SQUAMISH
HARDWIRED *for* ADVENTURE

2015 DRINKING WATER QUALITY

ANNUAL REPORT

DISTRICT OF SQUAMISH
September 2016
FINAL

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Table of Contents

Executive Summary

This report summarizes the District of Squamish's water quality program for 2015. 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 Drinking Water Protection Regulations as well as a Permit to Operate issued by Vancouver Coastal Health. In 2015, water samples were tested weekly for *E. coli* and total coliform bacteria and biannually 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.

The Squamish WS&D systems was Operated and Maintained by the District of Squamish Water Utility Operations Team and was monitored 24 hours/365 days per year via the Supervisory Control and Data Acquisition (SCADA) system to ensure optimal conditions. In addition, the District of Squamish continued 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 protection of our clean drinking water delivery. 2015 also saw the implementation of several Operational and Capital Improvement/Renewal initiatives intended to increase system reliability. Examples of such projects included the redevelopment of a water supply well, program improvements to well pump control, chlorine dosing improvements, an automated control valve chamber replacement and the renewal of several sections of the watermain throughout the distribution network.

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 2015. It also serves to raise awareness of the importance of protecting our drinking water sources.

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

2.0 General Description

The District of Squamish has the ability to draw water from three sources that includes one primary groundwater source and two surface water sources that are available for emergency backup. All water supplies are equipped with either primary or secondary chlorine disinfection. The distribution system consists of seven reservoirs, twenty control valve stations, two pump stations and over 130 km of watermain. The system is required to deliver potable water to over 18,000 residents and over 270 industrial, commercial and institutional (ICI) customers located within the District of Squamish (see Appendix B). In 2015, the District provided over 3.9 million cubic meters (m^3) of potable water for consumption with an Average Daily Demand (ADD) of 10,987,336 L/day and Maximum Daily Demand (MDD) of 18,098,760 L/day.

The District employs a Supervisory Control and Data Acquisition (SCADA) program which 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)

The District's water system is supplied by seven groundwater wells at the Powerhouse Springs Well Field. 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 due to the variable water quality of the surface water. In 2015 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 Powerhouse Creek and the Mamquam River, contains seven ground water wells that draw from the Ring Creek Aquifer. The Powerhouse Springs wells have a maximum output of 250 L/s or 21.6 million L/day. A full description of the systems potential is described the *District of Squamish – Water Master Plan*, which can be found on the District's website. The District of Squamish currently holds a certificate under the Environmental Assessment Act that allows a maximum withdrawal of 255 L/s from the aquifer. Secondary chlorination is provided to ensure the safety of the water as it travels throughout the distribution network.

3.1.1 Ring Creek Aquifer

The Ring Creek Aquifer provides a steady supply of water which is recharged by rainwater seepage through the lava flow, the Mamquam Glacier, Ring Creek and Mamquam River. In 2014, a Hydrogeological Assessment was conducted by Piteau Associates which concluded that the water withdrawn by Powerhouse Springs Well Field is at "low risk of containing pathogens". As such, primary disinfection of the water would be unnecessary.

3.1.2 Powerhouse Springs Wells Rehabilitation

The District of Squamish contracted Phrea Groundwater Consulting (Phrea) to plan and supervise the Powerhouse Springs well rehabilitation program in the Spring of 2015. Phrea analyzed the data collected from the District's SCADA system and determined the three wells with top priority to undergo rehabilitation. When field tested, two of the three wells showed that their capacity was much higher than anticipated and their anticipated rehabilitation work was deferred to a later date. The third well that was identified was still underperforming and therefore its rehabilitation was carried out, restoring its pumping capacity to 84% of its original rating. The full report, *2015 Well Redevelopment Program, Powerhouse Springs Well Field, Squamish, BC*, is included in Appendix C.

3.1.3 Powerhouse Springs Well Pump Control Improvements

In 2015, an evaluation of the Well Field Pump control philosophy determined programming improvements were required to minimize excessive pump cycling. As such, the District worked with a third party programmer to develop new programming based on Pressure Control instead of a reservoir level control. The outcome of the project was the reduction of unnecessary pump cycling of which will increase the lifecycle of the pumps and minimize aquifer surging and hopefully extend the period between well redevelopment

3.1.4 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 between 0.4 – 0.5 mg/L target concentration to ensure the safety of the water as it travels throughout the distribution network.

In late 2015, a Chlorine Dosing Improvement Project was completed in-house by the Utilities Department. The intent of the project was to improve chlorination system reliability by providing dosing equipment redundancy, improve dosing consistency, and minimize operator interface with sodium hypochlorite to improve operator safety.

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 low concentrations.

3.2 Emergency Surface Water Sources: Stawamus River & Mashiter Creek

Please note: The District of Squamish did not require the use of raw surface water sources to supplement their water distribution in 2015.

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. Open water sources have unpredictable water quality due to rain events and upstream use by humans and animals. Water samples from both raw surface water sources are tested weekly for *E. coli* and total coliform. 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

Water drawn from the Stawamus River and Mashiter Creek is treated using sodium hypochlorite chlorination as a primary disinfectant. Open 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 potentially implement a Water Quality or Boil Water Advisory should water from either of the surface water sources enter the distribution system.

3.3 Challenges

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

- Aquifer recharge rate may be adversely affected by climate change if the glaciers recede and snowpack is lower than usual;
- Aging infrastructure will need to be replaced and maintaining water supply during this time can prove difficult without reliance on backup water sources;
- Open water sources are at risk of contamination from human and animal activity upstream;
- Need for maintaining creek flow in Mashiter Creek for fish habitat in summer months; and
- Need for balancing the river levels for recreational purposes and potable water demand in the Stawamus River.

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 2015:

- The District of Squamish continued to support its Water Conservation Program to reduce water demand during peak usage periods;
- Powerhouse Springs well field maintenance improved the output capacity of one of the wells and found that the capacity of two of the other wells was greater than expected;
- Chlorine Dosing Improvements that include better consistency of chlorine delivery and monitoring in the water distribution system;
- Major watermains were upgraded and replaced in Downtown Squamish and Garibaldi Highlands (a total of 1 km). The work on Pemberton Avenue completed the third phase and final year of the redundant water supply to Downtown Squamish (a cost of $1.3 million). In Garibaldi Highlands, the work on The Boulevard and Freidel Crescent connected a Brackendale dedicated supply line from the University Bridge to Alice Lake Reservoir. The Ayr Drive PRV was also replaced.

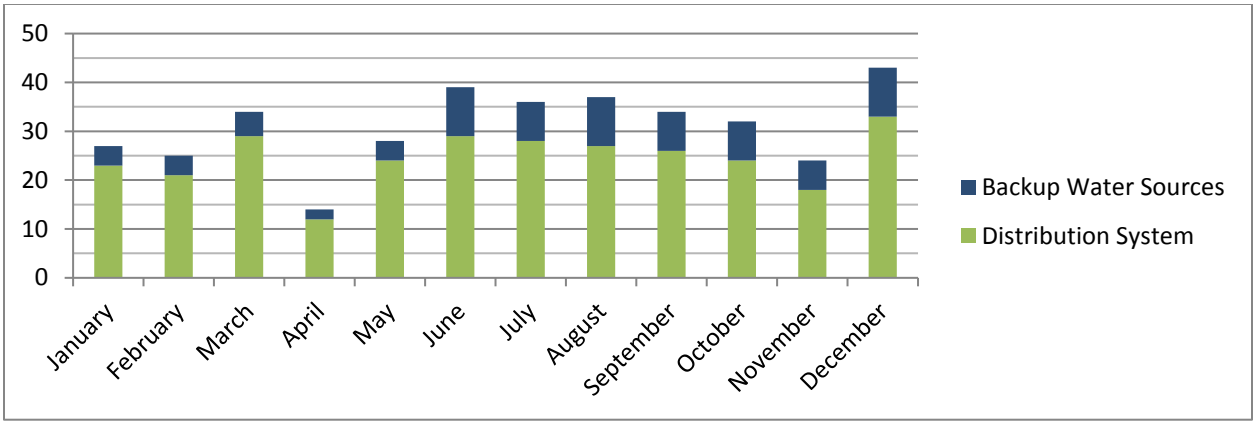
5.0 Standards & Testing Results for Water Supply System

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 which are outlined in the following subsections. A copy of the permit is included in Appendix A.

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. Typically, six sample locations throughout the distribution system are sampled weekly in effort to ensure the monthly minimum average number of samples meet the permit requirement in the event of unforeseen sample delivery challenges. In addition, weekly samples are collected from Powerhouse Springs well site (before secondary chlorination) 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 2015.

Figure 1. Number of monthly samples analyzed for bacteriological testing for the District of Squamish in 2015.



The average number of water samples that were tested per month was 24.5, 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[1] 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

Summary of the bacteriological testing results for the District of Squamish in 2015 is shown in Table 1.

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

Table 1. Summary of the bacteriological testing results for the District of Squamish in 2015.
*The results from September 8, 2015 were removed from two locations as the data was invalid due to sampling error.

Water Distribution Sample Location	# of Samples	*E. coli* (EC/100 mL)			Total Coliform (TCU/100 mL)		
		minimum	maximum	average	minimum	maximum	average
Alice Lake Reservoir	47	<1	<1	<1	<1	<1	<1
Perth	47	<1	<1	<1	<1	<1	<1
Lamond	48	<1	<1	<1	<1	<1	<1
Quest University	47	<1	<1	<1	<1	2	<1
Health Unit	25	<1	<1	<1	<1	<1	<1
Westway Avenue	26	<1	<1	<1	<1	<1	<1
Powerhouse Springs (Pre-chlorination)*	54	<1	<1	<1	<1	59	<1
Total Samples	**294**						
Additional Sample Locations							
Stawamus River (Raw Surface Water)*	49	<1	201.4	<10	13.2	>2419.2	>353
Mashiter Creek (Raw Surface Water)	30	<1	37.3	<3	<1	579.4	<142

Based on the 2015 results, there were no detectable *E.coli* in the distribution system over the monitoring period.

There were two positive results for Total Coliform bacteria from one sample at Quest University (2 TCU/100 mL) and one sample at Powerhouse Springs (59 TCU/100 mL). The results at Powerhouse Springs were a part of the ALS Full Spectrum Analysis at only one of the seven wells with no other results found further down the distribution system and the results found were an unusual anomaly related to sampling error. Similarly, the water further down the distribution system from Quest University did not show any presence in the water. VCH was notified in both occasions and verification samples came back with no presence of Total Coliform or *E.coli*.

Water from the backup water sources were not used in 2015 by the District of Squamish, however samples were monitored weekly for information in the event that their water use would be required. The results are also shown in Table 1. From these results, it can clearly be seen why reliance on surface water sources requires primary disinfection should their use be required. Samples for Mashiter Creek were not taken in the first half of 2015 due to road access issues to this supply.

5.2 Physical and Chemical Parameters

In order to ensure that potable water is being delivered in the District of Squamish, water is tested for a wide range of physical and chemical parameters in a Full Spectrum Report carried out by ALS. Water samples are tested bi-annually at Powerhouse Springs, Stawamus River and Mashiter Creek (despite the

latter two sources not in use in 2015). The results of the ALS Full Spectrum reports for spring and winter 2015 can be reviewed in Appendix C.

The following list is a summary of the sampling results that fell outside of the Maximum Allowed Concentration (MAC) or Aesthetic Objective (AO).

Stawamus Raw, data collected Apr 29, 2015:

- Aluminum (Al) – Total = 0.117 (AO ≤ 0.1 mg/L); this is an aesthetic objective therefore no remedial action was deemed necessary.

Powerhouse Springs Well 1 Raw, data collected Dec 22, 2015:

- Turbidity = 8.02 (MAC ≤ 1.0 NTU); turbidity from well casing may have been induced through Waterra tubing water sampling technique; dedicated sample lines will be installed in 2016 to prevent these challenges in sample collection on wells 1, 2, and 4.
- Iron (Fe) – Total = 1.32 (AO ≤ 0.3 mg/L); aesthetic objective, not considered a health risk therefore no remedial action required.

Powerhouse Springs Well 2 Raw, data collected Dec 22, 2015:

- Total Coliform = 59 (MAC = non detectible MPN/100mL); contaminants from well casing may have been induced through Waterra tubing water sampling technique; subsequent sample taken and tested, indicated no detectible Total Coliform; see re-test data in Appendix C.
- Iron (Fe) – Total = 0.472 (AO ≤ 0.3 mg/L); aesthetic objective, not considered a health risk therefore no remedial action required.

Powerhouse Springs Well 4 Raw, data collected Dec 22, 2015:

- Turbidity = 2.93 (MAC ≤ 1.0 NTU); turbidity from well casing may have been induced through Waterra tubing water sampling technique; dedicated sample lines will be installed in 2016 to prevent these challenges in sample collection on wells 1, 2, and 4.

Stawamus Raw, data collected Dec 22, 2015:

- Aluminum (Al) – Total = 0.176 (AO ≤ 0.1 mg/L); this is an aesthetic objective therefore no remedial action was deemed necessary.
- Aluminum (Al) – Dissolved = 0.136 (AO ≤ 0.1 mg/L); this is an aesthetic objective therefore no remedial action was deemed necessary.

Samples are collected and analyzed for disinfection by-products at 4 other sample locations. Disinfection by-products are a by-product of disinfecting the water with sodium hypochlorite some of which are known carcinogens. None of the samples showed levels of disinfection by-products that would be concerning to human health.

5.2.1 Corrosivity Factor in Water

The water that is delivered through the distribution system is low in hardness (meaning it has relatively little dissolved calcium and magnesium) and is low in alkalinity (meaning it is not able to neutralize acids well). These characteristics are very common in British Columbia's South Coast. And although the results of the biannual water samples tested by ALS show neutral and slightly basic water (pH>7), the properties of the water will vary over time and could become slightly acidic. When the above factors are combined with various other factors, it can lead to slightly corrosive properties. If water is allowed to sit for extended periods of time, it can draw out metals, including lead, from fixtures and pipes in homes.

The District of Squamish is not aware of having any lead watermains or lead-soldered pipes within the DOS water supply system however it cannot predict the types of service lines or fixtures on private property. For this reason, the District of Squamish is supporting VCH's recommendation to 'flush until cold'. By allowing water to run until it is cold, stagnant water is removed from the pipes which would be the source for any water that contains leached metals from sitting for long periods of time.

The District of Squamish takes concerns regarding its water quality very seriously, and the potential for lead is no exception. Samples of water from multiple buildings have been tested and although trace levels of lead were present, they were well below the MAC.

5.3 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 the physical connection between the potable water supply and an end use where a potential contamination hazard exists. Backflow or back-syphon is the undesired reverse flow of water coming back into the potable water supply 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 “one-way” valve or assembly that only allows water to flow in the desired direction and physically impedes reverse flow.

In 2015, the CCC Program focused on assessing high risk ICI users in the system and performed approximately 100 assessments of a total 368 ICI customers (the total number of ICI customers can vary throughout the year). Many users were also alerted to run-on toilets (continuously flowing water) and small leaks. Existing backflow preventers were identified and added to the FAST database, a CCC online management database, to ensure they are tested annually. The CCC team is also working with the building department to ensure that CCC requirements are identified for new buildings.

5.4 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 by Piteau Associated Engineering Ltd for the

seven wells operating at Powerhouse Springs well field in May 2014. 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 biannually for potential contaminants (results in section 5.1 and 5.2).

5.5 Unidirectional Flushing Program

Watermain flushing takes place in the District of Squamish water system in order to improve water flow and remove potential contaminant build-up. The program was modified for 2015, targeting new watermain locations (that were not formerly part of the flushing program) and dead ends. The program will continue over the winter of 2015-16 continuing to target higher risk areas to ensure that water is being delivered to the highest standard possible.

5.6 Online Monitoring

The District of Squamish uses the SCADA system to monitor multiple variables in the District's water network online, 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 set point values levels go below their minimums or above their maximums. 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. The turbidity was also measured in the bi-annual full spectrum reports conducted by ALS. The results of these tests are presented in section 5.2. If the backup surface water were used, the chlorine levels would be measured by SCADA after the chlorine is added to the water entering the distribution system.

5.7 Long-Term Water Supply Strategy

The District of Squamish contracted Opus Dayton Knight Consultants Ltd. to complete the *District of Squamish – Water Master Plan* which 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 this report were a long term source development strategy, a water meter implementation strategy, a water conservation plan, and a watermain renewal program.

As mentioned in section 4.0, improvements were made in 2015 to the well field pump capacities and upgrades to the water distribution system in Downtown and Garibaldi Highlands. System maintenance

and upgrades will continue in future years as per the report's recommendations to maintain quality service to the District of Squamish.

An important factor with the growth of the community and aging infrastructure will be the need to reduce the per capita water consumption. This will assist in maintaining adequate water supply while keeping upgrade costs to a minimum, and reducing service interruptions. Currently outdoor water use is the target for water reduction, however future plans for indoor water use, including water audits, will be implemented as well.

The District of Squamish is in the beginning stages of using water meters for ICI customers. All new buildings are required to have a water meter included in their construction and existing buildings are having the meters installed on existing connections.

When the demand exceeds the current water source capacity at the Powerhouse Springs Well field, the District has a number of options to provide the necessary water to its residents. According to the *District of Squamish – Water Master Plan*, the current aquifer was shown to have a potential capacity of 760 L/s which means additional wells could be installed. Alternatively, upgrades could be made to the Stawamus and/or Mashiter surface water sources or a new well field could be created along the Mamquam River.

5.8 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 Plan (ERP)* 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. The DWO and other VCH staff will provide advice about public notification and monitoring water quality, however the District of Squamish will take the lead role as spokesperson for media inquiries and releases.

6.0 Significant Events & Public Notification

Through careful monitoring and the District of Squamish's Water Conservation Program, the District did not require the use of its backup water supply from the Stawamus River or Mashiter Creek which would have resulted in a public advisory. This was despite an unusually hot, dry spring and summer, and a major fire event at the Squamish Terminals that lasted three days. The Outdoor Water Use bylaw that was introduced in 2013 enabled the District to reserve the available potable water for household use and only limited outdoor use. Water restrictions only reached Stage 2 (of 4) as a result of the residents taking an active role in conserving water.

6.1 Drinking Water Advisory/Boil Water Advisory

No Drinking Water Advisories or Boil Water Advisories were issued in 2015.

7.0 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. This ensures that District staff are adequately trained to operate, maintain and repair water supply systems in order to maintain the safety and quality of drinking water that is delivered to the end user.

The District of Squamish supports its staff in achieving further education and training in their respective fields in order to provide the best service to its residents. A total of 14 Water Distribution and Water Treatment Certifications are held by the District's Utility staff. Water Distribution accounts for 12 of the certifications held, the most qualified being Level 3, and an additional two certificates for Water Treatment, with the most qualified being Level 4. A full list of Environmental Operators Certifications for Water Distribution and Water Treatment held for the District of Squamish in 2015 are shown in Table 2.

Table 2. 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	2	1
Level 2	6	0
Level 3	3	0
Level 4	0	1
Total	**13**	**3**

8.0 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 which is already of high quality prior to any treatment.

The District of Squamish was consistently able to satisfy the conditions for the Permit to Operate a Water Supply System. Bacteriological sampling was completed weekly with no results that were cause for alarm. Physical and chemical tests were carried out biannually with overall satisfaction. The Cross Connection Control Program, Well Protection Plan and the Unidirectional Flushing Program were all carried out as outlined. 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 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 INSPECTION 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 31, 2016	Time Spent 1 hour
Operator (Person in Charge) Bob Smith		
Inspection Type Routine		

Observed Violations
There are no observed violations.

Section Details

Comments

The bacteriological sample range report for 2015 indicates satisfactory water quality was maintained throughout the year. Of the 253 samples on record, one was positive for total coliform (0.40%); and none were positive for E coli (0%), as you will note in the attached report. From our earlier discussion the one positive result is thought to be due to sampling error. Thank you for your new centralized email contacts for the DOS. We will incorporate those email distribution lists to our automated delivery system as agreed. As discussed, you may wish to give consideration to an enhanced sampling pattern by dividing the sampling sites into two discreet sampling patterns such as week A; week B. This is entirely at your discretion and we are happy to assist with setting up additional sampling sites should you wish to pursue this option. With regard to water chemistry profile, we note your water quality complies with the Guidelines for Canadian Drinking Water Quality for the parameters tested. We note the water is undersaturated with respect to hardness, however it is uncertain if supplementation would be cost effective.

The Well Protection Plan has been completed and currently being implemented. This complies with the conditions of your Permit to Operate and represents best industry practice.

Significant progress has been made with the implementation of your Cross Connection Control plan, including field survey work. This complies with the conditions of your Permit to Operate and represents best industry practice.

Thank you for your DOS - Water Master Plan. This approach exceeded our expectations as it not only addresses your long term supply strategy, but also incorporates asset management and infrastructure renewal. This complies with the previously listed condition of your Permit to Operate and represents best industry practice. A revised Permit to Operate has been attached.

As we discussed the Stawamus River and Mashiter Creek supplies do not have the appropriate infrastructure for treatment and disinfection, thus do not comply with current treatment objectives. Any use of these supplies must be recorded in your annual monitoring report. We have some questions with regard to your preliminary calculation of CT values to achieve 4 log reduction for viral disinfection of the Stawamus supply, and will arrange to meet with your staff further to review this matter. As we further discussed, these sources must be segregated from the potable water supply in a more formal manner. In this regard we are prepared to accept a 'double block and bleed' approach, which should address leakage across a single valve. Please advise as to when this modification can be achieved, or if you have a better approach.

The DOS annual report on monitoring continues to improve and we look forward to your 2015 report (not due until June 30th 2016).

Please update your ERCP document in view of recent staff changes. VCH updated contacts will be provided independently of this report.

The condition on your Permit to Operate relative to your UDF program remains, however it is understood that the entire system does not need to be flushed annually. In view of the water quality, current expectations are that approximately 25% of the system will be flushed on an annual basis with an emphasis on flushing dead ends. This complies with your Permit to Operate and represents best industry practice.

Little is known about the integrity of the Thunderbird and Plateau bedrock storage reservoirs. Kindly advise when there is an opportunity to inspect the Thunderbird reservoir.

Action Taken

☒ Issue Permit

We recognize the District of Squamish has completed a Water Master Plan (September 2015). Accordingly we have removed the following condition from your Permit to Operate: Provide an update on your long-term water supply strategy. A revised permit will be printed with the following conditions which remain and as described in the comment section of this report:; 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.; Review and update the Emergency Response and Contingency Plan annually.

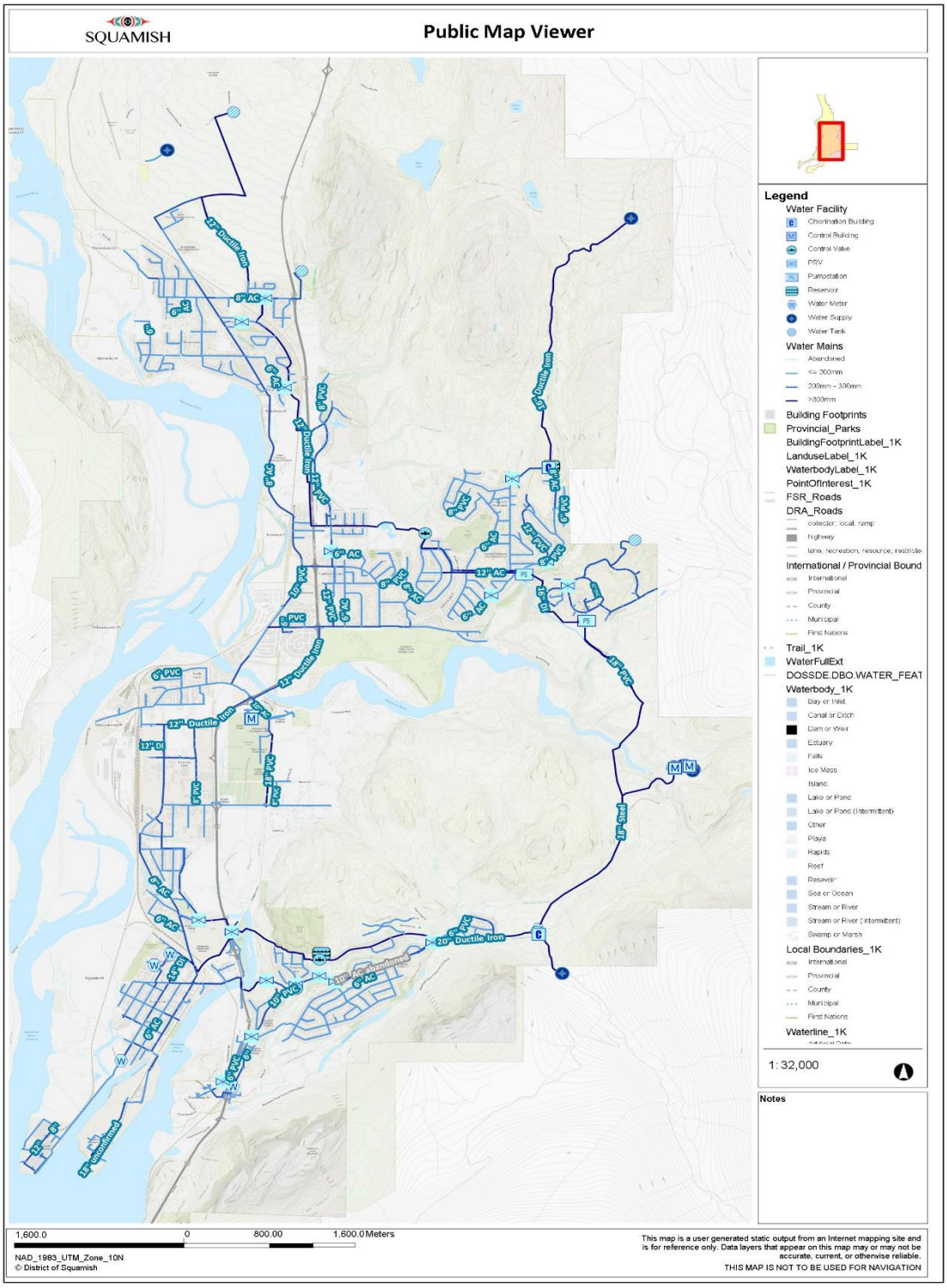
Hazard Rating For Your Facility: ☐ High ☐ Moderate ☒ Low

DWO

DWO Printed Name

Len Clarkson

Appendix B - District of Squamish Water Distribution Map



Appendix C - Water Sample Results

1. Weekly Water Sample Results (bacteriological)
2. Biannual ALS Full Spectrum Report April 2015
3. Biannual ALS Full Spectrum Report December 2015
4. Results from re-tested samples

Weekly Water Sample Results (bacteriological)

	Health Unit		Westway			Birken		Perth		Lomond		Quest		Powerhouse Springs		Stawamus			Mashiter	
Sample Date	Total Coliform per 100mL	*E. Coli* per 100mL	Total Coliform per 100mL	*E. Coli* per 100mL	Sample Date	Total Coliform per 100mL	*E. Coli* per 100mL	Total Coliform per 100mL	*E. Coli* per 100mL	Total Coliform per 100mL	*E. Coli* per 100mL	Total Coliform per 100mL	*E. Coli* per 100mL	Total Coliform per 100mL	*E. Coli* per 100mL	Total Coliform per 100mL	*E. Coli* per 100mL	Sample Date	Total Coliform per 100mL	*E. Coli* per 100mL
29-Dec-15	<1	<1	<1	<1	29-Dec-14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	85.5	1	29-Dec-15		
12-Jan-15	<1	<1	<1	<1	12-Jan-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	21.8	1	12-Jan-15		
20-Jan-15					20-Jan-15			<1	<1	<1	<1	<1	<1	<1	<1	23.8	<1	20-Jan-15		
26-Jan-15					26-Jan-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	23.8	<1	26-Jan-15		
2-Feb-15					2-Feb-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	25.9	<1	2-Feb-15		
11-Feb-15					11-Feb-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	387.3	1	11-Feb-15		
16-Feb-15					16-Feb-15	<1	<1	<1	<1	<1	<1	<1	<1			56.5	<1	16-Feb-15		
23-Feb-15	<1	<1	<1	<1	23-Feb-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	16	<1	23-Feb-15		
3-Mar-15	<1	<1	<1	<1	3-Mar-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	13.2	<1	3-Mar-15		
9-Mar-15					9-Mar-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	20.3	<1	9-Mar-15		
16-Mar-15	<1	<1	<1	<1	16-Mar-15	< 1	< 1	<1	<1	<1	<1	<1	<1	<1	<1	35.4	<1	16-Mar-15		
23-Mar-15					23-Mar-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	41.9	<1	23-Mar-15		
30-Mar-15	<1	<1			30-Mar-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	122.3	1	30-Mar-15		
7-Apr-15			<1	<1	7-Apr-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	37.3	<1	7-Apr-15		
8-Apr-15					13-Apr-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	65.7	<1	13-Apr-15		
20-Apr-15					20-Apr-15													20-Apr-15		
4-May-15					4-May-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1413.6	<1	4-May-15		
11-May-15	<1	<1			11-May-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	86	<1	11-May-15		
19-May-15	<1	<1	<1	<1	19-May-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	117.2	<1	19-May-15		
25-May-15	<1	<1	<1	<1	27-May-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	142.1	<1	27-May-15		
1-Jun-15			<1	<1	2-Jun-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	517.2	75.9	2-Jun-15		
08_Jun-15					8-Jun-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	178.9	2	8-Jun-15		
16-Jun-15					16-Jun-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	325.5	1	16-Jun-15	73.3	1
23-Jun-15	<1	<1			23-Jun-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	193.5	3	23-Jun-15	150	3.1
29-Jun-15	<1	<1	<1	<1	29-Jun-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	579.4	2	23-Jun-15	130.9	4.1
6-Jul-15	<1	<1	<1	<1	7-Jul-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	547.5	10.9	29-Jun-15	111.2	1
13-Jul-15	<1	<1	<1	<1	14-Jul-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2419.2	18.7	29-Jun-15	517.2	37.3
20-Jul-15	<1	<1	<1	<1	21-Jul-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	547.5	17.3	7-Jul-15	410.6	2
27-Jul-15			<1	<1	27-Jul-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	727	38.8	14-Jul-15	579.4	4.1
4-Aug-15	<1	<1			4-Aug-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2419.2	12.2	21-Jul-15	547.5	8.6
11-Aug-15			<1	<1	10-Aug-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	579.4	9.6	27-Jul-15	517.2	3.1
17-Aug-15					17-Aug-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	435.2	8.6	4-Aug-15	275.5	3.1
24-Aug-15					24-Aug-15	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	307.6	3.1	10-Aug-15	129.6	<1
31-Aug-15					31-Aug-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	G 2419.2	201.4	17-Aug-15	47.2	<1
8-Sep-15	<1	<1			8-Sep-15	<1	<1	<1	<1	<1	<1	<1	<1	EST 100	EST 8	<1	<1	24-Aug-15	43.5	<1
15-Sep-15	<1	<1	<1	<1	14-Sep-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	135.4	1	31-Aug-15	35.9	<1
21-Sep-15	<1	<1	<1	<1	21-Sep-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	365.4	11	8-Sep-15	12	<1
28-Sep-15	<1	<1	<1	<1	28-Sep-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	248.9	6.3	14-Sep-15	6.3	<1
5-Oct-15			<1	<1	5-Oct-15	<1	<1			<1	<1	<1	<1	<1	<1	70.6	4.1	21-Sep-15	4.1	<1
13-Oct-15	C				13-Oct-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	224.7	9.7	28-Sep-15	2	
20-Oct-15	<1	<1	<1	<1	19-Oct-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	133.3	1	5-Oct-15	<1	<1
26-Oct-15			<1	<1	26-Oct-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	81.6	<1	13-Oct-15	<1	<1
2-Nov-15					2-Nov-15													19-Oct-15	218.7	<1
9-Nov-15	<1	<1			9-Nov-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	290.9	14.6	26-Oct-15	214.2	2
16-Nov-15			<1	<1	16-Nov-15	<1	<1	<1	<1	<1	<1			<1	<1	150	1	2-Nov-15		
23-Nov-15	<1	<1			23-Nov-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	29.2	<1	9-Nov-15	15.8	<1
30-Nov-15	<1	<1	<1	<1	1-Dec-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	18.7	<1	16-Nov-15	12.1	1
7-Dec-15	<1	<1	<1	<1	7-Dec-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	148.7	<1	23-Nov-15	41.9	1
14-Dec-15	<1	<1	<1	<1	14-Dec-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	72.7	<1	1-Dec-15	20.1	<1
21-Dec-15			<1	<1	21-Dec-15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	31.8	<1	7-Dec-15	29.5	<1
																		42352	38.9	<1
																		42359	38.4	<1

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: POWER HOUSE SPRINGS WELL
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-1
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.49		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU			30-APR-15
Conductivity	76.7		uS/cm			02-MAY-15
Hardness (as CaCO3)	22.1		mg/L		500	05-MAY-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-1.8		none			17-MAR-16
pH	7.49		pH		6.5-8.5	02-MAY-15
Total Dissolved Solids	73		mg/L		500	04-MAY-15
Turbidity	<0.10		NTU			01-MAY-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	21.2		mg/L			03-MAY-15
Chloride (Cl)	4.83		mg/L		250	01-MAY-15
Fluoride (F)	0.084		mg/L	1.5		01-MAY-15
Nitrate (as N)	0.0606		mg/L	10		01-MAY-15
Nitrite (as N)	<0.0010		mg/L	1		01-MAY-15
Sulfate (SO4)	8.65		mg/L		500	01-MAY-15
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	03-MAY-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		03-MAY-15
Arsenic (As)-Total	0.00063		mg/L	0.01		03-MAY-15
Barium (Ba)-Total	<0.020		mg/L	1		03-MAY-15
Boron (B)-Total	<0.10		mg/L	5		03-MAY-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		03-MAY-15
Calcium (Ca)-Total	6.86		mg/L			03-MAY-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		03-MAY-15
Copper (Cu)-Total	0.0151		mg/L		1.0	03-MAY-15
Iron (Fe)-Total	<0.030		mg/L		0.3	03-MAY-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		03-MAY-15
Magnesium (Mg)-Total	1.20		mg/L			03-MAY-15
Manganese (Mn)-Total	<0.0020		mg/L		0.05	03-MAY-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		01-MAY-15
Potassium (K)-Total	1.22		mg/L			03-MAY-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		03-MAY-15
Sodium (Na)-Total	5.1		mg/L		200	03-MAY-15
Uranium (U)-Total	<0.00010		mg/L	0.02		03-MAY-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	03-MAY-15

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: POWER HOUSE SPRINGS WELL
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-1
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed

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

Courtney Duncan
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: STAWAMUS
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-2
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.03		pH			16-MAR-16
Physical Tests						
Colour, True	16.8		CU			30-APR-15
Conductivity	17.7		uS/cm			02-MAY-15
Hardness (as CaCO3)	6.52		mg/L		500	05-MAY-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-3.4		none			17-MAR-16
pH	7.03		pH		6.5-8.5	02-MAY-15
Total Dissolved Solids	21		mg/L		500	04-MAY-15
Turbidity	0.19		NTU			01-MAY-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	4.8		mg/L			03-MAY-15
Chloride (Cl)	<0.50		mg/L		250	01-MAY-15
Fluoride (F)	<0.020		mg/L	1.5		01-MAY-15
Nitrate (as N)	0.0208		mg/L	10		01-MAY-15
Nitrite (as N)	<0.0010		mg/L	1		01-MAY-15
Sulfate (SO4)	3.05		mg/L		500	01-MAY-15
Total Metals						
Aluminum (Al)-Total	0.117		mg/L		0.1	03-MAY-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		03-MAY-15
Arsenic (As)-Total	0.00016		mg/L	0.01		03-MAY-15
Barium (Ba)-Total	<0.020		mg/L	1		03-MAY-15
Boron (B)-Total	<0.10		mg/L	5		03-MAY-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		03-MAY-15
Calcium (Ca)-Total	2.23		mg/L			03-MAY-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		03-MAY-15
Copper (Cu)-Total	0.0075		mg/L		1.0	03-MAY-15
Iron (Fe)-Total	0.031		mg/L		0.3	03-MAY-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		03-MAY-15
Magnesium (Mg)-Total	0.23		mg/L			03-MAY-15
Manganese (Mn)-Total	0.0044		mg/L		0.05	03-MAY-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		01-MAY-15
Potassium (K)-Total	0.11		mg/L			03-MAY-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		03-MAY-15
Sodium (Na)-Total	<2.0		mg/L		200	03-MAY-15
Uranium (U)-Total	0.00036		mg/L	0.02		03-MAY-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	03-MAY-15

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: STAWAMUS
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-2
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed

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

Courtney Duncan
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: MASHITER
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-3
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.41		pH			16-MAR-16
Physical Tests						
Colour, True	17.0		CU			30-APR-15
Conductivity	34.9		uS/cm			02-MAY-15
Hardness (as CaCO3)	12.9		mg/L		500	05-MAY-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-2.2		none			17-MAR-16
pH	7.41		pH		6.5-8.5	02-MAY-15
Total Dissolved Solids	39		mg/L		500	04-MAY-15
Turbidity	0.35		NTU			01-MAY-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	14.1		mg/L			03-MAY-15
Chloride (Cl)	<0.50		mg/L		250	01-MAY-15
Fluoride (F)	0.020		mg/L	1.5		01-MAY-15
Nitrate (as N)	0.0089		mg/L	10		01-MAY-15
Nitrite (as N)	<0.0010		mg/L	1		01-MAY-15
Sulfate (SO4)	2.88		mg/L		500	01-MAY-15
Total Metals						
Aluminum (Al)-Total	0.089		mg/L		0.1	03-MAY-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		03-MAY-15
Arsenic (As)-Total	0.00019		mg/L	0.01		03-MAY-15
Barium (Ba)-Total	<0.020		mg/L	1		03-MAY-15
Boron (B)-Total	<0.10		mg/L	5		03-MAY-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		03-MAY-15
Calcium (Ca)-Total	4.28		mg/L			03-MAY-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		03-MAY-15
Copper (Cu)-Total	<0.0010		mg/L		1.0	03-MAY-15
Iron (Fe)-Total	0.035		mg/L		0.3	03-MAY-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		03-MAY-15
Magnesium (Mg)-Total	0.53		mg/L			03-MAY-15
Manganese (Mn)-Total	<0.0020		mg/L		0.05	03-MAY-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		01-MAY-15
Potassium (K)-Total	0.45		mg/L			03-MAY-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		03-MAY-15
Sodium (Na)-Total	<2.0		mg/L		200	03-MAY-15
Uranium (U)-Total	<0.00010		mg/L	0.02		03-MAY-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	03-MAY-15

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: MASHITER
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-3
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed

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

Courtney Duncan
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: MUNICIPAL HALL
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-4
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Trihalomethanes						
Bromodichloromethane	<0.0010		mg/L			06-MAY-15
Bromoform	<0.0010		mg/L			06-MAY-15
Dibromochloromethane	<0.0010		mg/L			06-MAY-15
Chloroform	0.0019		mg/L			06-MAY-15
Total THMs	<0.0020		mg/L	0.1		06-MAY-15

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

Courtney Duncan
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: LOMOND - 40179 KINTYRE
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-5
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Trihalomethanes						
Bromodichloromethane	<0.0010		mg/L			06-MAY-15
Bromoform	<0.0010		mg/L			06-MAY-15
Dibromochloromethane	<0.0010		mg/L			06-MAY-15
Chloroform	<0.0010		mg/L			06-MAY-15
Total THMs	<0.0020		mg/L	0.1		06-MAY-15

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
Courtney Duncan
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: PARK WOOD - 1201 PARK WOOD
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-6
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Trihalomethanes						
Bromodichloromethane	<0.0010		mg/L			06-MAY-15
Bromoform	<0.0010		mg/L			06-MAY-15
Dibromochloromethane	<0.0010		mg/L			06-MAY-15
Chloroform	<0.0010		mg/L			06-MAY-15
Total THMs	<0.0020		mg/L	0.1		06-MAY-15

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

Courtney Duncan
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 23-MAR-16
PO No.:
WO No.: L1605673
Project Ref:
Sample ID: PENNY LANE - 1011 PENNY LANE
Sampled By:
Date Collected: 29-APR-15
Lab Sample ID: L1605673-7
Matrix: Water

DISTRICT OF SQUAMISH
Mamquam Wastewater Treat. Plant
PO Box 310
Squamish BC V8B 0A3
ATTN: Jim McKerr

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Trihalomethanes						
Bromodichloromethane	<0.0010		mg/L			06-MAY-15
Bromoform	<0.0010		mg/L			06-MAY-15
Dibromochloromethane	<0.0010		mg/L			06-MAY-15
Chloroform	<0.0010		mg/L			06-MAY-15
Total THMs	<0.0020		mg/L	0.1		06-MAY-15

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
Courtney Duncan
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Guidelines & Objectives

Qualifiers for Individual Samples Listed:

Sample	Client ID	Qualifier	Description
L1605673-1	POWER HOUSE SPRINGS \	WSMT	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
L1605673-2	STAWAMUS	WSMT	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
L1605673-3	MASHITER	WSMT	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

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).
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.

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 1 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-1
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.38		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU		15	24-DEC-15
Conductivity	78.1		uS/cm			24-DEC-15
Hardness (as CaCO3)	23.0		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-1.9		none			17-MAR-16
pH	7.38		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	70		mg/L		500	24-DEC-15
Turbidity	8.02		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	20.0		mg/L			30-DEC-15
Chloride (Cl)	4.50		mg/L		250	24-DEC-15
Fluoride (F)	0.091		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0602		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	8.18		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	<1		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	0.017		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	0.00057		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00156		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	7.08		mg/L			30-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	0.0034		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	1.32		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	1.33		mg/L			30-DEC-15
Manganese (Mn)-Total	0.0133		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	1.26		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	5.0		mg/L		200	30-DEC-15
Uranium (U)-Total	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 1 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-1
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00071		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	7.08		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	<0.0010		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	0.159		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	1.29		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	0.0027		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	1.25		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	4.9		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15
Volatile Organic Compounds						
Benzene	<0.00050		mg/L	0.005		31-DEC-15
Bromodichloromethane	<0.0010		mg/L			31-DEC-15
Bromoform	<0.0010		mg/L			31-DEC-15
Carbon Tetrachloride	<0.00050		mg/L	0.005		31-DEC-15
Chlorobenzene	<0.0010		mg/L	0.08		31-DEC-15
Dibromochloromethane	<0.0010		mg/L			31-DEC-15
Chloroethane	<0.0010		mg/L			31-DEC-15
Chloroform	<0.0010		mg/L			31-DEC-15
Chloromethane	<0.0050		mg/L			31-DEC-15
1,2-Dichlorobenzene	<0.00070		mg/L	0.2	0.003	31-DEC-15
1,3-Dichlorobenzene	<0.0010		mg/L			31-DEC-15
1,4-Dichlorobenzene	<0.0010		mg/L	0.005	0.001	31-DEC-15
1,1-Dichloroethane	<0.0010		mg/L			31-DEC-15
1,2-Dichloroethane	<0.0010		mg/L	0.005		31-DEC-15
1,1-Dichloroethylene	<0.0010		mg/L	0.014		31-DEC-15
cis-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
trans-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
Dichloromethane	<0.0050		mg/L	0.05		31-DEC-15
1,2-Dichloropropane	<0.0010		mg/L			31-DEC-15
cis-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 1 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-1
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
trans-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15
1,3-Dichloropropene (cis & trans)	<0.0014		mg/L			31-DEC-15
Ethylbenzene	<0.00050		mg/L	0.14	0.0016	31-DEC-15
Methyl t-butyl ether (MTBE)	<0.00050		mg/L		0.015	31-DEC-15
Styrene	<0.00050		mg/L			31-DEC-15
1,1,1,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
1,1,2,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
Tetrachloroethylene	<0.0010		mg/L	0.03		31-DEC-15
Toluene	<0.00050		mg/L	0.06	0.024	31-DEC-15
1,1,1-Trichloroethane	<0.0010		mg/L			31-DEC-15
1,1,2-Trichloroethane	<0.0010		mg/L			31-DEC-15
Trichloroethylene	<0.0010		mg/L	0.005		31-DEC-15
Trichlorofluoromethane	<0.0010		mg/L			31-DEC-15
Vinyl Chloride	<0.0010		mg/L	0.002		31-DEC-15
ortho-Xylene	<0.00050		mg/L			31-DEC-15
meta- & para-Xylene	<0.00050		mg/L			31-DEC-15
Xylenes	<0.00075		mg/L	0.09	0.02	31-DEC-15
Surr: 4-Bromofluorobenzene (SS)	100.0		%			31-DEC-15
Surr: 1,4-Difluorobenzene (SS)	102.5		%			31-DEC-15
Hydrocarbons						
EPH10-19	<0.25		mg/L			31-DEC-15
EPH19-32	<0.25		mg/L			31-DEC-15
LEPH	<0.25		mg/L			04-JAN-16
HEPH	<0.25		mg/L			04-JAN-16
Surr: 2-Bromobenzotrifluoride	98.3		%			31-DEC-15
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.000050		mg/L			04-JAN-16
Acenaphthylene	<0.000050		mg/L			04-JAN-16
Acridine	<0.000050		mg/L			04-JAN-16
Anthracene	<0.000050		mg/L			04-JAN-16
Benz(a)anthracene	<0.000050		mg/L			04-JAN-16
Benzo(a)pyrene	<0.000010		mg/L	0.00001		04-JAN-16
Benzo(b)fluoranthene	<0.000050		mg/L			04-JAN-16
Benzo(g,h,i)perylene	<0.000050		mg/L			04-JAN-16
Benzo(k)fluoranthene	<0.000050		mg/L			04-JAN-16
Chrysene	<0.000050		mg/L			04-JAN-16
Dibenz(a,h)anthracene	<0.000050		mg/L			04-JAN-16
Fluoranthene	<0.000050		mg/L			04-JAN-16
Fluorene	<0.000050		mg/L			04-JAN-16
Indeno(1,2,3-c,d)pyrene	<0.000050		mg/L			04-JAN-16
Naphthalene	<0.000050		mg/L			04-JAN-16
Phenanthrene	<0.000050		mg/L			04-JAN-16
Pyrene	<0.000050		mg/L			04-JAN-16
Quinoline	<0.000050		mg/L			04-JAN-16

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 1 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-1
Matrix: Water

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Surr:	Acridine d9	76.6		%			04-JAN-16
Surr:	Chrysene d12	89.4		%			04-JAN-16
Surr:	Naphthalene d8	81.5		%			04-JAN-16
Surr:	Phenanthrene d10	91.2		%			04-JAN-16

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

Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 2 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-2
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.34		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU		15	24-DEC-15
Conductivity	72.5		uS/cm			24-DEC-15
Hardness (as CaCO3)	21.3		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-2.0		none			17-MAR-16
pH	7.34		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	68		mg/L		500	24-DEC-15
Turbidity	1.62		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	20.0		mg/L			30-DEC-15
Chloride (Cl)	3.89		mg/L		250	24-DEC-15
Fluoride (F)	0.089		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0507		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	7.22		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	59		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	0.045		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00070		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	6.62		mg/L			30-DEC-15
Chromium (Cr)-Total	0.0024		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	0.0014		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	0.472		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	0.00084		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	1.25		mg/L			30-DEC-15
Manganese (Mn)-Total	0.0039		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	1.24		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	4.6		mg/L		200	30-DEC-15
Uranium (U)-Total	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 2 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-2
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00052		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	6.57		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	<0.0010		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	1.20		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	1.27		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	4.5		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15
Hydrocarbons						
EPH10-19	<0.25		mg/L			31-DEC-15
EPH19-32	<0.25		mg/L			31-DEC-15
LEPH	<0.25		mg/L			04-JAN-16
HEPH	<0.25		mg/L			04-JAN-16
Surr: 2-Bromobenzotrifluoride	99.4		%			31-DEC-15
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.000050		mg/L			04-JAN-16
Acenaphthylene	<0.000050		mg/L			04-JAN-16
Acridine	<0.000050		mg/L			04-JAN-16
Anthracene	<0.000050		mg/L			04-JAN-16
Benz(a)anthracene	<0.000050		mg/L			04-JAN-16
Benzo(a)pyrene	<0.000010		mg/L	0.00001		04-JAN-16
Benzo(b)fluoranthene	<0.000050		mg/L			04-JAN-16
Benzo(g,h,i)perylene	<0.000050		mg/L			04-JAN-16
Benzo(k)fluoranthene	<0.000050		mg/L			04-JAN-16
Chrysene	<0.000050		mg/L			04-JAN-16
Dibenz(a,h)anthracene	<0.000050		mg/L			04-JAN-16
Fluoranthene	<0.000050		mg/L			04-JAN-16
Fluorene	<0.000050		mg/L			04-JAN-16
Indeno(1,2,3-c,d)pyrene	<0.000050		mg/L			04-JAN-16

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 2 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-2
Matrix: Water

	Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
	Naphthalene	<0.000050		mg/L			04-JAN-16
	Phenanthrene	<0.000050		mg/L			04-JAN-16
	Pyrene	<0.000050		mg/L			04-JAN-16
	Quinoline	<0.000050		mg/L			04-JAN-16
Surr:	Acridine d9	76.2		%			04-JAN-16
Surr:	Chrysene d12	88.3		%			04-JAN-16
Surr:	Naphthalene d8	74.8		%			04-JAN-16
Surr:	Phenanthrene d10	88.1		%			04-JAN-16

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
Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 3 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-3
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.52		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU		15	24-DEC-15
Conductivity	125		uS/cm			24-DEC-15
Hardness (as CaCO3)	33.9		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-1.6		none			17-MAR-16
pH	7.52		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	100		mg/L		500	24-DEC-15
Turbidity	<0.10		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	23.4		mg/L			30-DEC-15
Chloride (Cl)	11.0		mg/L		250	24-DEC-15
Fluoride (F)	0.102		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0627		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	16.7		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	<1		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00083		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	10.8		mg/L			30-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	0.0015		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	1.75		mg/L			30-DEC-15
Manganese (Mn)-Total	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	1.48		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	9.2		mg/L		200	30-DEC-15
Uranium (U)-Total	0.00020		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 3 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-3
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					27-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00078		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	10.7		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	<0.0010		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	1.73		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		29-DEC-15
Potassium (K)-Dissolved	1.48		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	8.9		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	0.00019		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15
Volatile Organic Compounds						
Benzene	<0.00050		mg/L	0.005		31-DEC-15
Bromodichloromethane	<0.0010		mg/L			31-DEC-15
Bromoform	<0.0010		mg/L			31-DEC-15
Carbon Tetrachloride	<0.00050		mg/L	0.005		31-DEC-15
Chlorobenzene	<0.0010		mg/L	0.08		31-DEC-15
Dibromochloromethane	<0.0010		mg/L			31-DEC-15
Chloroethane	<0.0010		mg/L			31-DEC-15
Chloroform	<0.0010		mg/L			31-DEC-15
Chloromethane	<0.0050		mg/L			31-DEC-15
1,2-Dichlorobenzene	<0.00070		mg/L	0.2	0.003	31-DEC-15
1,3-Dichlorobenzene	<0.0010		mg/L			31-DEC-15
1,4-Dichlorobenzene	<0.0010		mg/L	0.005	0.001	31-DEC-15
1,1-Dichloroethane	<0.0010		mg/L			31-DEC-15
1,2-Dichloroethane	<0.0010		mg/L	0.005		31-DEC-15
1,1-Dichloroethylene	<0.0010		mg/L	0.014		31-DEC-15
cis-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
trans-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
Dichloromethane	<0.0050		mg/L	0.05		31-DEC-15
1,2-Dichloropropane	<0.0010		mg/L			31-DEC-15
cis-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 3 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-3
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
trans-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15
1,3-Dichloropropene (cis & trans)	<0.0014		mg/L			31-DEC-15
Ethylbenzene	<0.00050		mg/L	0.14	0.0016	31-DEC-15
Methyl t-butyl ether (MTBE)	<0.00050		mg/L		0.015	31-DEC-15
Styrene	<0.00050		mg/L			31-DEC-15
1,1,1,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
1,1,2,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
Tetrachloroethylene	<0.0010		mg/L	0.03		31-DEC-15
Toluene	<0.00050		mg/L	0.06	0.024	31-DEC-15
1,1,1-Trichloroethane	<0.0010		mg/L			31-DEC-15
1,1,2-Trichloroethane	<0.0010		mg/L			31-DEC-15
Trichloroethylene	<0.0010		mg/L	0.005		31-DEC-15
Trichlorofluoromethane	<0.0010		mg/L			31-DEC-15
Vinyl Chloride	<0.0010		mg/L	0.002		31-DEC-15
ortho-Xylene	<0.00050		mg/L			31-DEC-15
meta- & para-Xylene	<0.00050		mg/L			31-DEC-15
Xylenes	<0.00075		mg/L	0.09	0.02	31-DEC-15
Surr: 4-Bromofluorobenzene (SS)	98.6		%			31-DEC-15
Surr: 1,4-Difluorobenzene (SS)	102.0		%			31-DEC-15
Hydrocarbons						
EPH10-19	<0.25		mg/L			31-DEC-15
EPH19-32	<0.25		mg/L			31-DEC-15
LEPH	<0.25		mg/L			04-JAN-16
HEPH	<0.25		mg/L			04-JAN-16
Surr: 2-Bromobenzotrifluoride	96.0		%			31-DEC-15
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.000050		mg/L			04-JAN-16
Acenaphthylene	<0.000050		mg/L			04-JAN-16
Acridine	<0.000050		mg/L			04-JAN-16
Anthracene	<0.000050		mg/L			04-JAN-16
Benz(a)anthracene	<0.000050		mg/L			04-JAN-16
Benzo(a)pyrene	<0.000010		mg/L	0.00001		04-JAN-16
Benzo(b)fluoranthene	<0.000050		mg/L			04-JAN-16
Benzo(g,h,i)perylene	<0.000050		mg/L			04-JAN-16
Benzo(k)fluoranthene	<0.000050		mg/L			04-JAN-16
Chrysene	<0.000050		mg/L			04-JAN-16
Dibenz(a,h)anthracene	<0.000050		mg/L			04-JAN-16
Fluoranthene	<0.000050		mg/L			04-JAN-16
Fluorene	<0.000050		mg/L			04-JAN-16
Indeno(1,2,3-c,d)pyrene	<0.000050		mg/L			04-JAN-16
Naphthalene	<0.000050		mg/L			04-JAN-16
Phenanthrene	<0.000050		mg/L			04-JAN-16
Pyrene	<0.000050		mg/L			04-JAN-16
Quinoline	<0.000050		mg/L			04-JAN-16

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 3 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-3
Matrix: Water

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Surr:	Acridine d9	73.2		%			04-JAN-16
Surr:	Chrysene d12	82.9		%			04-JAN-16
Surr:	Naphthalene d8	61.3		%			04-JAN-16
Surr:	Phenanthrene d10	89.5		%			04-JAN-16

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

Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 4 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-4
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.19		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU		15	24-DEC-15
Conductivity	77.6		uS/cm			24-DEC-15
Hardness (as CaCO3)	22.6		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-2.1		none			17-MAR-16
pH	7.19		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	73		mg/L		500	24-DEC-15
Turbidity	2.93		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	20.6		mg/L			30-DEC-15
Chloride (Cl)	4.45		mg/L		250	24-DEC-15
Fluoride (F)	0.090		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0339		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	7.96		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	<1		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00067		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	7.09		mg/L			30-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	<0.0010		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	0.278		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	0.00075		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	1.32		mg/L			30-DEC-15
Manganese (Mn)-Total	0.0065		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	1.29		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	5.1		mg/L		200	30-DEC-15
Uranium (U)-Total	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 4 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-4
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00052		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	6.95		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	<0.0010		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	1.28		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	0.0037		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	1.24		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	4.8		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15
Volatile Organic Compounds						
Benzene	<0.00050		mg/L	0.005		31-DEC-15
Bromodichloromethane	<0.0010		mg/L			31-DEC-15
Bromoform	<0.0010		mg/L			31-DEC-15
Carbon Tetrachloride	<0.00050		mg/L	0.005		31-DEC-15
Chlorobenzene	<0.0010		mg/L	0.08		31-DEC-15
Dibromochloromethane	<0.0010		mg/L			31-DEC-15
Chloroethane	<0.0010		mg/L			31-DEC-15
Chloroform	<0.0010		mg/L			31-DEC-15
Chloromethane	<0.0050		mg/L			31-DEC-15
1,2-Dichlorobenzene	<0.00070		mg/L	0.2	0.003	31-DEC-15
1,3-Dichlorobenzene	<0.0010		mg/L			31-DEC-15
1,4-Dichlorobenzene	<0.0010		mg/L	0.005	0.001	31-DEC-15
1,1-Dichloroethane	<0.0010		mg/L			31-DEC-15
1,2-Dichloroethane	<0.0010		mg/L	0.005		31-DEC-15
1,1-Dichloroethylene	<0.0010		mg/L	0.014		31-DEC-15
cis-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
trans-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
Dichloromethane	<0.0050		mg/L	0.05		31-DEC-15
1,2-Dichloropropane	<0.0010		mg/L			31-DEC-15
cis-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 4 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-4
Matrix: Water

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
	trans-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15
	1,3-Dichloropropene (cis & trans)	<0.0014		mg/L			31-DEC-15
	Ethylbenzene	<0.00050		mg/L	0.14	0.0016	31-DEC-15
	Methyl t-butyl ether (MTBE)	<0.00050		mg/L		0.015	31-DEC-15
	Styrene	<0.00050		mg/L			31-DEC-15
	1,1,1,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
	1,1,2,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
	Tetrachloroethylene	<0.0010		mg/L	0.03		31-DEC-15
	Toluene	<0.00050		mg/L	0.06	0.024	31-DEC-15
	1,1,1-Trichloroethane	<0.0010		mg/L			31-DEC-15
	1,1,2-Trichloroethane	<0.0010		mg/L			31-DEC-15
	Trichloroethylene	<0.0010		mg/L	0.005		31-DEC-15
	Trichlorofluoromethane	<0.0010		mg/L			31-DEC-15
	Vinyl Chloride	<0.0010		mg/L	0.002		31-DEC-15
	ortho-Xylene	<0.00050		mg/L			31-DEC-15
	meta- & para-Xylene	<0.00050		mg/L			31-DEC-15
	Xylenes	<0.00075		mg/L	0.09	0.02	31-DEC-15
Surr:	4-Bromofluorobenzene (SS)	101.6		%			31-DEC-15
Surr:	1,4-Difluorobenzene (SS)	103.2		%			31-DEC-15
Hydrocarbons							
	EPH10-19	<0.25		mg/L			31-DEC-15
	EPH19-32	<0.25		mg/L			31-DEC-15
	LEPH	<0.25		mg/L			04-JAN-16
	HEPH	<0.25		mg/L			04-JAN-16
Surr:	2-Bromobenzotrifluoride	100.3		%			31-DEC-15
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.000050		mg/L			04-JAN-16
	Acenaphthylene	<0.000050		mg/L			04-JAN-16
	Acridine	<0.000050		mg/L			04-JAN-16
	Anthracene	<0.000050		mg/L			04-JAN-16
	Benz(a)anthracene	<0.000050		mg/L			04-JAN-16
	Benzo(a)pyrene	<0.000010		mg/L	0.00001		04-JAN-16
	Benzo(b)fluoranthene	<0.000050		mg/L			04-JAN-16
	Benzo(g,h,i)perylene	<0.000050		mg/L			04-JAN-16
	Benzo(k)fluoranthene	<0.000050		mg/L			04-JAN-16
	Chrysene	<0.000050		mg/L			04-JAN-16
	Dibenz(a,h)anthracene	<0.000050		mg/L			04-JAN-16
	Fluoranthene	<0.000050		mg/L			04-JAN-16
	Fluorene	<0.000050		mg/L			04-JAN-16
	Indeno(1,2,3-c,d)pyrene	<0.000050		mg/L			04-JAN-16
	Naphthalene	<0.000050		mg/L			04-JAN-16
	Phenanthrene	<0.000050		mg/L			04-JAN-16
	Pyrene	<0.000050		mg/L			04-JAN-16
	Quinoline	<0.000050		mg/L			04-JAN-16

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 4 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-4
Matrix: Water

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Surr:	Acridine d9	83.1		%			04-JAN-16
Surr:	Chrysene d12	84.2		%			04-JAN-16
Surr:	Naphthalene d8	70.0		%			04-JAN-16
Surr:	Phenanthrene d10	95.9		%			04-JAN-16

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

Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 5 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-5
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.42		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU		15	24-DEC-15
Conductivity	72.4		uS/cm			24-DEC-15
Hardness (as CaCO3)	21.3		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-1.9		none			17-MAR-16
pH	7.42		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	73		mg/L		500	27-DEC-15
Turbidity	<0.10		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	19.3		mg/L			30-DEC-15
Chloride (Cl)	3.91		mg/L		250	24-DEC-15
Fluoride (F)	0.089		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0597		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	7.21		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	<1		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00057		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	6.57		mg/L			30-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	0.0097		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	1.24		mg/L			30-DEC-15
Manganese (Mn)-Total	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	1.23		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	4.6		mg/L		200	30-DEC-15
Uranium (U)-Total	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 5 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-5
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00052		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	6.53		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	0.0079		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	1.21		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	1.23		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	4.5		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15
Volatile Organic Compounds						
Benzene	<0.00050		mg/L	0.005		31-DEC-15
Bromodichloromethane	<0.0010		mg/L			31-DEC-15
Bromoform	<0.0010		mg/L			31-DEC-15
Carbon Tetrachloride	<0.00050		mg/L	0.005		31-DEC-15
Chlorobenzene	<0.0010		mg/L	0.08		31-DEC-15
Dibromochloromethane	<0.0010		mg/L			31-DEC-15
Chloroethane	<0.0010		mg/L			31-DEC-15
Chloroform	<0.0010		mg/L			31-DEC-15
Chloromethane	<0.0050		mg/L			31-DEC-15
1,2-Dichlorobenzene	<0.00070		mg/L	0.2	0.003	31-DEC-15
1,3-Dichlorobenzene	<0.0010		mg/L			31-DEC-15
1,4-Dichlorobenzene	<0.0010		mg/L	0.005	0.001	31-DEC-15
1,1-Dichloroethane	<0.0010		mg/L			31-DEC-15
1,2-Dichloroethane	<0.0010		mg/L	0.005		31-DEC-15
1,1-Dichloroethylene	<0.0010		mg/L	0.014		31-DEC-15
cis-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
trans-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
Dichloromethane	<0.0050		mg/L	0.05		31-DEC-15
1,2-Dichloropropane	<0.0010		mg/L			31-DEC-15
cis-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 5 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-5
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
trans-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15
1,3-Dichloropropene (cis & trans)	<0.0014		mg/L			31-DEC-15
Ethylbenzene	<0.00050		mg/L	0.14	0.0016	31-DEC-15
Methyl t-butyl ether (MTBE)	<0.00050		mg/L		0.015	31-DEC-15
Styrene	<0.00050		mg/L			31-DEC-15
1,1,1,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
1,1,2,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
Tetrachloroethylene	<0.0010		mg/L	0.03		31-DEC-15
Toluene	<0.00050		mg/L	0.06	0.024	31-DEC-15
1,1,1-Trichloroethane	<0.0010		mg/L			31-DEC-15
1,1,2-Trichloroethane	<0.0010		mg/L			31-DEC-15
Trichloroethylene	<0.0010		mg/L	0.005		31-DEC-15
Trichlorofluoromethane	<0.0010		mg/L			31-DEC-15
Vinyl Chloride	<0.0010		mg/L	0.002		31-DEC-15
ortho-Xylene	<0.00050		mg/L			31-DEC-15
meta- & para-Xylene	<0.00050		mg/L			31-DEC-15
Xylenes	<0.00075		mg/L	0.09	0.02	31-DEC-15
Surr: 4-Bromofluorobenzene (SS)	100.9		%			31-DEC-15
Surr: 1,4-Difluorobenzene (SS)	102.2		%			31-DEC-15
Hydrocarbons						
EPH10-19	<0.25		mg/L			31-DEC-15
EPH19-32	<0.25		mg/L			31-DEC-15
LEPH	<0.25		mg/L			04-JAN-16
HEPH	<0.25		mg/L			04-JAN-16
Surr: 2-Bromobenzotrifluoride	101.0		%			31-DEC-15
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.000050		mg/L			04-JAN-16
Acenaphthylene	<0.000050		mg/L			04-JAN-16
Acridine	<0.000050		mg/L			04-JAN-16
Anthracene	<0.000050		mg/L			04-JAN-16
Benz(a)anthracene	<0.000050		mg/L			04-JAN-16
Benzo(a)pyrene	<0.000010		mg/L	0.00001		04-JAN-16
Benzo(b)fluoranthene	<0.000050		mg/L			04-JAN-16
Benzo(g,h,i)perylene	<0.000050		mg/L			04-JAN-16
Benzo(k)fluoranthene	<0.000050		mg/L			04-JAN-16
Chrysene	<0.000050		mg/L			04-JAN-16
Dibenz(a,h)anthracene	<0.000050		mg/L			04-JAN-16
Fluoranthene	<0.000050		mg/L			04-JAN-16
Fluorene	<0.000050		mg/L			04-JAN-16
Indeno(1,2,3-c,d)pyrene	<0.000050		mg/L			04-JAN-16
Naphthalene	<0.000050		mg/L			04-JAN-16
Phenanthrene	<0.000050		mg/L			04-JAN-16
Pyrene	<0.000050		mg/L			04-JAN-16
Quinoline	<0.000050		mg/L			04-JAN-16

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 5 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-5
Matrix: Water

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Surr:	Acridine d9	67.0		%			04-JAN-16
Surr:	Chrysene d12	86.4		%			04-JAN-16
Surr:	Naphthalene d8	68.2		%			04-JAN-16
Surr:	Phenanthrene d10	98.4		%			04-JAN-16

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

Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 6 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-6
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.43		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU		15	24-DEC-15
Conductivity	79.3		uS/cm			24-DEC-15
Hardness (as CaCO3)	23.1		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-1.9		none			17-MAR-16
pH	7.43		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	75		mg/L		500	27-DEC-15
Turbidity	<0.10		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	20.2		mg/L			30-DEC-15
Chloride (Cl)	4.63		mg/L		250	24-DEC-15
Fluoride (F)	0.093		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0614		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	8.35		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	<1		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00063		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	7.11		mg/L			30-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	0.0029		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	1.32		mg/L			30-DEC-15
Manganese (Mn)-Total	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	1.27		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	5.0		mg/L		200	30-DEC-15
Uranium (U)-Total	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 6 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-6
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00061		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	7.11		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	0.0024		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	1.30		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	1.27		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	4.9		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15
Volatile Organic Compounds						
Benzene	<0.00050		mg/L	0.005		31-DEC-15
Bromodichloromethane	<0.0010		mg/L			31-DEC-15
Bromoform	<0.0010		mg/L			31-DEC-15
Carbon Tetrachloride	<0.00050		mg/L	0.005		31-DEC-15
Chlorobenzene	<0.0010		mg/L	0.08		31-DEC-15
Dibromochloromethane	<0.0010		mg/L			31-DEC-15
Chloroethane	<0.0010		mg/L			31-DEC-15
Chloroform	<0.0010		mg/L			31-DEC-15
Chloromethane	<0.0050		mg/L			31-DEC-15
1,2-Dichlorobenzene	<0.00070		mg/L	0.2	0.003	31-DEC-15
1,3-Dichlorobenzene	<0.0010		mg/L			31-DEC-15
1,4-Dichlorobenzene	<0.0010		mg/L	0.005	0.001	31-DEC-15
1,1-Dichloroethane	<0.0010		mg/L			31-DEC-15
1,2-Dichloroethane	<0.0010		mg/L	0.005		31-DEC-15
1,1-Dichloroethylene	<0.0010		mg/L	0.014		31-DEC-15
cis-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
trans-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
Dichloromethane	<0.0050		mg/L	0.05		31-DEC-15
1,2-Dichloropropane	<0.0010		mg/L			31-DEC-15
cis-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 6 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-6
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
trans-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15
1,3-Dichloropropene (cis & trans)	<0.0014		mg/L			31-DEC-15
Ethylbenzene	<0.00050		mg/L	0.14	0.0016	31-DEC-15
Methyl t-butyl ether (MTBE)	<0.00050		mg/L		0.015	31-DEC-15
Styrene	<0.00050		mg/L			31-DEC-15
1,1,1,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
1,1,2,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
Tetrachloroethylene	<0.0010		mg/L	0.03		31-DEC-15
Toluene	<0.00050		mg/L	0.06	0.024	31-DEC-15
1,1,1-Trichloroethane	<0.0010		mg/L			31-DEC-15
1,1,2-Trichloroethane	<0.0010		mg/L			31-DEC-15
Trichloroethylene	<0.0010		mg/L	0.005		31-DEC-15
Trichlorofluoromethane	<0.0010		mg/L			31-DEC-15
Vinyl Chloride	<0.0010		mg/L	0.002		31-DEC-15
ortho-Xylene	<0.00050		mg/L			31-DEC-15
meta- & para-Xylene	<0.00050		mg/L			31-DEC-15
Xylenes	<0.00075		mg/L	0.09	0.02	31-DEC-15
Surr: 4-Bromofluorobenzene (SS)	99.8		%			31-DEC-15
Surr: 1,4-Difluorobenzene (SS)	102.5		%			31-DEC-15
Hydrocarbons						
EPH10-19	<0.25		mg/L			31-DEC-15
EPH19-32	<0.25		mg/L			31-DEC-15
LEPH	<0.25		mg/L			04-JAN-16
HEPH	<0.25		mg/L			04-JAN-16
Surr: 2-Bromobenzotrifluoride	97.0		%			31-DEC-15
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.000050		mg/L			04-JAN-16
Acenaphthylene	<0.000050		mg/L			04-JAN-16
Acridine	<0.000050		mg/L			04-JAN-16
Anthracene	<0.000050		mg/L			04-JAN-16
Benz(a)anthracene	<0.000050		mg/L			04-JAN-16
Benzo(a)pyrene	<0.000010		mg/L	0.00001		04-JAN-16
Benzo(b)fluoranthene	<0.000050		mg/L			04-JAN-16
Benzo(g,h,i)perylene	<0.000050		mg/L			04-JAN-16
Benzo(k)fluoranthene	<0.000050		mg/L			04-JAN-16
Chrysene	<0.000050		mg/L			04-JAN-16
Dibenz(a,h)anthracene	<0.000050		mg/L			04-JAN-16
Fluoranthene	<0.000050		mg/L			04-JAN-16
Fluorene	<0.000050		mg/L			04-JAN-16
Indeno(1,2,3-c,d)pyrene	<0.000050		mg/L			04-JAN-16
Naphthalene	<0.000050		mg/L			04-JAN-16
Phenanthrene	<0.000050		mg/L			04-JAN-16
Pyrene	<0.000050		mg/L			04-JAN-16
Quinoline	<0.000050		mg/L			04-JAN-16

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 6 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-6
Matrix: Water

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Surr:	Acridine d9	86.8		%			04-JAN-16
Surr:	Chrysene d12	98.0		%			04-JAN-16
Surr:	Naphthalene d8	85.8		%			04-JAN-16
Surr:	Phenanthrene d10	102.3		%			04-JAN-16

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

Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 7 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-7
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.48		pH			16-MAR-16
Physical Tests						
Colour, True	<5.0		CU		15	24-DEC-15
Conductivity	77.6		uS/cm			24-DEC-15
Hardness (as CaCO3)	22.6		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-1.8		none			17-MAR-16
pH	7.48		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	70		mg/L		500	24-DEC-15
Turbidity	<0.10		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	20.2		mg/L			30-DEC-15
Chloride (Cl)	4.38		mg/L		250	24-DEC-15
Fluoride (F)	0.088		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0604		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	8.15		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	<1		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00059		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		31-DEC-15
Boron (B)-Total	<0.10		mg/L	5		31-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	6.93		mg/L			31-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	0.0052		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	<0.030		mg/L		0.3	31-DEC-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	1.31		mg/L			31-DEC-15
Manganese (Mn)-Total	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	1.28		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	5.0		mg/L		200	31-DEC-15
Uranium (U)-Total	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	31-DEC-15
Dissolved Metals						

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Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 7 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-7
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	<0.010		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00058		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		31-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		31-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	6.92		mg/L			31-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	0.0044		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	<0.030		mg/L		0.3	31-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	1.28		mg/L			31-DEC-15
Manganese (Mn)-Dissolved	<0.0020		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	1.29		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	4.8		mg/L		200	31-DEC-15
Uranium (U)-Dissolved	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	31-DEC-15
Volatile Organic Compounds						
Benzene	<0.00050		mg/L	0.005		31-DEC-15
Bromodichloromethane	<0.0010		mg/L			31-DEC-15
Bromoform	<0.0010		mg/L			31-DEC-15
Carbon Tetrachloride	<0.00050		mg/L	0.005		31-DEC-15
Chlorobenzene	<0.0010		mg/L	0.08		31-DEC-15
Dibromochloromethane	<0.0010		mg/L			31-DEC-15
Chloroethane	<0.0010		mg/L			31-DEC-15
Chloroform	<0.0010		mg/L			31-DEC-15
Chloromethane	<0.0050		mg/L			31-DEC-15
1,2-Dichlorobenzene	<0.00070		mg/L	0.2	0.003	31-DEC-15
1,3-Dichlorobenzene	<0.0010		mg/L			31-DEC-15
1,4-Dichlorobenzene	<0.0010		mg/L	0.005	0.001	31-DEC-15
1,1-Dichloroethane	<0.0010		mg/L			31-DEC-15
1,2-Dichloroethane	<0.0010		mg/L	0.005		31-DEC-15
1,1-Dichloroethylene	<0.0010		mg/L	0.014		31-DEC-15
cis-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
trans-1,2-Dichloroethylene	<0.0010		mg/L			31-DEC-15
Dichloromethane	<0.0050		mg/L	0.05		31-DEC-15
1,2-Dichloropropane	<0.0010		mg/L			31-DEC-15
cis-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 7 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-7
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
trans-1,3-Dichloropropylene	<0.0010		mg/L			31-DEC-15
1,3-Dichloropropene (cis & trans)	<0.0014		mg/L			31-DEC-15
Ethylbenzene	<0.00050		mg/L	0.14	0.0016	31-DEC-15
Methyl t-butyl ether (MTBE)	<0.00050		mg/L		0.015	31-DEC-15
Styrene	<0.00050		mg/L			31-DEC-15
1,1,1,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
1,1,2,2-Tetrachloroethane	<0.0010		mg/L			31-DEC-15
Tetrachloroethylene	<0.0010		mg/L	0.03		31-DEC-15
Toluene	<0.00050		mg/L	0.06	0.024	31-DEC-15
1,1,1-Trichloroethane	<0.0010		mg/L			31-DEC-15
1,1,2-Trichloroethane	<0.0010		mg/L			31-DEC-15
Trichloroethylene	<0.0010		mg/L	0.005		31-DEC-15
Trichlorofluoromethane	<0.0010		mg/L			31-DEC-15
Vinyl Chloride	<0.0010		mg/L	0.002		31-DEC-15
ortho-Xylene	<0.00050		mg/L			31-DEC-15
meta- & para-Xylene	<0.00050		mg/L			31-DEC-15
Xylenes	<0.00075		mg/L	0.09	0.02	31-DEC-15
Surr: 4-Bromofluorobenzene (SS)	99.3		%			31-DEC-15
Surr: 1,4-Difluorobenzene (SS)	101.7		%			31-DEC-15
Hydrocarbons						
EPH10-19	<0.25		mg/L			31-DEC-15
EPH19-32	<0.25		mg/L			31-DEC-15
LEPH	<0.25		mg/L			04-JAN-16
HEPH	<0.25		mg/L			04-JAN-16
Surr: 2-Bromobenzotrifluoride	102.7		%			31-DEC-15
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.000050		mg/L			04-JAN-16
Acenaphthylene	<0.000050		mg/L			04-JAN-16
Acridine	<0.000050		mg/L			04-JAN-16
Anthracene	<0.000050		mg/L			04-JAN-16
Benz(a)anthracene	<0.000050		mg/L			04-JAN-16
Benzo(a)pyrene	<0.000010		mg/L	0.00001		04-JAN-16
Benzo(b)fluoranthene	<0.000050		mg/L			04-JAN-16
Benzo(g,h,i)perylene	<0.000050		mg/L			04-JAN-16
Benzo(k)fluoranthene	<0.000050		mg/L			04-JAN-16
Chrysene	<0.000050		mg/L			04-JAN-16
Dibenz(a,h)anthracene	<0.000050		mg/L			04-JAN-16
Fluoranthene	<0.000050		mg/L			04-JAN-16
Fluorene	<0.000050		mg/L			04-JAN-16
Indeno(1,2,3-c,d)pyrene	<0.000050		mg/L			04-JAN-16
Naphthalene	<0.000050		mg/L			04-JAN-16
Phenanthrene	<0.000050		mg/L			04-JAN-16
Pyrene	<0.000050		mg/L			04-JAN-16
Quinoline	<0.000050		mg/L			04-JAN-16

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: WELL 7 RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-7
Matrix: Water

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Surr:	Acridine d9	84.9		%			04-JAN-16
Surr:	Chrysene d12	101.8		%			04-JAN-16
Surr:	Naphthalene d8	91.0		%			04-JAN-16
Surr:	Phenanthrene d10	103.4		%			04-JAN-16

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

Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: STAWAMUS RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-8
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	6.95		pH			16-MAR-16
Physical Tests						
Colour, True	10.7		CU		15	24-DEC-15
Conductivity	34.7		uS/cm			24-DEC-15
Hardness (as CaCO3)	11.8		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-3.2		none			17-MAR-16
pH	6.95		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	34		mg/L		500	27-DEC-15
Turbidity	0.19		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	4.9		mg/L			30-DEC-15
Chloride (Cl)	<0.50		mg/L		250	24-DEC-15
Fluoride (F)	0.033		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0504		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	9.12		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	25		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	0.176		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00012		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	4.02		mg/L			30-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	0.0132		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	0.070		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	0.53		mg/L			30-DEC-15
Manganese (Mn)-Total	0.0108		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	0.19		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	<2.0		mg/L		200	30-DEC-15
Uranium (U)-Total	0.00040		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

Date: 17-NOV-16
PO No.: 6423
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Sample ID: STAWAMUS RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-8
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	0.136		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	<0.00010		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	3.92		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	0.0119		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	<0.030		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	0.50		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	0.0097		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	0.18		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	<2.0		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	0.00038		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15

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
Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: MASHITER RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-9
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Field Tests						
pH, Client Supplied	7.45		pH			16-MAR-16
Physical Tests						
Colour, True	7.4		CU		15	24-DEC-15
Conductivity	51.6		uS/cm			24-DEC-15
Hardness (as CaCO3)	18.2		mg/L		500	31-DEC-15
Langelier Index Temperature	10		C			16-MAR-16
Langelier Index	-1.9		none			17-MAR-16
pH	7.45		pH		6.5-8.5	24-DEC-15
Total Dissolved Solids	48		mg/L		500	24-DEC-15
Turbidity	0.28		NTU			23-DEC-15
Anions and Nutrients						
Alkalinity, Total (as CaCO3)	18.6		mg/L			30-DEC-15
Chloride (Cl)	0.57		mg/L		250	24-DEC-15
Fluoride (F)	0.030		mg/L	1.5		24-DEC-15
Nitrate (as N)	0.0866		mg/L	10		24-DEC-15
Nitrite (as N)	<0.0010		mg/L	1		24-DEC-15
Sulfate (SO4)	4.44		mg/L		500	24-DEC-15
Bacteriological Tests						
E. coli	<1		MPN/100mL	0		22-DEC-15
Coliform Bacteria - Total	24		MPN/100mL	0		22-DEC-15
Total Metals						
Aluminum (Al)-Total	0.033		mg/L		0.1	31-DEC-15
Antimony (Sb)-Total	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Total	0.00024		mg/L	0.01		31-DEC-15
Barium (Ba)-Total	<0.020		mg/L	1		30-DEC-15
Boron (B)-Total	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Total	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Total	5.92		mg/L			30-DEC-15
Chromium (Cr)-Total	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Total	<0.0010		mg/L		1.0	31-DEC-15
Iron (Fe)-Total	0.062		mg/L		0.3	30-DEC-15
Lead (Pb)-Total	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Total	0.80		mg/L			30-DEC-15
Manganese (Mn)-Total	0.0086		mg/L		0.05	31-DEC-15
Mercury (Hg)-Total	<0.00020		mg/L	0.001		24-DEC-15
Potassium (K)-Total	0.72		mg/L			31-DEC-15
Selenium (Se)-Total	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Total	2.5		mg/L		200	30-DEC-15
Uranium (U)-Total	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Total	<0.050		mg/L		5.0	30-DEC-15
Dissolved Metals						

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: MASHITER RAW
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-9
Matrix: Water

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Dissolved Mercury Filtration Location	LAB					30-DEC-15
Dissolved Metals Filtration Location	LAB					27-DEC-15
Aluminum (Al)-Dissolved	0.024		mg/L		0.1	31-DEC-15
Antimony (Sb)-Dissolved	<0.00050		mg/L	0.006		31-DEC-15
Arsenic (As)-Dissolved	0.00019		mg/L	0.01		31-DEC-15
Barium (Ba)-Dissolved	<0.020		mg/L	1		30-DEC-15
Boron (B)-Dissolved	<0.10		mg/L	5		30-DEC-15
Cadmium (Cd)-Dissolved	<0.00020		mg/L	0.005		31-DEC-15
Calcium (Ca)-Dissolved	5.96		mg/L			30-DEC-15
Chromium (Cr)-Dissolved	<0.0020		mg/L	0.05		31-DEC-15
Copper (Cu)-Dissolved	<0.0010		mg/L		1.0	31-DEC-15
Iron (Fe)-Dissolved	0.038		mg/L		0.3	30-DEC-15
Lead (Pb)-Dissolved	<0.00050		mg/L	0.01		31-DEC-15
Magnesium (Mg)-Dissolved	0.80		mg/L			30-DEC-15
Manganese (Mn)-Dissolved	0.0061		mg/L		0.05	31-DEC-15
Mercury (Hg)-Dissolved	<0.00020		mg/L	0.001		30-DEC-15
Potassium (K)-Dissolved	0.72		mg/L			31-DEC-15
Selenium (Se)-Dissolved	<0.0010		mg/L	0.05		31-DEC-15
Sodium (Na)-Dissolved	2.4		mg/L		200	30-DEC-15
Uranium (U)-Dissolved	<0.00010		mg/L	0.02		31-DEC-15
Zinc (Zn)-Dissolved	<0.050		mg/L		5.0	30-DEC-15

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
Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: MUINICIPAL HALL NETWORK
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-10
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Trihalomethanes						
Bromodichloromethane	<0.0010		mg/L			01-JAN-16
Bromoform	<0.0010		mg/L			01-JAN-16
Dibromochloromethane	<0.0010		mg/L			01-JAN-16
Chloroform	<0.0010		mg/L			01-JAN-16

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
Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

DISTRICT OF SQUAMISH
PO Box 310
Squamish BC V8B 0A3
ATTN: Daniel Ricciuti

Date: 17-NOV-16
PO No.: 6423
WO No.: L1717639
LSD:
Project Ref:
Sample ID: LOMOND NETWORK
Sampled By: Dan Ricciuti
Date Collected: 22-DEC-15
Lab Sample ID: L1717639-11
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Trihalomethanes						
Bromodichloromethane	<0.0010		mg/L			01-JAN-16
Bromoform	<0.0010		mg/L			01-JAN-16
Dibromochloromethane	<0.0010		mg/L			01-JAN-16
Chloroform	<0.0010		mg/L			01-JAN-16

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

Ariel McDonnell, B.Sc.
Account Manager

Canadian Drinking Water Quality Guidelines are applied. Values highlighted in grey have exceeded the guideline.

Guidelines & Objectives

Qualifiers for Individual Samples Listed:

Sample	Client ID	Qualifier	Description
L1717639-3	WELL 3 RAW	WSMD	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

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).
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.

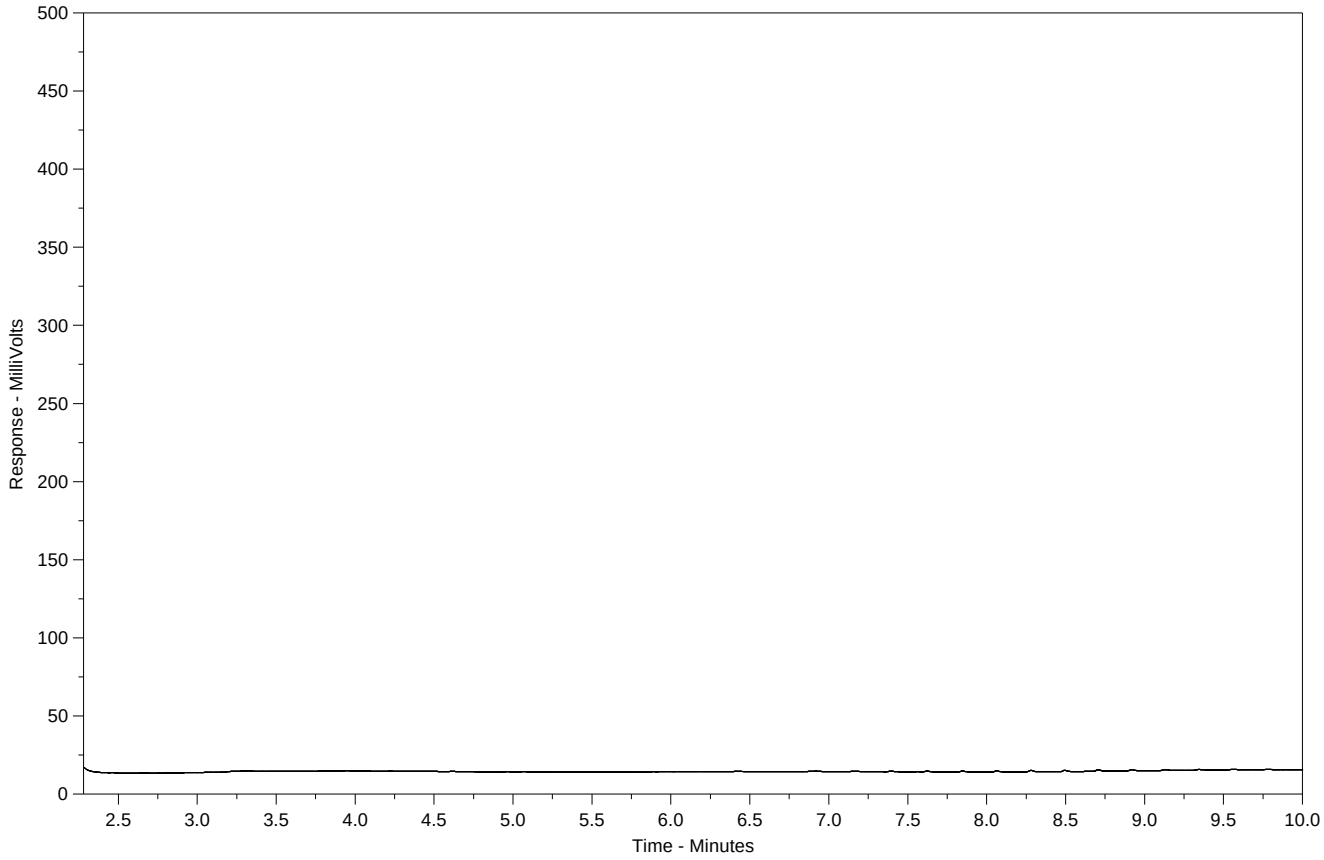
GLOSSARY OF REPORT TERMS

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.

Hydrocarbon Distribution Report

ALS Sample ID: L1717639-1
Client Sample ID: WELL 1 RAW



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F

Gasoline
Motor Oils / Lube Oils / Grease
Diesel / Jet Fuels

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

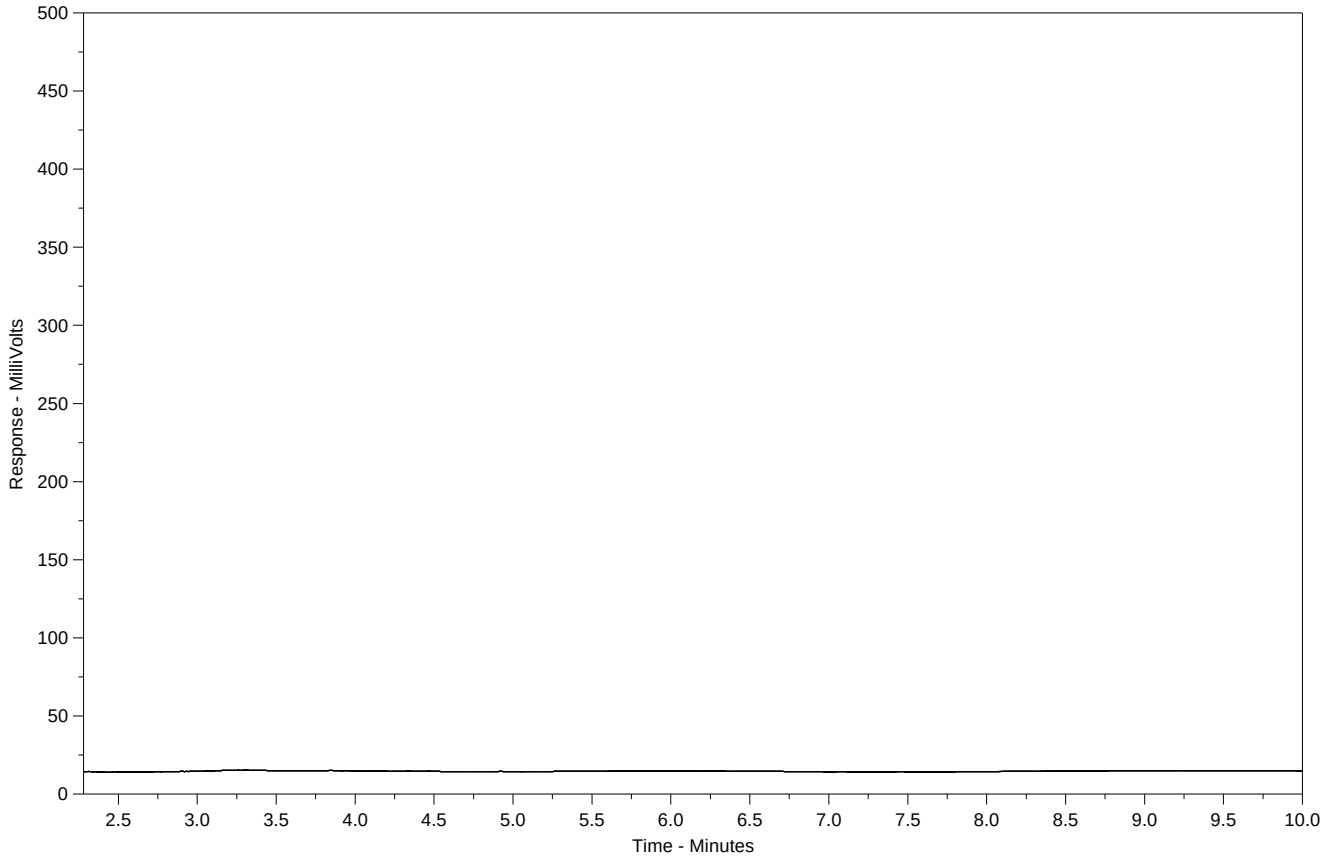
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1717639-2
Client Sample ID: WELL 2 RAW



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
←Gasoline→	←Motor Oils / Lube Oils / Grease→	
←Diesel / Jet Fuels→		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

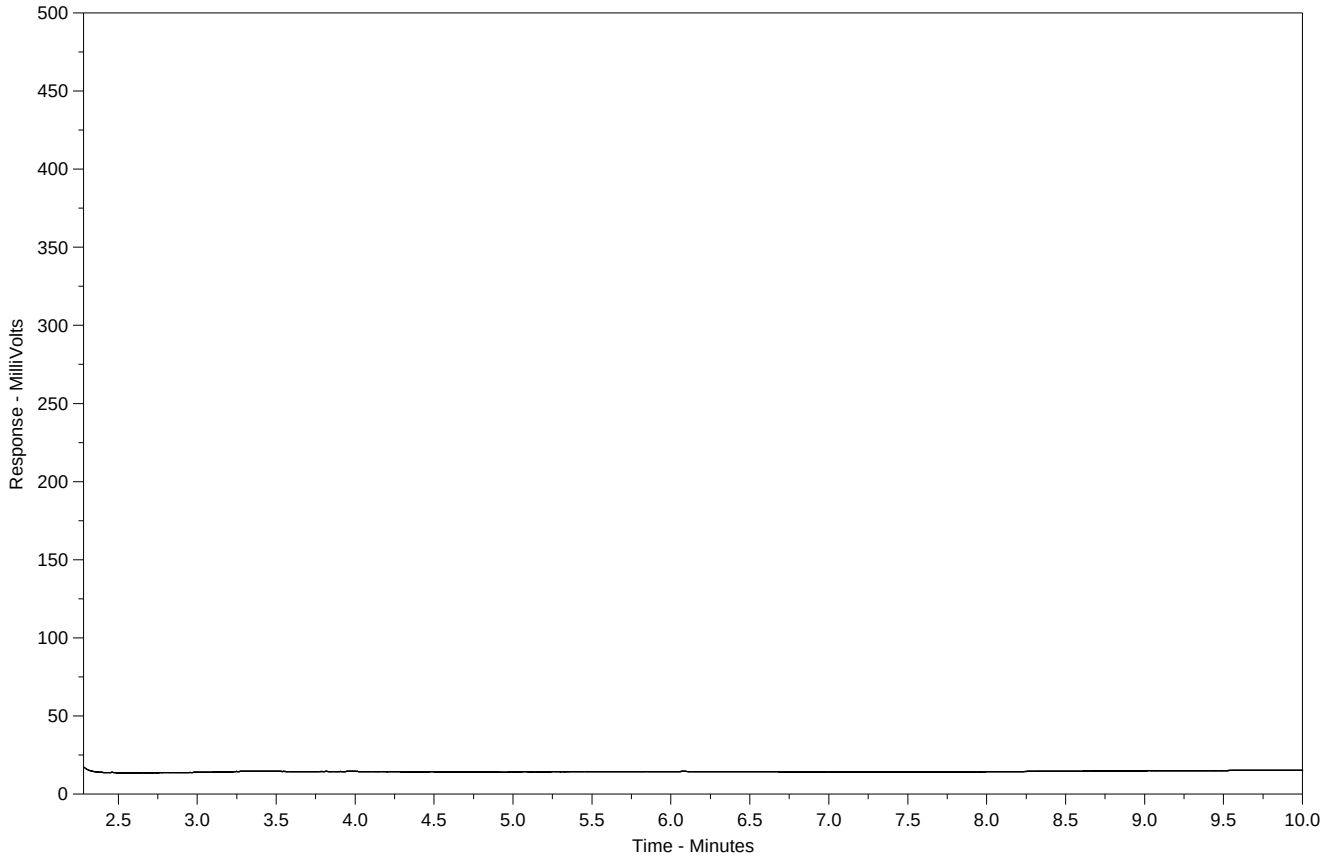
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1717639-3
Client Sample ID: WELL 3 RAW



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
←Gasoline→	←Motor Oils / Lube Oils / Grease→	
←Diesel / Jet Fuels→		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

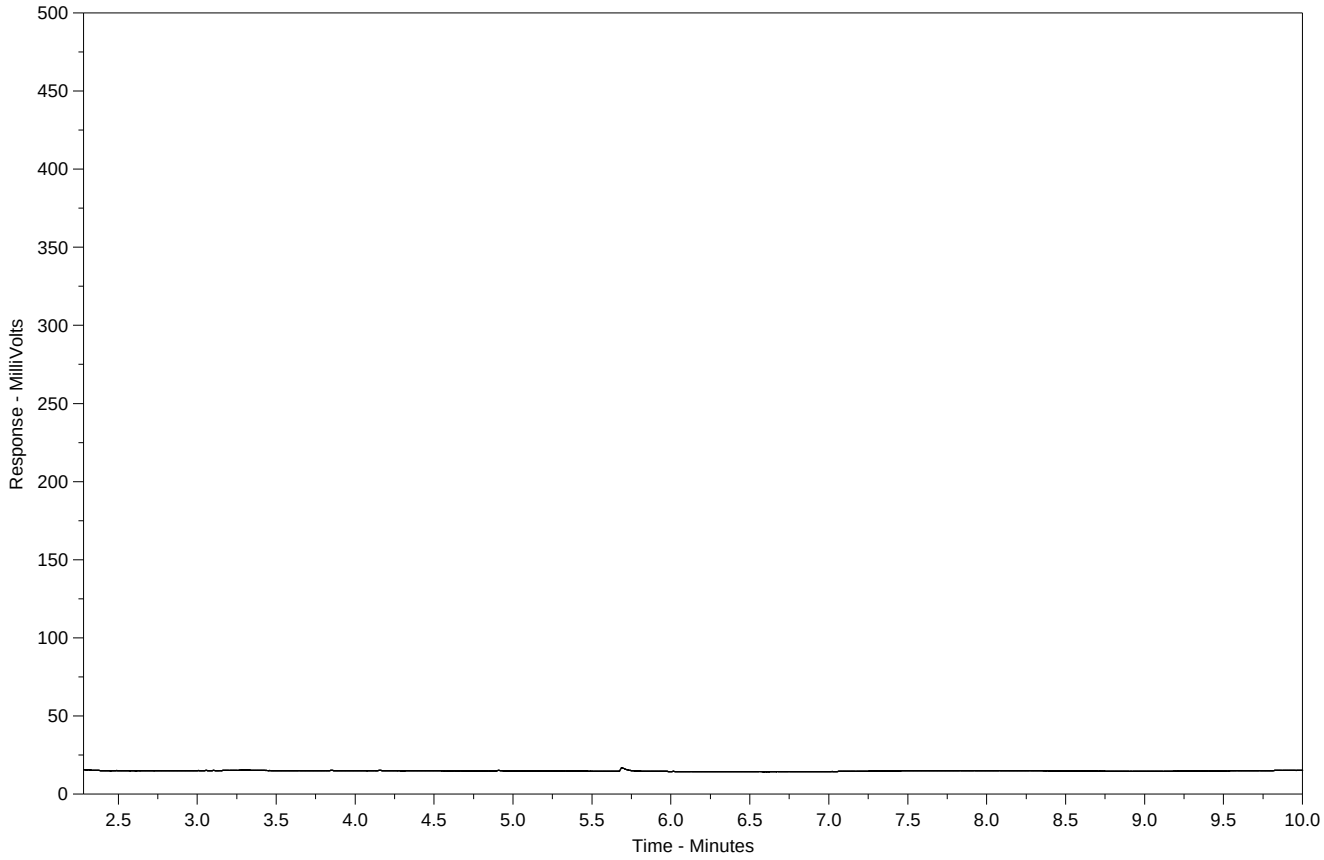
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1717639-4
Client Sample ID: WELL 4 RAW



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
←Gasoline→	←Motor Oils / Lube Oils / Grease→	
←Diesel / Jet Fuels→		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

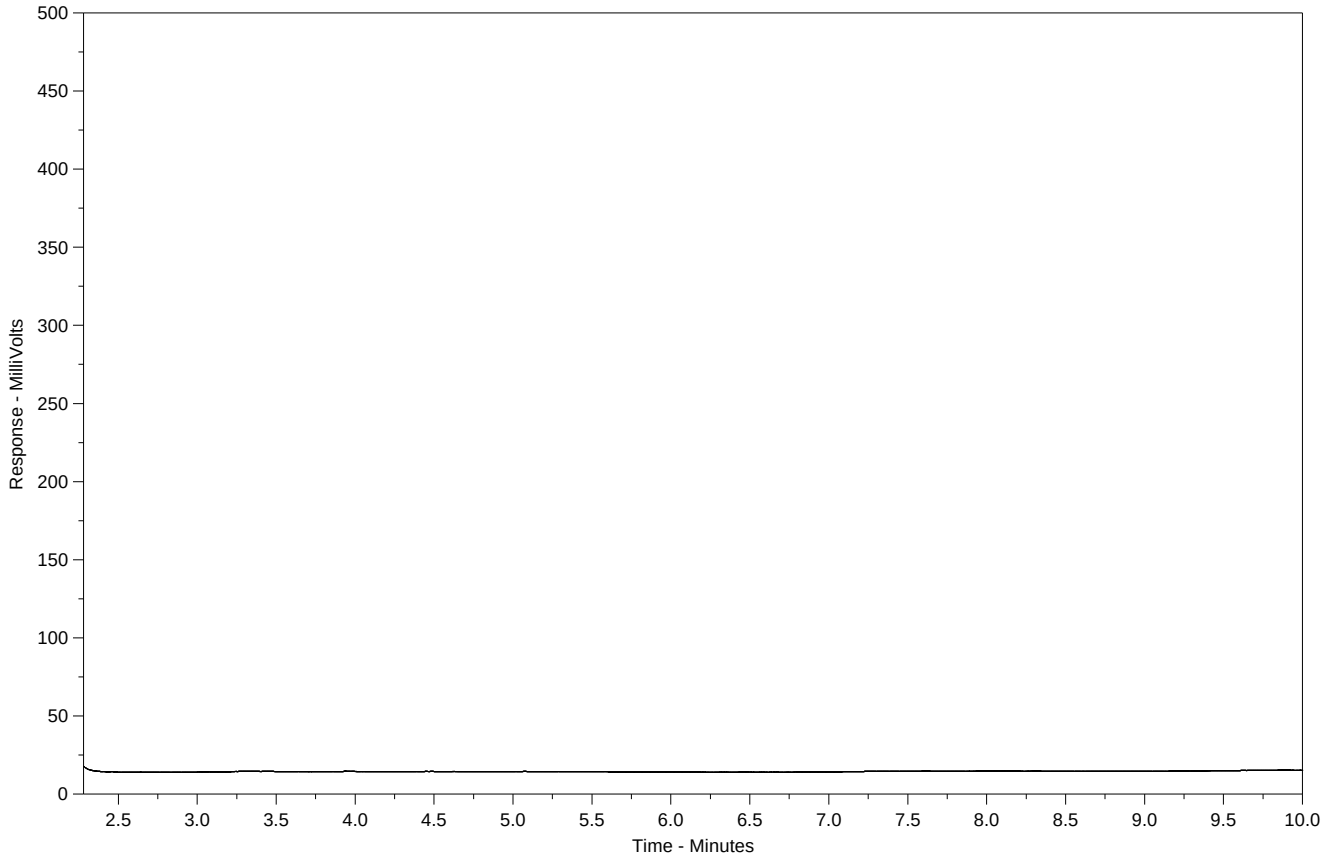
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1717639-5
Client Sample ID: WELL 5 RAW



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
←Gasoline→	←Motor Oils / Lube Oils / Grease→	
←Diesel / Jet Fuels→		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

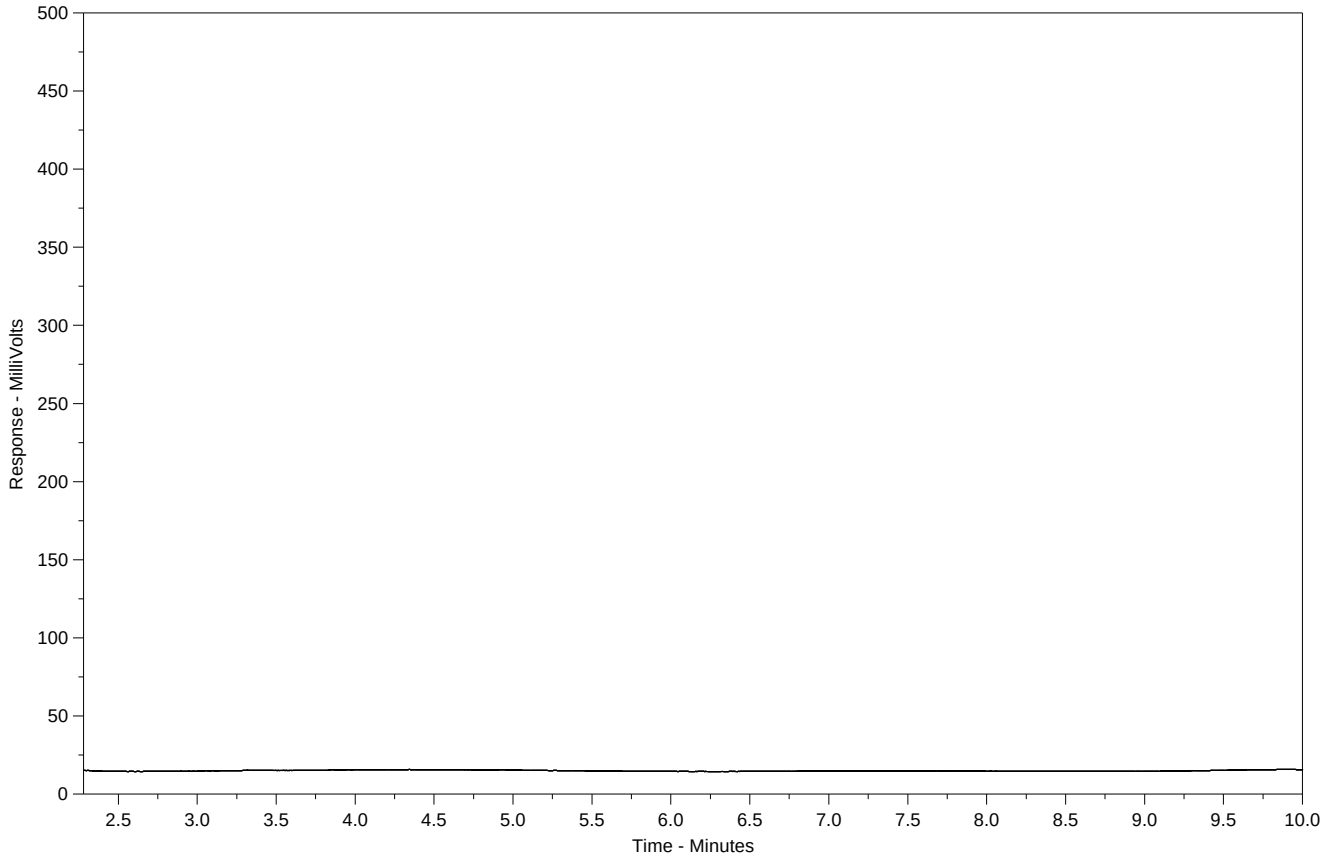
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1717639-6
Client Sample ID: WELL 6 RAW



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F

Gasoline
Motor Oils / Lube Oils / Grease
Diesel / Jet Fuels

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

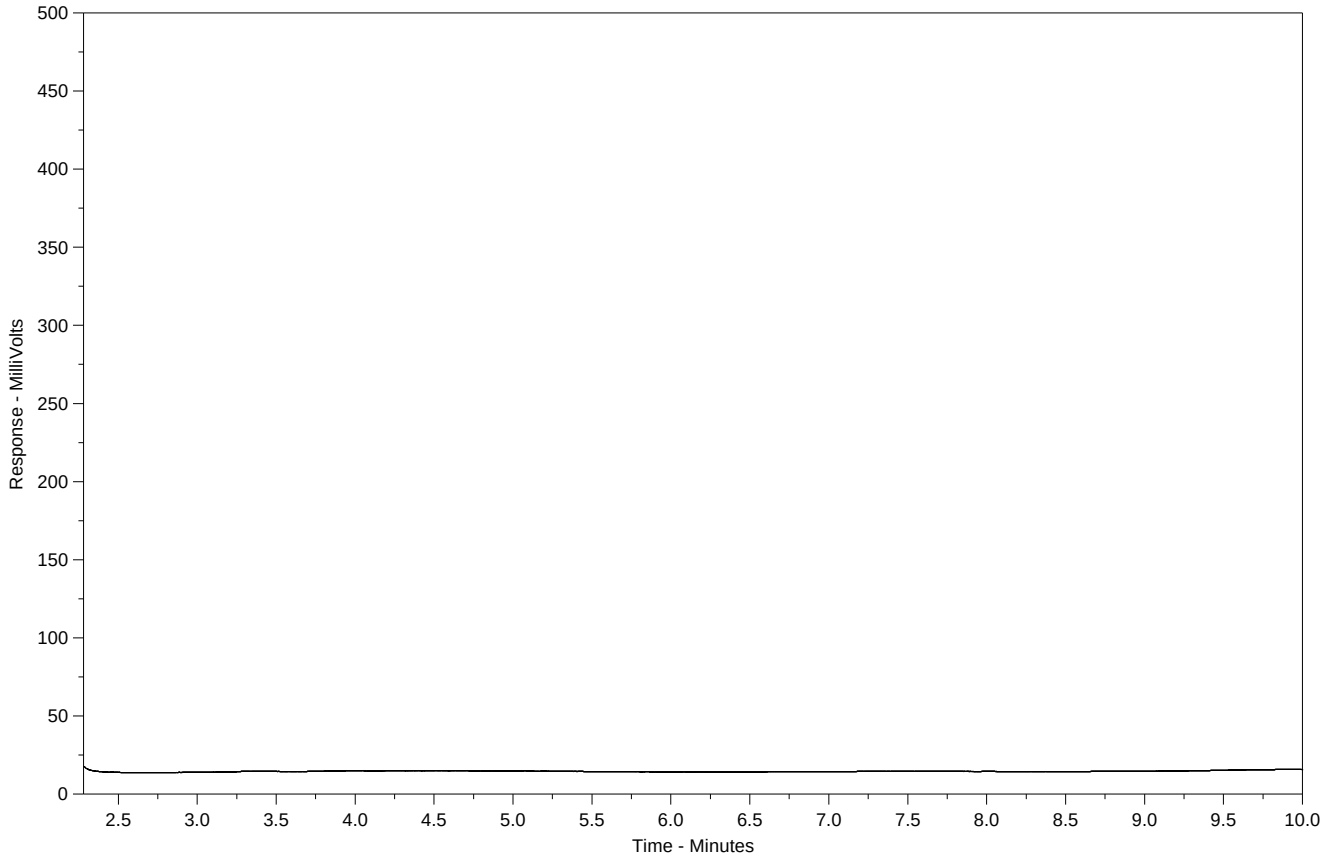
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1717639-7
Client Sample ID: WELL 7 RAW



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
←Gasoline→	←Motor Oils / Lube Oils / Grease→	
←Diesel / Jet Fuels→		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Results from re-tested samples

DISTRICT OF SQUAMISH
ATTN: Dan Ricciuti
39907 Government Road
PO Box 310
Squamish BC V8B 0A3

Date Received: 11-SEP-15
Report Date: 12-SEP-15 13:55 (MT)
Version: FINAL

Client Phone: 604-848-4235

Certificate of Analysis

Lab Work Order #: L1671340

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Courtney Duncan
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1671340-1	L1671340-2	L1671340-3		
	Description	GRAB	GRAB	GRAB		
	Sampled Date	11-SEP-15	11-SEP-15	11-SEP-15		
	Sampled Time	05:30	05:45	06:00		
	Client ID	POWER HOUSE SPRING RAW	MASHITAR RAW	STAWAMUS RAW		
Grouping	**Analyte**					
WATER						
Bacteriological Tests	E. coli (MPN/100mL)	<1	<1	4		
	Coliform Bacteria - Total (MPN/100mL)	<1	5	236		

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ECOLI-COLI-ENV-VA	Water	E.coli by Colilert	APHA METHOD 9223

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.

TCOLI-COLI-ENV-VA	Water	Total coliform by Colilert	APHA METHOD 9223

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is quantified by a statistical estimation of bacteria density (most probable number).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
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 of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
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.

DISTRICT OF SQUAMISH
ATTN: Daniel Ricciuti
PO Box 310
Squamish BC V8B 0A3

Date Received: 21-JAN-16
Report Date: 26-JAN-16 14:58 (MT)
Version: FINAL

Client Phone: 604-815-6864

Certificate of Analysis

Lab Work Order #: L1726014

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Courtney Duncan
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1726014-1	L1726014-2			
	Description	Grab	Grab			
	Sampled Date	21-JAN-16	21-JAN-16			
	Sampled Time	10:10	10:12			
	Client ID	P.H.S WELL 2-A	P.H.S WELL 2-B			
Grouping	**Analyte**					
WATER						
Bacteriological Tests	E. coli (MPN/100mL)	<1	<1			
	Coliform Bacteria - Total (MPN/100mL)	<1	<1			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ECOLI-COLI-BCDW-VA	Water	E.coli by Colilert	APHA METHOD 9223

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.

TCOLI-COLI-BCDW-VA	Water	Total coliform by Colilert	APHA METHOD 9223

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is quantified by a statistical estimation of bacteria density (most probable number).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
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 of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.