

Annual Drinking Quality Report for 2014

Introduction

To comply with the Drinking Water Protection Act and Regulations, as well as to comply with the conditions on our Permit to operate as issued by Vancouver Coastal Health, the District of Squamish annually issues a report describing the quality of our drinking water. The purpose of this report is to raise the understanding of drinking water and awareness to the need to protect our drinking water sources.

Where Does Our Water come From

Our water system services the population of the District of Squamish (Estimated @ 17,500) with an average daily demand of 9,720,700 liters per day (winter) and 11,684,090 liters per day (summer). Our water sources are Powerhouse Springs (well), Mashiter Creek (surface supply) and Stawamus River (surface supply).

There are approximately 150 kms of waterlines and 3,695 single and/or duplex connections, 287 multi-unit connections and 270 Industrial Commercial Institutional (ICI) connections.

Primary water source is Powerhouse Springs – 7 wells with consumption in 2014 of 3,906,383 m³/year (100% of total usage)

Backup is the Stawamus River surface source and Mashiter Creek surface source. Consumption in 2014 from either source was zero.

Testing

We test the drinking water for numerous contaminants. In 2014, we conducted weekly bacteria testing at 9 locations - testing for E-coli and total coliforms (Appendix 1). A fully enhanced testing is conducted twice per year; once a year we test for Tri-halomethanes (THM); and full metals testing is done twice a year (Appendix 2 and 3).

It should be noted that all drinking water, including bottled drinking water, might reasonably be expected to contain small amounts of some contaminants. The low-level presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling Vancouver Coastal Health at 604 815 6841.

Boil Water Advisories

There were no boil water advisories or boil water orders in 2014.

Challenges

District of Squamish has over 80% asbestos concrete water main lines. These lines do not create a health hazard, but they are reaching the end of their designed life span, and breakage will occur. In 2014 we had 5 water main breaks, and 7 service repairs.

During the summer months the residents and ICI customers in Squamish use a tremendous amount of water. This not only puts a strain on the distribution system but also taxes the Powerhouse well water supply. When this happens the two surface supplies may open to supplement the supply. Although Squamish has excellent surface sources of water, neither of these sources is filtered, consequently, the quality of water can be affected by rain events or upstream activity. The District would prefer to not ever use the surface water supplies, and by saving water we could achieve that goal.

In 2014 rains came at critical times reducing the demand. We had very little rain from the end of June to the end of September. This drought condition can cause problems when combined with an increase in consumption. Squamish Valley Music Festival did not show as a major consumer due to the fact that potable water is not used for flushing toilets and the added population do not have kitchens or laundry as regular homes do. We are very concerned about 2015 with low snow levels and extended drought conditions forecasted.

Programs

UDF – Uni-directional flushing is a method of flushing the water distribution system that increases pipe velocities to scour the lines. This ensures the distribution system is robust and improves water quality. All water lines were flushed in 2014.

Leak Detection – The District has an ongoing leak detection program. With leak detection equipment and trained crews we conduct a water use survey that identifies areas in town that had leaks. District crews now focus on those areas to find and repair leaks. This will improve our distribution system as well as conserve water. The District is adding zone water meters to help us identify areas where there may be leaks. 2014 installations include measurement of water within the Valleycliffe zone and the downtown zone. Also a new PRV (Pressure Reducing Valve was installed) on Eagleview which increased fireflow within the Brackendale zone.

Cross Connection Control (CCC) – Cross connections can allow contaminants to enter the distribution system via negative pressure or siphoning. This program prevents backflow into the system and is ongoing with staff working with ICI customers to ensure compliance.

Automated Monitoring – At strategic locations, the district installed electronic chlorine residual analyzers that will send out an alarm if residual chlorine levels should fall below our required levels. We also monitor for elevated levels.

Fire Hydrant Ratings – Started in 2012, we now rate the fire hydrants with the NFPA flow rate standards and paint the tops to identify as per the NFPA colour coding.

Water metering – this program began in 2012 to meter new ICI customers and will continue into 2015. Many existing ICI metered customers were upgraded to radio frequency meter readers to improve data collection, quality and time.

Fill Stations – The District has two bulk fill stations located in South Squamish for the convenience of water-hauling trucks and to assist in eliminating the need to use our hydrants for this purpose.

Water Conservation Bylaw – the outdoor water use conservation bylaw is in effect (BYL 2254, 2014)

Water Conservation Educator – the District employs a water conservation educator to inform the public and advise on the bylaw. The program has been expanded to start earlier, and look to investigate reward programs.

Water Conservation Education Plan

The District of Squamish is responsible for operating and maintaining safe and effective water and wastewater services for our community. Certified staff ensures our water and wastewater quality meets or exceeds government requirements. The Water conservation Education Plan, through actionable items that reduce water waste and promote water conservation, will ensure that the District's water services and the community's water needs are met in a long-term sustainable manner.

The strategies proposed with The Water Conservation Education Plan align with various Provincial initiatives, such as: the proposed Water Sustainability Act, BC Climate Action Plan, Action Plan for Safe Drinking Water in British Columbia, Integrated Resource Recovery, Live Smart BC and with Living Smart: British Columbia's Water Plan.

Furthermore, the Water Conservation Education Plan reflects the District of Squamish Official Community Plan Section 24, Municipal Facilities and Utility Services objectives:

To ensure that utilities and municipal infrastructure are planned to accommodate the existing and future needs of Squamish's population;

- To provide leadership in sustainable municipal infrastructure servicing;
- To provide leadership in the conservation of energy, water, and material resources;
- To protect the quality and quantity of the municipal water supply source;
- To provide potable water of a level of quality that meets or exceeds provincial drinking water quality objectives;
- To deliver municipal infrastructure services in a fiscally responsible manner; and
- To provide sufficient infrastructure to ensure fire protection throughout the community.

OCP: *Our mission is to protect and enhance the livability, sustainability and quality of life for our community and to embrace and benefit from the opportunities before us. We will be successful in serving the needs of our community through: Visionary leadership, Excellence in governance, Customer focused service, Strong community partnerships, and Sound financial and environmental management.*

Some of the challenges we face in relation to the sustainable supply and demand of water are: impacts of an increasing population; anticipated economic development growth; effects of climate change such as drought cycles and increased temperatures; seasonal fluctuations in water consumption as a result of climate change and human behavior; aging infrastructure; and the inherent challenges associated with motivating long-term sustainable behavior.

Benefits of Water Conservation

As we invite more people to come work, live and play in Squamish, we must practice due diligence in balancing the water needs of all sectors of the community i.e. residential, commercial, industrial, institutional, tourism and agricultural, with the finite water supply that exists.

Cost savings: population growth will put demands on the existing infrastructure and water supply. Conserving water will delay the need to construct costly wells, pumping systems and reservoirs and will allow for further longevity of the existing system.

Environmental benefits: the less water we use, the less water we treat and release into the natural environment. By conserving water resources, our community can continue to grow while proactively sustaining our quality of life and ensuring the protection of our highly valued environment.

Stewardship: conserving water and promoting water-use efficiency demonstrates leadership in resource management.

Competing uses: by conserving water throughout the year, we will decrease the need for elevated water restrictions during the summer months subsequently allowing for essential emergency services such as meeting firefighting water needs.

Community buy-in: community wide conservation education and incentive measures will increase the public's understanding, appreciation and ultimately, their protection of our finite water resources.

Goal

To promote a community wide capacity for water conservation and water-use efficiency with the overarching goal of reducing gross community water consumption by focusing on reducing seasonal increases and daily peak time usages.

Summary

In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit the public. The costs of these improvements may be reflected in the rate structure. The budget for delivery and cost to maintain the distribution system for one year is 3.3 million dollars. We ask that the public help us protect our water sources, which are the heart of the community.

If you have any questions about this report or concerning your drinking water, please contact Mr. James McKerr, Utilities Supervisor, 604 815 6864.

Water Main Breaks 2014

Location	Date
Arrowhead Place	February
Diamond Road	March
Thunderbird Ridge	May
Highlands Way North	June
Chestnut Street	June
Reid Crescent	September
Diamond Head Road	November

Water distribution maps are online at:

<http://squamish.ca/discover-squamish/maps-and-data/gis-map-viewer/>

Health Canada Guidelines for Canadian Drinking Water Quality:

<http://hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php>

Well Protection Plan:

<http://squamish.ca/our-services/water-and-wastewater/water-system/powerhouse-springs-well-protection-plan/>

New Infrastructure brought in for 2014:

- Watermain replacement, Scott Crescent
- Two new PRV (Pressure Reducing Valve) stations – better flow to downtown area
- Crumpit Woods Subdivision Phase I, complete and operating by the District of Squamish
- Recondition three wells at Powerhouse Springs to increase capacity
- Well Protection Plan adopted
- Water Conservation Plan commissioned

District Of Squamish Waterworks - Water Sample Range Report

Range Report Information:

Date range: Jan 1 2014 to Dec 31 2014
Total number of samples: 269

Water Sample Details:

Samples that contain coliform:	1 (0% of total)
Samples that contain fecal coliform:	0 (0% of total)
Samples that contain e. coli	1 (0% of total)
Number of consecutive samples that contain total coliform:	0 (0% of total)
Number of samples that contain total coliform in last 30 days:	0 (0% of total)

For more information regarding bacteriological quality guidelines please refer to the *Guidelines for Canadian Drinking Water Quality*.

<http://www.healthspace.ca/vch>

District Of Squamish Waterworks - Inspection Report

Inspection Information:

Facility Type: WS1A
Inspection type: Routine
Inspection date: March 21, 2014
Follow-up Required: No

This facility was given a **low** hazard rating.

■ [More information on hazard ratings.](#)

Violations:

No violations were found during the inspection

Comments:

The bacteriological sample range report for 2013 indicates satisfactory water quality was maintained throughout the year. Of the 283 samples collected, three were positive for total coliform (1.06%); and one was positive for E coli (0.35%), as you will note in the attached report. From our joint review it appears that these may be attributable to sampling error since they were not reproduced on follow up sampling, and free available chlorine residuals were deemed to be within acceptable / normal limits. As we discussed (and further to our report from last year) please continue to review your sampling locations to assure representative sample collection across your grid and pressure zones. Consideration should be given to installing additional dedicated sampling chambers commensurate with new water mains. We acknowledge that the draft Well Protection Plan has been completed and under review for implementation with the planning team. We have provided input on this document separately and will participate with further meetings as required. Also, we note significant progress has been made with development of a cross connection control by-law and implementation plan. We have reviewed your Emergency Response and Contingency Plan and will provide our recommendations to that document outside of this report. We understand the DOS will be reviewing options for additional water supply capacity by conducting a water supply strategy review. Please advise us as to when the Terms of Reference for your master water supply study will be drafted and when you expect the study to be completed. As you know the Stawamus River and Mashiter Creek supplies do not have adequate treatment, and any use of these supplies must be recorded in your annual monitoring report. As we discussed, conceptually enhanced disinfection could be used to supplement the existing treatment processes for these sources, however some further study is required relative to the raw water quality characteristics and low river flows during peak demand. We have reviewed your draft 2013 annual monitoring report (due by June 30th 2013). This report provides some good commentary on the surface sources. In addition to the remarks that these sources are unfiltered, the report should clarify that the current treatment process (chlorination) does not meet VCH expectations for complete disinfection.

<http://www.healthspace.ca/vch>