



Making a difference...together

**WILDERNESS MOUNTAIN WATER SERVICE
ANNUAL REPORT
NOVEMBER 4, 2013**

System Overview

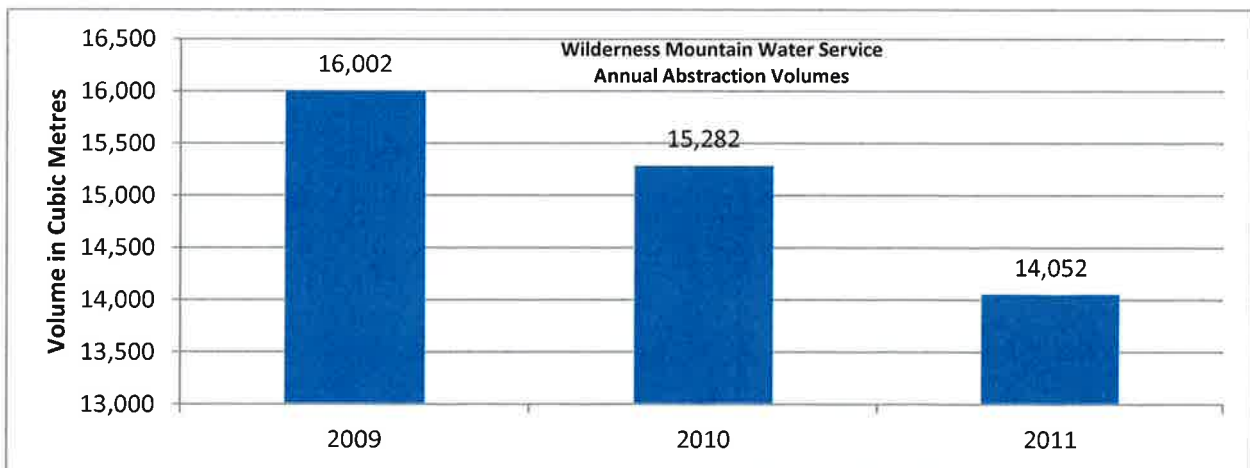
Established in the early 1980's, the Wilderness Mountain Water Service (WMWS) consists of 84 lots, 69 of which are developed. The system was operated and maintained by a private company until converted into a Capital Regional District (CRD) service in 2009. Conditional to becoming a CRD service, upgrades to the water system to meet current drinking quality guidelines were required. The source of water for the WMWS is Wilfred Reservoir, a small surface water body created by the construction of two dams. Prior to the upgrade works, water drawn from the reservoir was disinfected with chlorine. The water was then pumped into the distribution system which is comprised a network of polyvinyl chloride (PVC) water mains. The 60,000 Imperial gallons of balancing storage in two tanks permits the system to operate effectively under all water need situations.

The newly commissioned treatment facility provides filtration, ultraviolet (UV) and chloramination (ammonia and chlorine) primary disinfection to the community's drinking water. In recent years, water purveyors have increasingly turned to chloramination as an alternative to chlorination (using only chlorine) because the chloramines provide a longer lasting residual in the distribution system, lower chlorinous taste and lower disinfection byproducts.

Water Supply and Consumption

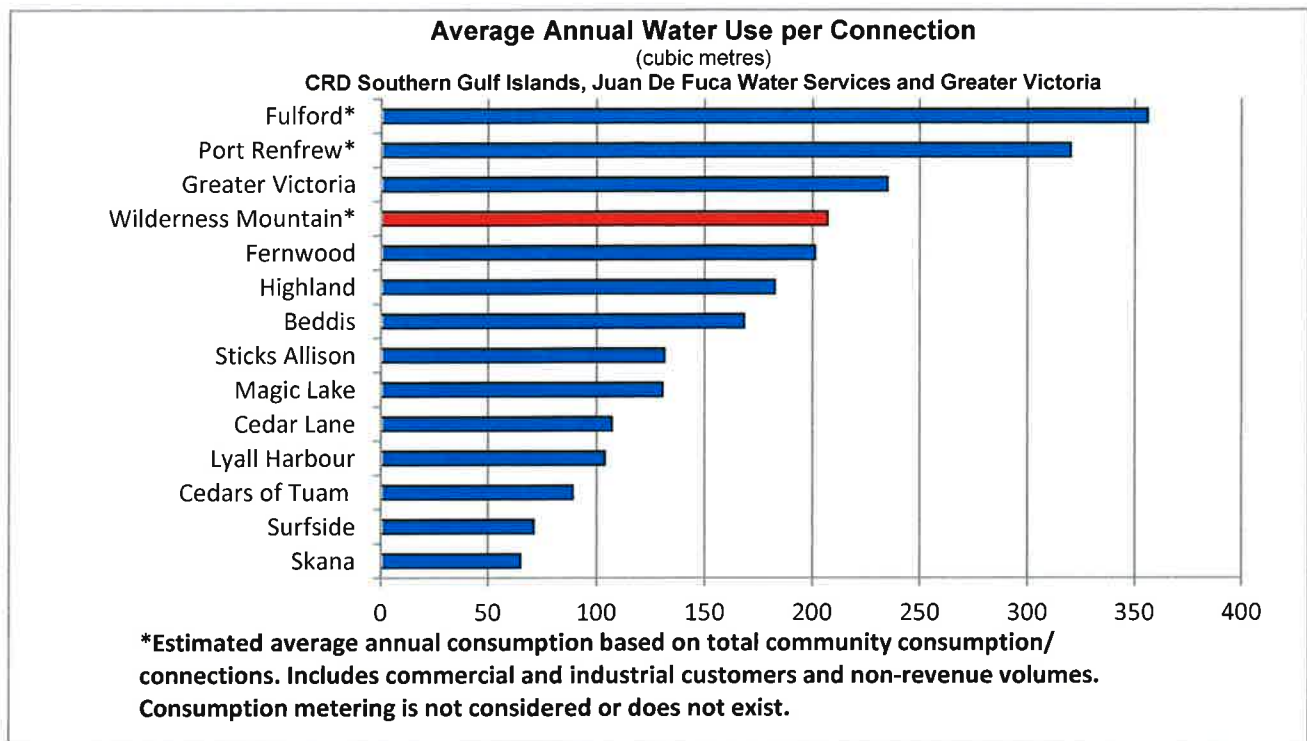
Due to partial recording of lake extractions, a 2012 total water production volume is unavailable. However; based on 2011 volumes, the average annual consumption per individual connection in the Wilderness Mountain Water System is estimated at approximately 207 m³. The water supply trend for the Wilderness Mountain system is shown in **Figure 1**. For comparison, the average annual use per connection for other CRD-operated water systems is shown in **Figure 2**.

Figure 1. Annual Water Volumes Supplied from Wilfred Reservoir



Although the majority of customer connections are metered (original to subdivision in 80's), the meters have not been read regularly as their reading accuracy is unknown. Therefore, since water consumption is unknown, the amount of non-revenue water (water loss through fire-fighting, system flushing and illegal connections) is also unknown. Average Annual Water Use per Connection values includes non-revenue water for those services denoted with an asterisk (*). Non-revenue water in a typical small water system is presumed to be approximately 20% of its treated water production (Environment Canada 2004 Report *Threats to Water Availability in Canada*).

Figure 2. Average Annual Water Use per Connection



Drinking Water Quality

Typical Wilderness Mountain Water System water quality characteristics for 2012 and 2013 include:

Untreated Source Water Entering the Treatment Plant

- In 2012 and 2013 to date, bacteriological samples were collected once every two weeks with the levels listed below easily meeting the US Environmental Protection Agency limit of 20 *E coli* in at least 90% of the samples to remain an unfiltered surface water supply.
 - Total coliform bacteria median of 137 colony forming units (CFU) per 100 mL and ranged from 43 to 2419 in 2012, and in 2013 to date had a median total coliform count of 75 and a range of 23 to 517 CFU/100 mL.
 - *E. coli* bacteria median of 1 CFU/100 mL and ranging from 'Not Detectable' to 3 in 2012, and a median of 'Not Detectable' and range of 'Not Detectable' to 17 CFU/100 mL in 2013.
- Source water turbidity (cloudiness) was usually below the limit of 1 NTU (median of 0.89 and ranged from 0.67 to 1.84 in 2012 and median of 0.73 and ranged from 0.56 to 1.12 NTU in 2013).
- Total organic carbon was moderate at 3-4 milligrams per litre (mg/L) in 2012 and 2013 to date.

- No *Giardia* or *Cryptosporidium* parasites were detected in in 2012 or 2013 to date.
- Metals were typically below *Guidelines for Canadian Drinking Water Quality (GCDWQ)* limits.

Treated Distribution System

- The treated water in the distribution system is bacteriologically safe to drink. In 2012, one total coliform positive sample was observed (1 CFU per 100 mL). The resample was negative for total coliforms. In 2013 to date, there were three total coliform samples ranging from 1 to 3 CFU/100 mL. The resamples to date were negative for total coliforms.
- Disinfection by-products (total trihalomethanes and haloacetic acids) results varied in the distribution system but both parameters remained below the permissible limits in both 2012 and 2013 to date.

Routine water quality data is posted on the CRD website at:

<http://www.crd.bc.ca/jdf/water/wilderness/qualityreports.htm>

Water System Upgrade Project

As a condition of conversion of the Wilderness Mountain Water System to a CRD local service, the CRD required that the pre-existing infrastructure be upgraded to comply with legislated drinking water requirements. Construction of the new water treatment plant has been completed and the new plant brought online in early October 2012. The new treatment process includes:

- Cartridge filtration
- Ultraviolet light disinfection
- Chloramine disinfection

This project is now complete and is delivering treated water to the community.

Operations

The WMWS has operated reliably in the past year. Maintenance activities in 2012 and 2013 to date include:

- Installation of a new hydro-pneumatic pump at storage tanks; serving higher elevation properties
- Preventive maintenance, primarily of pump station equipment
- Annual tank cleaning, flushing and exercising of distribution system isolation valves
- Routine water sampling
- Removal of vegetation at Wilfred reservoir
- Weekly security checks of reservoirs
- 50 mm water main break at 747 Cains Way (March 9/13)
- Repairs to intake dock at Wilfred Reservoir
- Telecom upgrades.

Financial Report

Attached is a copy of the *Statement of Operations (Unaudited)* for Wilderness Mountain Water Service as prepared by CRD Finance and Corporate Services for the 2012 fiscal year. The statements provide an overview of the revenues and expenditures for the year.

Revenue includes parcel taxes (*Transfers from government*) and user fees (*Sale of services*), and small amounts for interest on savings and miscellaneous revenue such as connection charges and late payment charges (*Other revenue*). *Expenses* include all costs of providing the service. *General*

government services include budget preparation, financial management, utility billing, and risk management services. *Other expenses* includes all other costs to administer and operate the water system, and the principal and interest payments on borrowing to finance capital projects. *Other fiscal services* includes administration costs for loans.

The difference between *revenue* and *expenses* is reported as *Net revenue (expenses)*. Any transfers to or from capital or reserve accounts for the service (*Transfers to own funds*) are deducted from this amount and it is then added to any surplus or deficit carry forward from the prior year, yielding an *Accumulated surplus* (or deficit) that is carried forward to the following year.

The 2012 revenue of \$108,816 included \$54,879 of parcel tax and \$53,348 of user fees. The total expenses were \$99,956 for operation and administration of the service, including all operating expenses and insurance.

The difference between revenue and expenses in 2012 amounted to a net revenue of \$8,860 of which \$6,860 was transferred to the Wilderness Mountain Water Service Capital Reserve Fund. As of December 31, 2012, the Wilderness Mountain Water Service held \$272,000 of Capital Funds on hand.

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Concurrence

GP/TT:ls
Attachment: 1

CAPITAL REGIONAL DISTRICT

WATER REVENUE FUND

Statement of Operations (Unaudited)

For the Year Ended December 31, 2012

	Wilderness Mountain Water Service
Revenue	
Transfers from government	\$ 54,879
Sale of services	53,348
Other revenue from own sources:	
Interest earnings	-
Other revenue	589
Total revenue	108,816
Expenses	
General government services	4,176
Grants in aid	-
Other expenses	90,664
Salaries and wages	-
Fiscal services	5,116
Recovery	-
Total expenses	99,956
Net revenue (expenses)	8,860
Transfers to own funds:	
Capital Funds	-
Reserve Funds	6,860
Equipment Replacement Fund	-
Transfers from own funds:	
Reserve Funds	-
Annual surplus	2,000
Accumulated surplus (deficit), beginning of year	-
Accumulated surplus (deficit), end of year	\$ 2,000