

District of Squamish Box 310, 39909 Government Road Squamish, B.C. V8B 0A3 Phone: 604.815.6868 Fax: 604.898.5299

REPORT TO: Vancouver Coastal Health

- PRESENTED: Bob Smith, Director of Operations Jim McKerr, Utilities Supervisor
- SUBJECT: Annual Drinking Water Quality Report for 2012 Facility: District of Squamish Waterworks Purveyor: District of Squamish

### 1. 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 will be annually issuing a report describing the quality of our drinking water. The purpose of this report is to raise the understanding of drinking water and awareness of the need to protect our drinking water sources.

#### 2. <u>Where Does Our Water Come From:</u>

Our water system serves the population of the District of Squamish (19,252 est.) with an average daily demand of 4,107,171 Liters per day (winter) and 7,813,089 Liters (summer). Our water sources are Powerhouse springs (well), Mashiter Creek (surface supply) and Stawamus River (surface supply).

There are approximately 120 kms of waterlines and 7,507 connections.

- Primary water source is Power House Springs 7 wells with a consumption in 2012 of 3.394,620 m<sup>3</sup>/year (99.9% of total usage)
- Backup is the Stawamus surface source consumption in 2012 was 130 m<sup>3</sup>/year (.10% of total use) and Mashiter source consumption was not in sue in 2012

#### 3. Testing:

We test the drinking water for numerous contaminants. Last year, we conducted weekly testing at 9 locations. These include weekly Ecoli and total coliforms, a full-enhanced potable once a year and we have begun a new program where Trihalomethanes (THM) are sampled once a year and full metals testing done twice a year.

It should be noted that all drinking water, including bottled drinking water, might be reasonably expected to contain at least 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 the Vancouver Coastal Health at 604 815 6841.

#### 4. Boil Water Advisories:

If the District gets turbidity readings above one NTU, we may issue a Boil Water Advisory. Readings over 5 NTU will typically result in the District issuing a Boil Water Order in consultation with the Drinking Water Officer.

There were no boil water advisories or boil water orders in 2012.

#### 5. **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 therefore breakage will occur. In 2012 we had five (5) water main breaks.

During the summer months the residents and business owners 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 supplies and by saving water we could achieve that goal.

#### 6. **Programs:**

- a) **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.
- b) **Leak Detection** The District has a leak detection program. With leak detection equipment and trained crews they 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.
- c) **Cross Connection Control (CCC)** –Cross connections can allow contaminants to enter the distribution system via negative pressure or siphoning. This program is ongoing.
- d) **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 level.
- e) **Fire Hydrant Ratings –** Started in 2012 we now rate the fire hydrants with the NFPA flow rate standards.
- f) **Water metering –** This program began in 2012 and will continue with the installation of ICI meters.
- g) **Fill Stations –** The District began construction of fill stations in order to make water more conveniently available to customers with water-hauling trucks.
- Water Conservation Bylaw a water conservation bylaw was drafted in 2012 to be adopted by Council in 2013

## 7. Why Save Water and How to Avoid Wasting It:

Although our system has an adequate amount of water to meet present with normal consumption, there are a number of reasons why it is important to conserve water:

- Saving water saves energy
- Saving water reduces the need to construct costly new wells, pumping systems and water reservoirs
- Saving water can allow for growth without expensive infrastructure improvements
- Saving water lessens the strain on the water system during dry weather, helping to avoid severe water use restrictions so that essential fire fighting needs are met

The public can play a role in conserving water by becoming conscious of the amount of water each household is using, and by looking for ways to use less whenever they can. It is not hard to conserve water. Conservation tips include:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. Set a run for your money and load it to capacity.
- Turn off the tap when brushing teeth
- Check every faucet in the home for leaks. Just a slow drip can waste 15-20 gallons a day. Fix it and save almost 6,000 gallons per year.
- Toilets can be checked for leaks by putting a few drops of food coloring in the tank and watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these invisible toilet leaks. Fixing it will save more than 30,000 gallons a year.
- Lawn watering and irrigation is needed only once a week for healthy lawns

#### 8. Closing:

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. Rate adjustments may be necessary in order to address these improvements. 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. Bob Smith, Director of Operations, 604 815 6871.

Location	Date
Victoria Street	January 19
Wenda Place	April 16
Kalodon	June 19
Tantalus	July 10
Greenwood Way	August 23

Location of water lines - District of Squamish -

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



	UNITS	MASHITER	STAWAMUS	POWERHOUSE SPRINGS	S RDL	
Nitrite (N)	mq/L	<0.0050	<0.0050	<0.0050	0.0050	6493995
Calculated Parameters						
Total Hardness (CaC03)	mq/L	19.9	13.0	24.0	0.50	6487965
Nitrate (N)	moll	0.049	0.083	0.060	0.020	6488020
Misc.Inoraanics						
Fluoride IF)	mo/L	0.028	0.037	0.098	0.010	6493985
Alkalinity (Total as CaC03)	mg/L	21.4	6.02	17.4	0.50	6492797
Alkalinity (PP as CaC03)	mg/L	<0.50	<0.50	<0.50	0.50	6492797
Bicarbonate (HC03)	mg/L	26.1	7.34	21.2	0.50	6492797
Carbonate (C03)	mq/L	<0.50	<0.50	<0.50	0.50	6492797
Hydroxide (OH)	mq/L	<0.50	<0.50	<0.50	0.50	6492797
Anions						
Dissolved Sulohate IS04	l moil	<0.50	7.98	9.30	0.50	6494067
Dissolved Chloride (CI)	mg/L	0.90	0.78	5.1	0.50	6494062
MISCELLANEOUS						
True Colour	Col. Unit	30.0	5.0	<5.0	5.0	6492054
Nutrients						
Nitrate plus Nitrite (N)	mg/L	0.049	0.083	0.060	0.020	6493994
PhysicalProperties						
Conductivity	uS/em	46.0	36.6	79.9	1.0	6492801
оН	oH Units	7.40	6.85	7.19		6492802
Physical Pro_perties						
Total Dissolved Solids	mg/L	52	22	70	10	6492811
Turbidity	NTU	1.24	0.25	<0.10	0.10	6491421

#### DRINKING WATER PACKAGE (DRINKING WATER)

#### TRIHALOMETHANES (THM) IN WATER

Maxxam ID		FJ5526	FJ5527	FJ5528	FJ5529		
Samolino Date		2013/01/15	2013/01/15	2013/01/15	2013/01/15		
	UNITS	LOMOND	MUNI HALL	#41550 GRANT RD	#40044	RDL	QC Batch
					PLATEAU DR		
Volatiles							
Chloroform	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	6493314
Chlorodibromomethane	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	6493314
Bromodichloromethane	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	6493314
Bromoform	ugfl	<1.0	<1.0	<1.0	<1.0	1.0	6493314
Surrogate Recovery (%)							
1.4-Difluorobenzene (sur.)	%	100	99	99	100		6493314
4-BROMOFLUOROBENZENE (sur.)	%	87	83	82	82		6493314
D4-12-DICHLOROETHANE (sur.)	%	104	104	101	102	i —	- 6 1 3311

## Sample Range Report

Vancouver Coastal Health

Facility Name: Date Range:	District Of Squamish W Jan 1 2012 to Dec 31 2	/aterworks 2012		
Operator	Mark Caulton Box 310 Squamish, BC V8B 0A	3		
Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
Alles Lake				
Reservoir, Brackendale				
And the second second	04/01/2012	L1	L1	
	05/01/2012	L1	L1	
	09/01/2012	L1	L1	
	16/01/2012	L1	L1	
	23/01/2012	L1	L1	
	30/01/2012	L1	L1	
	06/02/2012	L1	L1	
	13/02/2012	L1	L1	
	20/02/2012	L1	L1	
	27/02/2012	L1	L1	
	05/03/2012	L1	L1	
	12/03/2012	L1	L1	
	19/03/2012	L1	L1	
	26/03/2012	L1	L1	
	04/04/2012	L1	L1	
	10/04/2012	L1	L1	
	18/04/2012	L1	L1	
	07/05/2012	L1	L1	
	14/05/2012	L1	L1	
	22/05/2012	L1	L1	
	28/05/2012	L1	11	
	04/06/2012	L1	L1	
	11/06/2012	L1	LI	
	18/06/2012	L1	L1	
	25/06/2012	51	11	
	03/07/2012		L]	
	09/07/2012	LI	5	
	10/07/2012		LI	
	20/07/2012	1	LI	
	07/09/2012	11		
	13/09/2012	L) (1)	12	
	20/08/2012	11	1.1	
	20/06/2012	14	LI	
	0//00/2012	11	LI	
	10/09/2012	11	1.1	
	17/09/2012	[1]	14	
	24/09/2012	11	14	

	01/10/2012	11	11
	09/10/2012	Ē1	L1
	16/10/2012	L1	L1
	22/10/2012	1	L1
	29/10/2012	L1	L1
	06/11/2012	L1	L1
	19/11/2012	L1	L1
	27/11/2012	L1	L1
	03/12/2012	L1	L1
	10/12/2012	A	
	17/12/2012	L1	L1
	Total Positive:	1	ō
Health Unit Office -			
audit, Downtown Squamish - Audit Site	000010010		

03/01/2012	L1	L1
09/01/2012	L1	L1
16/01/2012	L1	LT
23/01/2012	L1	LT
30/01/2012	L1	L1
06/02/2012	L1	L1
15/02/2012	L1	L1
20/02/2012	L1	L1
27/02/2012	L1	L1
20/03/2012	L1	L1
26/03/2012	L1	L1
02/04/2012	L1	L1
11/04/2012	L1	L1
16/04/2012	L1	L1
30/04/2012	L1	L1
07/05/2012	L1	L1
28/05/2012	L1	L1
04/06/2012	L1	L1
11/06/2012	L1	L1
18/06/2012	L1	L1
25/06/2012	L1	L1
09/07/2012	L1	L1
24/07/2012	LT	L1
07/08/2012	Lt	L1
13/08/2012	L1.	L1
24/09/2012	L1	L1
15/10/2012	L1	L1
22/10/2012	L1	L1
05/11/2012	L1	L1
19/11/2012	L1	L1
26/11/2012	L1	L1
10/12/2012	A	
17/12/2012	L1	L1
Total Positive:	0	0

38296 Westway Avenue - audit,

Valleycliffe Audit Site			
	03/01/2012 09/01/2012 16/01/2012 23/01/2012 30/01/2012 06/02/2012 15/02/2012 20/02/2012 20/02/2012 27/02/2012 20/03/2012 02/04/2012 11/04/2012 16/04/2012 16/04/2012 16/04/2012 28/05/2012 14/05/2012 28/05/2012 18/06/2012 18/06/2012 18/06/2012 25/06/2012 25/06/2012 09/07/2012 24/07/2012 24/09/2012 15/10/2012 22/10/2012 15/10/2012 22/10/2012 15/10/2012 26/11/2012 10/12/2012 17/12/2012 17/12/2012 Total Positive:	11111111111111111111111111111111111111	
Lamond Sample Station, Garibaldi Highlands			
	04/01/2012 05/01/2012 16/01/2012 23/01/2012 30/01/2012 30/01/2012 06/02/2012 13/02/2012 27/02/2012 27/02/2012 12/03/2012 19/03/2012 26/03/2012 04/04/2012 10/04/2012		

18/04/2012	1.9	1 a
07/05/2012	11	11
14/05/2012	11	
22/05/2012	1.1	14
28/05/2012	1.4	LI
20/05/2012		E.
11/06/2012	14	L1
19/06/2012		L1
25/06/2012	LI	LI
20/00/2012	11	L1
00/07/2012	LI	LT
109/07/2012	5	LT
10/07/2012	LI	L1
23/07/2012	LI	L1
20/07/2012		LI
30/07/2012	LI	L1
07/08/2012	LT	L1
13/08/2012	L1	L1
20/08/2012	5	L1
27/08/2012	L1	L1
04/09/2012	5	L1
10/09/2012	-11	L1
17/09/2012	L1	LI
24/09/2012	L1.	LI
01/10/2012	5	L1
09/10/2012	L1	L1
16/10/2012	5	L1
29/10/2012	LI	L1
06/11/2012	L1	L1
13/11/2012	L1	L1
19/11/2012	L1	L1
27/11/2012	L1	L1.
03/12/2012	L1	L1
17/12/2012	<u>L1</u>	L1
Total Positive:	0	0

# Perth Sample Station, Garibaldi Highlands

04/01/2012	L1	L1
05/01/2012	L1	L1
09/01/2012	L1	L1
16/01/2012	L1	L1
23/01/2012	L1	L1
30/01/2012	L1	L1
06/02/2012	L1	L1
13/02/2012	L1	L1
20/02/2012	L1	L1
27/02/2012	L1	L1
05/03/2012	L1	L1
12/03/2012	L1	L1
19/03/2012	L1	L1
26/03/2012	L1	L1
04/04/2012	L1	L1
10/04/2012	L1	11
18/04/2012	L1	L1

	07/05/2012 14/05/2012 22/05/2012 28/05/2012 04/06/2012 11/06/2012 18/06/2012 25/06/2012 03/07/2012 09/07/2012 25/07/2012 25/07/2012 25/07/2012 25/07/2012 25/07/2012 25/07/2012 30/07/2012 25/07/2012 27/08/2012 27/08/2012 27/08/2012 10/09/2012 17/09/2012 17/09/2012 16/10/2012 24/09/2012 09/10/2012 16/10/2012 29/10/2012 16/10/2012 29/10/2012 13/11/2012 13/11/2012 13/11/2012 10/12/2012 10/12/2012 10/12/2012 10/12/2012	11 11 11 11 11 11 11 11 11 11 11 11 11	
Quest University, University Lands			
	04/01/2012 05/01/2012 16/01/2012 23/01/2012 30/01/2012 30/01/2012 06/02/2012 13/02/2012 27/02/2012 27/02/2012 27/02/2012 12/03/2012 19/03/2012 26/03/2012 04/04/2012 10/04/2012	L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L1	L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L

Samples that contain total coliform: Samples that contain e. coli: Samples that contain fecal coliform: Number of consecutive samples that contain total coliform: Number of samples that contain total coliform in last 30 days: Total number of samples:		0/15 265				
		3 1 0 0			1.13% of total 0.38% of total 0.00% of total	
Result Values:	E - estimate	d	L - less than		G - greater than	
	Total Positive	1	1	0	Ø	
	17/12/2012		<u>L1</u>	L1		
	10/12/2012		A			
	03/12/2012		L1	LI		
	27/11/2012		L1	Li		
	19/11/2012		Ē	11		
	13/11/2012		11	11		
	06/11/2012		3			
	22/10/2012		11			
	22/10/2012					
	09/10/2012		LI	L1		
	01/10/2012		L1	L1		
	24/09/2012		11	L1		
	17/09/2012		L1	L1		
	10/09/2012		L1	L1		
	04/09/2012		L1	L1		
	27/08/2012		L1	L1		
	20/08/2012	(e	L1	L1		
	07/08/2012	900	L1	Ĺ1		
	30/07/2012	61 T	L1	L1	Ŭ.	
	23/07/2012		L1	L1	0	
	16/07/2012		L1	11	B. C.	
	09/07/2012		11			
	23/00/2012		11	L.		
	18/06/2012		LI	5		
	11/06/2012		L1	5		
	04/06/2012	2	1	E.	1	
	28/05/2012	2	L1	L	1	
	22/05/2012	2	L1	L	1	
	14/05/2012	2	L1	L	1	
	07/05/2012	2	L1	L	1	
	18/04/2012	2	L1	L	1	

Comments:

Environmental Health Officer

Feb 26 2013

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

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