%		90-110	24-JUN-17
WG2556076-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	24-JUN-17
WG2556076-12 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	24-JUN-17
WG2556076-16 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	24-JUN-17
WG2556076-20 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	24-JUN-17
WG2556076-24 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	24-JUN-17
WG2556076-4 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	24-JUN-17
WG2556076-8 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-VA	**Water**							
Batch R3755574								
WG2556076-8 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	24-JUN-17
TDS-VA	**Water**							
Batch R3758103								
WG2557746-5 LCS								
Total Dissolved Solids			103.2		%		85-115	27-JUN-17
WG2557746-4 MB								
Total Dissolved Solids			<10		mg/L		10	27-JUN-17
THM-HSMS-VA	**Water**							
Batch R3753423								
WG2557390-2 LCS								
Chloroform			104.0		%		70-130	27-JUN-17
Bromodichloromethane			97.1		%		60-140	27-JUN-17
Bromoform			100.5		%		60-140	27-JUN-17
Dibromochloromethane			139.2		%		60-140	27-JUN-17
WG2557390-1 MB								
Chloroform			<0.0010		mg/L		0.001	27-JUN-17
Bromodichloromethane			<0.0010		mg/L		0.001	27-JUN-17
Bromoform			<0.0010		mg/L		0.001	27-JUN-17
Dibromochloromethane			<0.0010		mg/L		0.001	27-JUN-17
TURBIDITY-VA	**Water**							
Batch R3755587								
WG2556033-11 CRM		**VA-FORM-40**						
Turbidity			101.0		%		85-115	24-JUN-17
WG2556033-14 CRM		**VA-FORM-40**						
Turbidity			101.3		%		85-115	24-JUN-17
WG2556033-2 CRM		**VA-FORM-40**						
Turbidity			101.3		%		85-115	24-JUN-17
WG2556033-5 CRM		**VA-FORM-40**						
Turbidity			101.3		%		85-115	24-JUN-17
WG2556033-8 CRM		**VA-FORM-40**						
Turbidity			101.0		%		85-115	24-JUN-17
WG2556033-1 MB								
Turbidity			<0.10		NTU		0.1	24-JUN-17
WG2556033-10 MB								
Turbidity			<0.10		NTU		0.1	24-JUN-17

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TURBIDITY-VA	**Water**							
Batch R3755587								
WG2556033-13 MB								
Turbidity			<0.10		NTU		0.1	24-JUN-17
WG2556033-4 MB								
Turbidity			<0.10		NTU		0.1	24-JUN-17
WG2556033-7 MB								
Turbidity			<0.10		NTU		0.1	24-JUN-17

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	22-JUN-17 09:00	29-JUN-17 13:21	0.25	172	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1946962 were received on 22-JUN-17 12:43.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L1946962-COFC

COC Number: 14 -

Page 1 of 1

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	District of Squamish	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Karine Le Du	Quality Control (QC) Report with Report ☐ Yes ☐ No	P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	PO Box 310 Squamish BC, V8B 0A3	☐ Criteria on Report - provide details below if box checked	E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
		Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	604-815-6861	Email 1 or Fax challiday@squamish.ca	Specify Date Required for E2,E or P:
		Email 2 kledu@squamish.ca	

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	Analysis Request
	Copy of Invoice with Report ☑ Yes ☐ No	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q62647	Approver ID:	Cost Center:
Job #:	SEMI ANNUAL DRINKING WATER SAMPLING	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: CARLA	Sampler: C. WRIGHT

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total Metals w/ Hg, Hardness	Total Cyanide	Colour, Ec, pH, TDS, Turbidity	Anions	Total Alk	NH3, Total Phosphorus						THM	HAA	Number of Containers
	PHS Combined	22-006-17	09:00	Water	R	R	R	R	R	R								5
	Birken	22-006-17	07:30	Water												R	R	4
	Lomond	22-006-17	07:55	Water												R	R	4
	Penny Lane	22-006-17	08:30	Water												R	R	4
	Municipal Hall	22-006-17	09:45	Water												R	R	4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☑ Yes ☐ No		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human drinking water use? ☑ Yes ☐ No		Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C / FINAL COOLER TEMPERATURES °C: 10

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: JC	Date: 6/22/17	Time: 12:43 pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0326e v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Karine Le Du

Date: 11-DEC-17
PO No.: 112273
WO No.: L2022708
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: PHS COMBINED
Sampled By:
Date Collected:
Lab Sample ID: L2022708-1
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Alkalinity by Titration						
Alkalinity Species by Titration						
Alkalinity, Total (as CaCO3)	21.2		mg/L			17-NOV-17
Anions by Ion Chromatography						
Sulfate in Water by IC						
Sulfate (SO4)	7.96		mg/L		500	16-NOV-17
Nitrite in Water by IC (Low Level)						
*Nitrite (as N)	<0.0010		mg/L	1		17-NOV-17
Nitrate in Water by IC (Low Level)						
*Nitrate (as N)	0.0559		mg/L	10		17-NOV-17
Fluoride in Water by IC						
Fluoride (F)	0.093		mg/L	1.5		16-NOV-17
Chloride in Water by IC						
Chloride (Cl)	4.37		mg/L		250	17-NOV-17
Bromide in Water by IC (Low Level)						
Bromide (Br)	<0.050		mg/L			17-NOV-17
Total Metals in Water (DW)						
Total Metals in Water by CRC ICPMS						
Aluminum (Al)-Total	<0.010		mg/L		0.1	21-NOV-17
Antimony (Sb)-Total	<0.00050		mg/L	0.006		21-NOV-17
Arsenic (As)-Total	0.00069		mg/L	0.01		21-NOV-17
Barium (Ba)-Total	<0.020		mg/L	1		21-NOV-17
Boron (B)-Total	<0.10		mg/L	5		21-NOV-17
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		21-NOV-17
Calcium (Ca)-Total	6.65		mg/L			21-NOV-17
Chromium (Cr)-Total	<0.0020		mg/L	0.05		21-NOV-17
Copper (Cu)-Total	0.0142		mg/L		1.0	21-NOV-17
Iron (Fe)-Total	<0.030		mg/L		0.3	21-NOV-17
Lead (Pb)-Total	<0.00050		mg/L	0.01		21-NOV-17
Magnesium (Mg)-Total	1.30		mg/L			21-NOV-17
Manganese (Mn)-Total	<0.0020		mg/L		0.05	21-NOV-17
Potassium (K)-Total	1.30		mg/L			21-NOV-17
Selenium (Se)-Total	<0.0010		mg/L	0.05		21-NOV-17
Sodium (Na)-Total	5.3		mg/L		200	21-NOV-17
Uranium (U)-Total	<0.00010		mg/L	0.02		21-NOV-17
Zinc (Zn)-Total	<0.050		mg/L		5.0	21-NOV-17
Total Hg in Water by CVAFS LOR=50ppt						
Mercury (Hg)-Total	<0.00020		mg/L	0.001		17-NOV-17
Hardness						
Hardness (as CaCO3)	22.0	HTC	mg/L		500	24-NOV-17

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Matrix: Water

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Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Ammonia, Total (as N)	<0.0050		mg/L			21-NOV-17
Colour, True	<5.0		CU		15	15-NOV-17
Conductivity	71.8		uS/cm			17-NOV-17
Cyanide, Total	<0.0050		mg/L	0.2		17-NOV-17
Total Dissolved Solids	72		mg/L		500	17-NOV-17
Phosphorus (P)-Total	0.0341		mg/L			16-NOV-17
*Turbidity	<0.10		NTU			16-NOV-17
pH	7.51		pH		7-10.5	17-NOV-17

CDWQG = Health Canada Guideline Limits updated DECEMBER 2015

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Carla Fuginski
Account Manager

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Date: 11-DEC-17
PO No.: 112273
WO No.: L2022708
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: BIRKEN
Sampled By:
Date Collected:
Lab Sample ID: L2022708-2
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		29-NOV-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			21-NOV-17
Bromodichloromethane	<0.0010		mg/L			21-NOV-17
Bromoform	<0.0010		mg/L			21-NOV-17
Dibromochloromethane	<0.0010		mg/L			21-NOV-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			26-NOV-17
Monochloroacetic Acid	<0.0050		mg/L			26-NOV-17
Bromochloroacetic Acid	<0.0010		mg/L			26-NOV-17
Dibromoacetic Acid	<0.0010		mg/L			26-NOV-17
Dichloroacetic Acid	<0.0010		mg/L			26-NOV-17
Trichloroacetic Acid	<0.0010		mg/L			26-NOV-17
Surr: 2,3-Dibromopropionic Acid (SS)	106.7		%			26-NOV-17

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
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Date: 11-DEC-17
PO No.: 112273
WO No.: L2022708
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: LOMOND
Sampled By:
Date Collected:
Lab Sample ID: L2022708-3
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		29-NOV-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			21-NOV-17
Bromodichloromethane	<0.0010		mg/L			21-NOV-17
Bromoform	<0.0010		mg/L			21-NOV-17
Dibromochloromethane	<0.0010		mg/L			21-NOV-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			26-NOV-17
Monochloroacetic Acid	<0.0050		mg/L			26-NOV-17
Bromochloroacetic Acid	<0.0010		mg/L			26-NOV-17
Dibromoacetic Acid	<0.0010		mg/L			26-NOV-17
Dichloroacetic Acid	<0.0010		mg/L			26-NOV-17
Trichloroacetic Acid	<0.0010		mg/L			26-NOV-17
Surr: 2,3-Dibromopropionic Acid (SS)	97.9		%			26-NOV-17

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
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Date: 11-DEC-17
PO No.: 112273
WO No.: L2022708
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: PENNY LANE
Sampled By:
Date Collected:
Lab Sample ID: L2022708-4
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		29-NOV-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			21-NOV-17
Bromodichloromethane	<0.0010		mg/L			21-NOV-17
Bromoform	<0.0010		mg/L			21-NOV-17
Dibromochloromethane	<0.0010		mg/L			21-NOV-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			26-NOV-17
Monochloroacetic Acid	<0.0050		mg/L			26-NOV-17
Bromochloroacetic Acid	<0.0010		mg/L			26-NOV-17
Dibromoacetic Acid	<0.0010		mg/L			26-NOV-17
Dichloroacetic Acid	0.0012		mg/L			26-NOV-17
Trichloroacetic Acid	<0.0010		mg/L			26-NOV-17
Surr: 2,3-Dibromopropionic Acid (SS)	98.1		%			26-NOV-17

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
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Account Manager

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PO Box 310
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ATTN: Karine Le Du

Date: 11-DEC-17
PO No.: 112273
WO No.: L2022708
Project Ref: SEMI ANNUAL DRINKING WATER SAMPLING
Sample ID: MUNICIPAL HALL
Sampled By:
Date Collected:
Lab Sample ID: L2022708-5
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Haloacetic Acids 5	<0.0054		mg/L	0.080		29-NOV-17
VOC (THM) by Headspace GCMS						
Chloroform	<0.0010		mg/L			21-NOV-17
Bromodichloromethane	<0.0010		mg/L			21-NOV-17
Bromoform	<0.0010		mg/L			21-NOV-17
Dibromochloromethane	<0.0010		mg/L			21-NOV-17
Haloacetic Acids						
Monobromoacetic Acid	<0.0010		mg/L			26-NOV-17
Monochloroacetic Acid	<0.0050		mg/L			26-NOV-17
Bromochloroacetic Acid	<0.0010		mg/L			26-NOV-17
Dibromoacetic Acid	<0.0010		mg/L			26-NOV-17
Dichloroacetic Acid	0.0010		mg/L			26-NOV-17
Trichloroacetic Acid	<0.0010		mg/L			26-NOV-17
Surr: 2,3-Dibromopropionic Acid (SS)	95.3		%			26-NOV-17

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* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
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Account Manager

Guidelines & Objectives

Sample Parameter Qualifier key listed:

Qualifier	Description
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Health Canada MAC Health Related Criteria Limits

Nitrate/Nitrite-N*	Criteria limit is 10 mg/L (1.0 mg/L if present as all Nitrite-N). High concentrations may contribute to blue baby syndrome in infants.
Lead*	A cumulative body poison, uncommon in naturally occurring hard waters.
Fluoride*	Present in fluoridated water supplies at 0.8 mg/L to reduce dental caries. Elevated levels causes fluorosis (mottling of teeth).
Total Coliforms*	Criteria is 0 CFU/100mL. Adverse health effects.
E. Coli*	Criteria is 0 CFU/100 mL. Certain E. Coli bacteria can be life threatening.

*Health Canada Canadian Drinking Water Quality Guidelines (MAC limit)

Aesthetic Objective Concentration Levels

Alkalinity	Acid neutralizing capacity. Usually a measure of carbonate and bicarbonates and calculated and reported as calcium carbonate.
Balance	Quality control parameter ratioing cations to anions
Bicarbonate	See Alkalinity. Report as the anion HCO3-1
Carbonate	See Alkalinity. Reported at the anion CO3-2
Calcium	See Hardness. Common major cation of water chemistry.
Chloride	Common major anion of water chemistry.
Conductance	Physical test measuring water salinity (dissolved ions or solids)
Hardness	Classical measure or capacity of water to precipitate soap (chiefly calcium and magnesium ions). Causes scaling tendency in water if carbonates/bicarbonates are present (if >200 mg/L). For drinking water purposes waters with results <200 mg/L are considered acceptable, results >200 mg/L are considered poor but can be tolerated. Results >500 mg/L are unacceptable.
Hydroxide	See alkalinity
Magnesium	See hardness. Common major cation of water chemistry. Elevated levels (>125 mg/L) may exert a cathartic or diuretic action.
pH	Measure of water acidity/alkalinity. Normal range is 7.0-8.5.
Potassium	Common major cation of water chemistry.
Sodium	Common major cation of water chemistry. Measure of salinity (saltiness).The aesthetic objective (not related to health) for sodium in drinking water is 200 mg/L. However, where sodium concentration of the drinking water exceeds 20 mg/L, it is recommended that any person on a sodium restricted diet consult with his/her physician or Medical Officer of Health concerning the use of that water.
Sulphate	Common major anion of water chemistry. Elevated levels may exert a cathartic or diuretic action.
Total Dissolved Solids	A measure of water salinity.
Iron	Causes staining to laundry and porcelain and astringent taste. Oxidizes to red-brown precipitate on exposure to air.
Manganese	Elevated levels may cause staining of laundry and porcelain.
Heterotrophic Plate Count	Criteria is 500 cfu/mL Measure of heterotrophic bacteria present.

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
Contact: Karine Le Du

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-VA	**Water**							
Batch R3887217								
WG2664947-23 CRM		**VA-ALK-TITR-CONTROL**						
Alkalinity, Total (as CaCO3)			101.1		%		85-115	17-NOV-17
WG2664947-21 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	17-NOV-17
BR-L-IC-N-VA	**Water**							
Batch R3887581								
WG2666346-13 LCS								
Bromide (Br)			101.6		%		85-115	17-NOV-17
WG2666346-17 LCS								
Bromide (Br)			100.8		%		85-115	17-NOV-17
WG2666346-2 LCS								
Bromide (Br)			100.8		%		85-115	17-NOV-17
WG2666346-22 LCS								
Bromide (Br)			102.0		%		85-115	17-NOV-17
WG2666346-5 LCS								
Bromide (Br)			101.4		%		85-115	17-NOV-17
WG2666346-9 LCS								
Bromide (Br)			101.5		%		85-115	17-NOV-17
WG2666346-1 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-NOV-17
WG2666346-12 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-NOV-17
WG2666346-16 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-NOV-17
WG2666346-20 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-NOV-17
WG2666346-4 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-NOV-17
WG2666346-8 MB								
Bromide (Br)			<0.050		mg/L		0.05	17-NOV-17
CL-IC-N-VA	**Water**							
Batch R3887581								
WG2666346-13 LCS								
Chloride (Cl)			101.7		%		90-110	17-NOV-17
WG2666346-17 LCS								
Chloride (Cl)			101.7		%		90-110	17-NOV-17
WG2666346-2 LCS								
Chloride (Cl)			102.1		%		90-110	17-NOV-17

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-VA	**Water**							
Batch R3887581								
WG2666346-22 LCS								
Chloride (Cl)			101.9		%		90-110	17-NOV-17
WG2666346-5 LCS								
Chloride (Cl)			101.6		%		90-110	17-NOV-17
WG2666346-9 LCS								
Chloride (Cl)			101.6		%		90-110	17-NOV-17
WG2666346-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	17-NOV-17
WG2666346-12 MB								
Chloride (Cl)			<0.50		mg/L		0.5	17-NOV-17
WG2666346-16 MB								
Chloride (Cl)			<0.50		mg/L		0.5	17-NOV-17
WG2666346-20 MB								
Chloride (Cl)			<0.50		mg/L		0.5	17-NOV-17
WG2666346-4 MB								
Chloride (Cl)			<0.50		mg/L		0.5	17-NOV-17
WG2666346-8 MB								
Chloride (Cl)			<0.50		mg/L		0.5	17-NOV-17
CN-T-CFA-VA	**Water**							
Batch R3887725								
WG2666083-2 LCS								
Cyanide, Total			92.2		%		80-120	17-NOV-17
WG2666083-1 MB								
Cyanide, Total			<0.0050		mg/L		0.005	17-NOV-17
COLOUR-TRUE-VA	**Water**							
Batch R3886047								
WG2664647-2 CRM		**VA-COLOUR-T**						
Colour, True			105.4		%		85-115	15-NOV-17
WG2664647-1 MB								
Colour, True			<5.0		CU		5	15-NOV-17
EC-PCT-VA	**Water**							
Batch R3887217								
WG2664947-24 CRM		**VA-EC-PCT-CONTROL**						
Conductivity			101.7		%		90-110	17-NOV-17
WG2664947-21 MB								
Conductivity			<2.0		uS/cm		2	17-NOV-17
F-IC-N-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-VA	**Water**							
Batch R3886556								
WG2665018-10 LCS								
Fluoride (F)			106.2		%		90-110	16-NOV-17
WG2665018-2 LCS								
Fluoride (F)			105.6		%		90-110	16-NOV-17
WG2665018-5 LCS								
Fluoride (F)			106.6		%		90-110	16-NOV-17
WG2665018-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-NOV-17
WG2665018-4 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-NOV-17
WG2665018-8 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-NOV-17
HAA-WP	**Water**							
Batch R3897438								
WG2673320-2 LCS								
Monobromoacetic Acid			92.3		%		50-130	26-NOV-17
Monochloroacetic Acid			100.2		%		50-130	26-NOV-17
Bromochloroacetic Acid			99.1		%		50-130	26-NOV-17
Dibromoacetic Acid			100.0		%		50-130	26-NOV-17
Dichloroacetic Acid			104.2		%		50-130	26-NOV-17
Trichloroacetic Acid			98.1		%		50-130	26-NOV-17
WG2673320-1 MB								
Monobromoacetic Acid			<0.0010		mg/L		0.001	26-NOV-17
Monochloroacetic Acid			<0.0050		mg/L		0.005	26-NOV-17
Bromochloroacetic Acid			<0.0010		mg/L		0.001	26-NOV-17
Dibromoacetic Acid			<0.0010		mg/L		0.001	26-NOV-17
Dichloroacetic Acid			<0.0010		mg/L		0.001	26-NOV-17
Trichloroacetic Acid			<0.0010		mg/L		0.001	26-NOV-17
Surrogate: 2,3-Dibromopropionic Acid (SS			98.0		%		50-130	26-NOV-17
HG-TOT-CVAFS-VA	**Water**							
Batch R3887195								
WG2666214-2 LCS								
Mercury (Hg)-Total			103.5		%		80-120	17-NOV-17
WG2666214-1 MB								
Mercury (Hg)-Total			<0.000050		mg/L		0.00005	17-NOV-17
MET-T-CCMS-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA	**Water**							
Batch R3894228								
WG2666566-2 LCS								
Aluminum (Al)-Total			101.9		%		80-120	21-NOV-17
Antimony (Sb)-Total			105.7		%		80-120	21-NOV-17
Arsenic (As)-Total			100.3		%		80-120	21-NOV-17
Barium (Ba)-Total			97.3		%		80-120	21-NOV-17
Boron (B)-Total			97.8		%		80-120	21-NOV-17
Cadmium (Cd)-Total			103.6		%		80-120	21-NOV-17
Calcium (Ca)-Total			97.0		%		80-120	21-NOV-17
Chromium (Cr)-Total			102.4		%		80-120	21-NOV-17
Copper (Cu)-Total			96.5		%		80-120	21-NOV-17
Iron (Fe)-Total			86.8		%		80-120	21-NOV-17
Lead (Pb)-Total			89.7		%		80-120	21-NOV-17
Magnesium (Mg)-Total			100.0		%		80-120	21-NOV-17
Manganese (Mn)-Total			99.9		%		80-120	21-NOV-17
Potassium (K)-Total			100.7		%		80-120	21-NOV-17
Selenium (Se)-Total			98.6		%		80-120	21-NOV-17
Sodium (Na)-Total			96.8		%		80-120	21-NOV-17
Uranium (U)-Total			92.6		%		80-120	21-NOV-17
Zinc (Zn)-Total			95.7		%		80-120	21-NOV-17
WG2666566-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	21-NOV-17
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	21-NOV-17
Arsenic (As)-Total			<0.00010		mg/L		0.0001	21-NOV-17
Barium (Ba)-Total			<0.000050		mg/L		0.00005	21-NOV-17
Boron (B)-Total			<0.010		mg/L		0.01	21-NOV-17
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	21-NOV-17
Calcium (Ca)-Total			<0.050		mg/L		0.05	21-NOV-17
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	21-NOV-17
Copper (Cu)-Total			<0.00050		mg/L		0.0005	21-NOV-17
Iron (Fe)-Total			<0.010		mg/L		0.01	21-NOV-17
Lead (Pb)-Total			<0.000050		mg/L		0.00005	21-NOV-17
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	21-NOV-17
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	21-NOV-17
Potassium (K)-Total			<0.050		mg/L		0.05	21-NOV-17
Selenium (Se)-Total			<0.000050		mg/L		0.00005	21-NOV-17

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA	**Water**							
Batch R3894228								
WG2666566-1 MB								
Sodium (Na)-Total			<0.050		mg/L		0.05	21-NOV-17
Uranium (U)-Total			<0.000010		mg/L		0.00001	21-NOV-17
Zinc (Zn)-Total			<0.0030		mg/L		0.003	21-NOV-17
NH3-F-VA	**Water**							
Batch R3892191								
WG2667755-6 LCS								
Ammonia, Total (as N)			101.3		%		85-115	21-NOV-17
WG2667755-5 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	21-NOV-17
NO2-L-IC-N-VA	**Water**							
Batch R3887581								
WG2666346-13 LCS								
Nitrite (as N)			104.0		%		90-110	17-NOV-17
WG2666346-17 LCS								
Nitrite (as N)			104.1		%		90-110	17-NOV-17
WG2666346-2 LCS								
Nitrite (as N)			103.7		%		90-110	17-NOV-17
WG2666346-22 LCS								
Nitrite (as N)			104.1		%		90-110	17-NOV-17
WG2666346-5 LCS								
Nitrite (as N)			103.6		%		90-110	17-NOV-17
WG2666346-9 LCS								
Nitrite (as N)			103.5		%		90-110	17-NOV-17
WG2666346-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	17-NOV-17
WG2666346-12 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	17-NOV-17
WG2666346-16 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	17-NOV-17
WG2666346-20 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	17-NOV-17
WG2666346-4 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	17-NOV-17
WG2666346-8 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	17-NOV-17
NO3-L-IC-N-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-L-IC-N-VA	**Water**							
Batch R3887581								
WG2666346-13 LCS								
Nitrate (as N)			102.2		%		90-110	17-NOV-17
WG2666346-17 LCS								
Nitrate (as N)			102.2		%		90-110	17-NOV-17
WG2666346-2 LCS								
Nitrate (as N)			102.3		%		90-110	17-NOV-17
WG2666346-22 LCS								
Nitrate (as N)			102.1		%		90-110	17-NOV-17
WG2666346-5 LCS								
Nitrate (as N)			101.8		%		90-110	17-NOV-17
WG2666346-9 LCS								
Nitrate (as N)			101.8		%		90-110	17-NOV-17
WG2666346-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	17-NOV-17
WG2666346-12 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	17-NOV-17
WG2666346-16 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	17-NOV-17
WG2666346-20 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	17-NOV-17
WG2666346-4 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	17-NOV-17
WG2666346-8 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	17-NOV-17
P-T-PRES-COL-VA	**Water**							
Batch R3886508								
WG2664799-6 CRM		**VA-ERA-PO4**						
Phosphorus (P)-Total			112.7		%		80-120	16-NOV-17
WG2664799-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	16-NOV-17
PH-PCT-VA	**Water**							
Batch R3887217								
WG2664947-22 CRM		**VA-PH7-BUF**						
pH			6.99		pH		6.9-7.1	17-NOV-17
SO4-IC-N-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-VA	**Water**							
Batch R3886556								
WG2665018-10 LCS								
Sulfate (SO4)			101.9		%		90-110	16-NOV-17
WG2665018-2 LCS								
Sulfate (SO4)			101.9		%		90-110	16-NOV-17
WG2665018-5 LCS								
Sulfate (SO4)			102.6		%		90-110	16-NOV-17
WG2665018-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	16-NOV-17
WG2665018-4 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	16-NOV-17
WG2665018-8 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	16-NOV-17
TDS-VA	**Water**							
Batch R3887845								
WG2665771-5 LCS								
Total Dissolved Solids			102.0		%		85-115	17-NOV-17
WG2665771-4 MB								
Total Dissolved Solids			<10		mg/L		10	17-NOV-17
THM-HSMS-VA	**Water**							
Batch R3879063								
WG2668691-2 LCS								
Chloroform			100.6		%		70-130	21-NOV-17
Bromodichloromethane			97.7		%		60-140	21-NOV-17
Bromoform			100.6		%		60-140	21-NOV-17
Dibromochloromethane			101.0		%		60-140	21-NOV-17
WG2668691-1 MB								
Chloroform			<0.0010		mg/L		0.001	21-NOV-17
Bromodichloromethane			<0.0010		mg/L		0.001	21-NOV-17
Bromoform			<0.0010		mg/L		0.001	21-NOV-17
Dibromochloromethane			<0.0010		mg/L		0.001	21-NOV-17
TURBIDITY-VA	**Water**							
Batch R3885992								
WG2664735-11 CRM		**VA-FORM-40**						
Turbidity			101.5		%		85-115	16-NOV-17
WG2664735-2 CRM		**VA-FORM-40**						
Turbidity			99.8		%		85-115	16-NOV-17
WG2664735-5 CRM		**VA-FORM-40**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TURBIDITY-VA	**Water**							
Batch R3885992								
WG2664735-5 CRM		**VA-FORM-40**						
Turbidity			101.0		%		85-115	16-NOV-17
WG2664735-8 CRM		**VA-FORM-40**						
Turbidity			101.0		%		85-115	16-NOV-17
WG2664735-1 MB								
Turbidity			<0.10		NTU		0.1	16-NOV-17
WG2664735-10 MB								
Turbidity			<0.10		NTU		0.1	16-NOV-17
WG2664735-4 MB								
Turbidity			<0.10		NTU		0.1	16-NOV-17
WG2664735-7 MB								
Turbidity			<0.10		NTU		0.1	16-NOV-17

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	Not provided	17-NOV-17 11:59	0.25	47	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2022708 were received on 15-NOV-17 13:02.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2022708-COFC

COC Number: 14 -

Page 1 of 1

Report To		Report Format / Distribution		Select Service Level below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	District of Squamish	Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Karine Le Du	Quality Control (QC) Report with Report	☑ Yes ☐ No	P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	PO Box 310 Squamish BC, V8B 0A3	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
		Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	604-815-6861	Email 1 or Fax	challiday@squamish.ca	Specify Date Required for E2,E or P:
		Email 2	kledu@squamish.ca	

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☑ Yes ☐ No		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	SEMI ANNUAL DRINKING WATER SAMPLING	GL Account:	Routing Code:
PO / AFE::	# 112273	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: CARLA	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total Metals w/ Hg, Hardness	Total Cyanide	Colour, Ec, pH, TDS, Turbidity	Anions	Total Alk	NH3, Total Phosphorus						THM	HAA	Number of Containers
	PHS Combined			Water	R	R	R	R	R	R								
	Birken			Water												R	R	
	Lomond			Water												R	R	
	Penny Lane			Water												R	R	
	Municipal Hall			Water												R	R	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☑ Yes ☐ No	
Are samples for human drinking water use? ☑ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations Yes ☐ No ☐
Ice packs Yes ☒ No ☐	Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐	

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
				5	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: A JC	Date: 11/15/17	Time: 1:02 pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326a v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Appendix D - VCH Advice re Lead in Drinking Water

Office of the Chief Medical Health Officer
800, 601 West Broadway
Vancouver, BC V5Z 4C2
Tel: 604.675.3900 Toll free 1.855.675.3900
Fax: 604.731.2756

January 12, 2017

Protecting yourself from Lead in Drinking Water

Lead can be harmful to human health, even in very small amounts. Lead is most serious for pregnant women and young children because infants and children absorb lead more easily than adults and are more susceptible to its harmful effects, such as effects on behaviour and intelligence. The public's exposure to lead has decreased over the years as major sources of lead have been eliminated, and we have no reported cases of children being adversely affected by lead in drinking water in the Vancouver Coastal Health (VCH) region. Nonetheless, it is important to keep lead exposure as low as possible, particularly for pregnant women and children.

Drinking water is one possible, but not the only, source of lead. Lead-based paint in older homes is another potential source – further information is available at: http://www.healthlinkbc.ca/healthfiles/hfile31.stm. The current guideline for lead in drinking water is a maximum acceptable concentration of 0.010 mg/L (10 ppb). Most drinking water supply systems in B.C. have very low levels of lead. However, many water systems in the South Coast of B.C. have soft (low in hardness), and slightly acidic (low pH and alkalinity) drinking water. When this type of water sits unused in building piping, such as overnight or over weekends, lead can be released from the plumbing into the water. This is particularly true for older homes and buildings that may have lead or brass plumbing fixtures or fittings, or lead – containing solder. Some water systems have measures in place to help counter this problem. VCH is working with the operators to evaluate the effectiveness of these measures.

Water sampling results from various communities in VCH indicate that once sitting water is flushed, lead levels return to safe levels below the maximum acceptable concentration, even when the levels were elevated prior to flushing.

What Can You Do

If you are pregnant, trying to become pregnant, have young children in the home or simply wish to reduce your potential lead exposure:

- Anytime water has not been used for a prolonged period, flush the water from a tap in your home for 5 minutes or until the water is cold, whichever comes first.
- Examples of prolonged periods: Overnight, throughout the work day (if all households members are away from the home), and during vacations when the house is empty.

- Use only cold water that has been flushed for drinking, cooking and making baby formula. Hot tap water generally has higher lead levels compared to cold tap water.
- Once the lines have been flushed, water collected for drinking can be stored in a suitable container and kept refrigerated to minimize repeated unnecessary flushing.
- Also to assist conservation, the flushed water can be collected and used to water ornamental household plants.

Note: Households on water systems with corrosion control measures may not require flushing. VCH will adjust our advice as we evaluate these systems.

If you are still concerned about lead exposure from your drinking water, you can consider having your water tested. VCH Environmental Health Officers can advise you of the appropriate private laboratories that can do the testing for you at a cost.

In B.C., screening people's blood for lead is not generally recommended. If you are concerned about your family's current or past exposure to lead, discuss your concerns with your family physician.

For more information on lead in drinking water, visit this Health Canada web page: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/lead-plomb-eng.php

Contact information for Vancouver Coastal Health Environmental Health:

Area	Phone
Central Coast	604-983-6700
Powell River	604-485-3310
Sechelt	604-885-5164
Vancouver	604-675-3800
North Vancouver	604-983-6700
Richmond	604-233-3147
Squamish	604-892-2293
Whistler	604-932-3202