Sticks Allison Water System

2017 Annual Report

CRD | Drinking Water

Introduction

This report provides a summary of the Sticks Allison Water Service for the year 2017. This report includes a description of the service, summary of the water supply, demand and production, drinking water quality, operations highlights, capital project updates and financial report.

Service Description

The community of Sticks Allison is a rural residential development located on the north side of Galiano Island in the Southern Gulf Islands Electoral Area which was originally serviced by a private water utility. In 1996 the service converted to the Capital Regional District. The Sticks Allison water service (Figure 1) is made up of 39 parcels encompassing a total area of approximately 23 hectares. Of the 39 parcels, 34 were customers to the water system.

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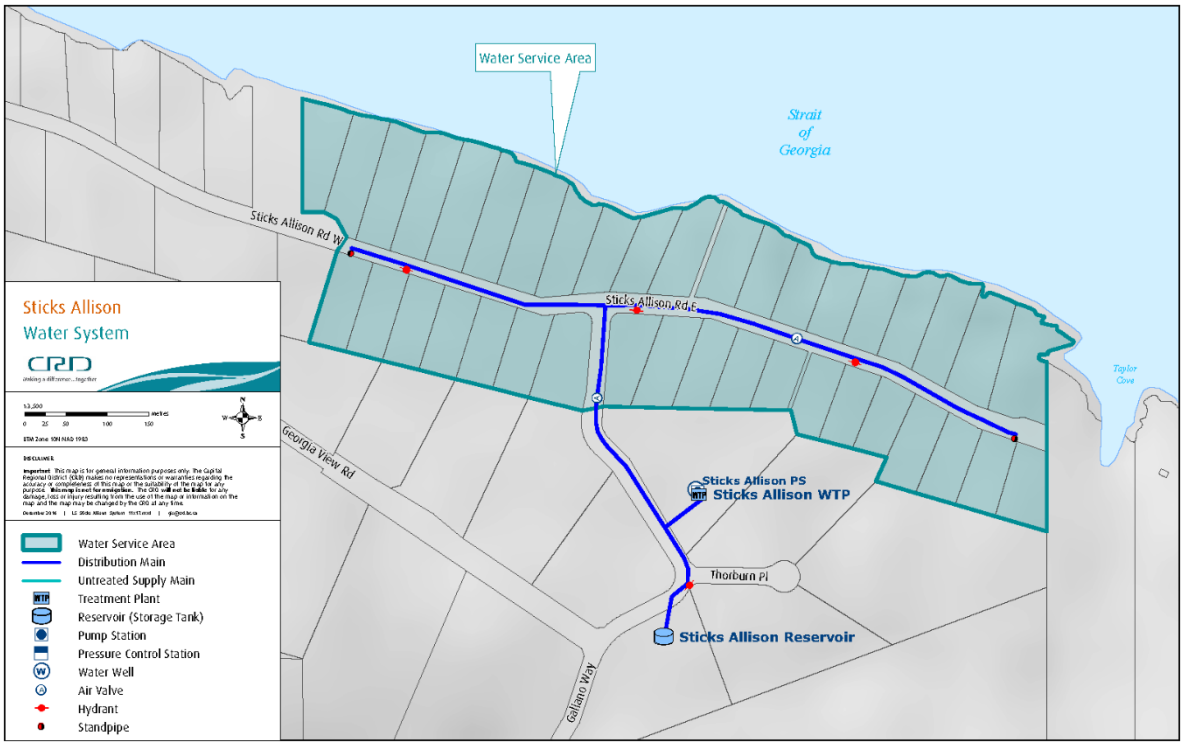

Figure 1: Map of Sticks Allison Water System.

The Sticks Allison water system is primarily comprised of:

- One ground water well, related pumping and control equipment and building.
- Disinfection process equipment (ultraviolet light and chlorine).
- One steel storage tank (total volume is 90 cubic metres).
- Distribution system (1,400 metres of water mains).
- Other water system assets: 34 service connections and meters, 4 hydrants, 2 standpipes, 10 gate valves, SCADA system and auxiliary generator.

Water Supply

Referring to Figure 2 below, ground water supply monthly water levels are highlighted for 2017. Ground water levels for 2017 are within the typical historical range for this service.

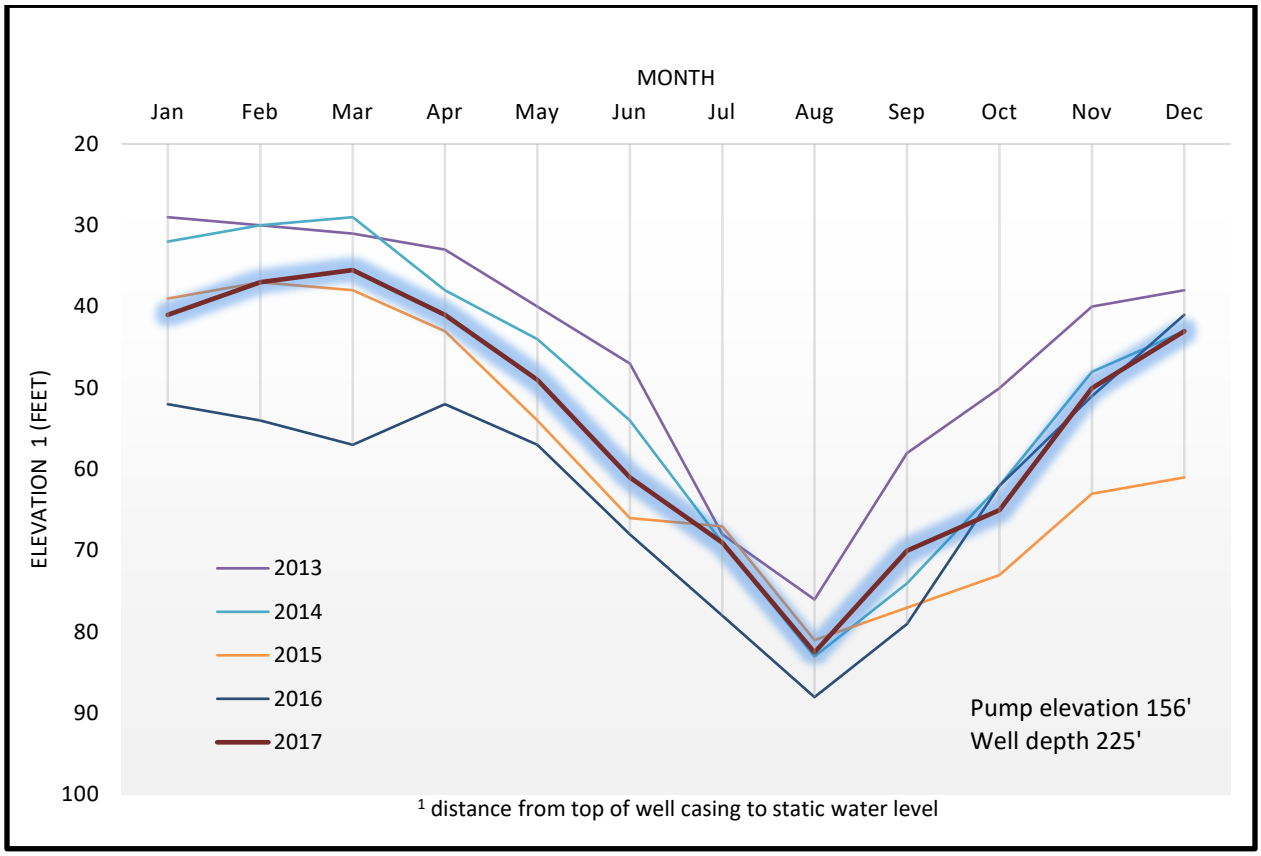

Figure 2: Sticks Allison Monthly Groundwater Water Level

Water Production and Demand

Referring to Figure 3, 5,120 cubic meters of water were extracted (water production) from the ground water source in 2017. This was a 23% decrease from the previous year and an 11% decrease from the five year average. However, based on review of the data it is apparent that the water production meter was significantly under reading during the month of June and July; a cause has not been identified. The meter has since been serviced and confirmed to be reading accurately.

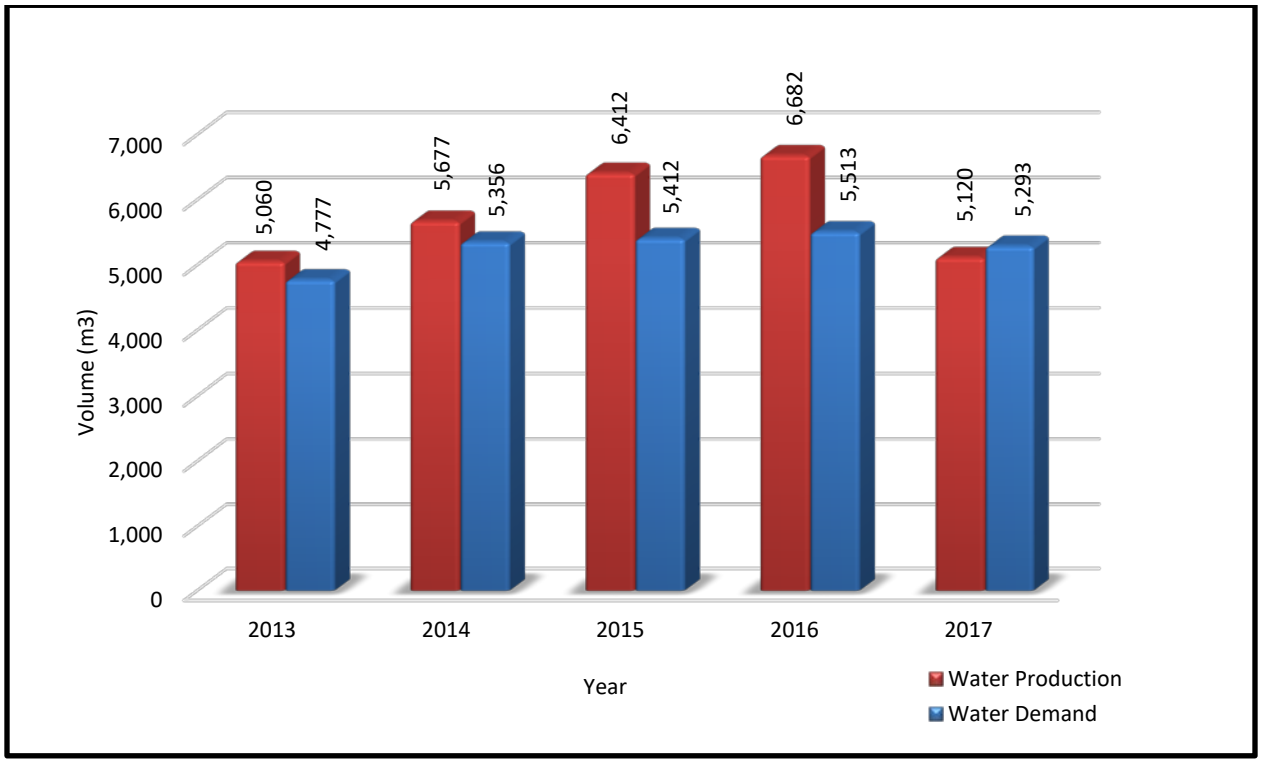

Figure 3: Stick Allison Water Service Annual Water Production and Demand.

The difference between annual water production and annual water demand is referred to as non-revenue water and can include water system leaks, water system maintenance and operational use (e.g. water main flushing, filter system backwashing), potential unauthorized use and fire-fighting use.

The 2017 non-revenue water cannot be quantified due to the malfunctioning water production water meter. However, what is known from a historical perspective is that non-revenue water is typically around 5% to 8% which is considered to be very good for a small water system.

Figure 4 below illustrates the monthly water production for 2017 along with the historical water production information. The monthly water production trends are typical for small water systems such as the Sticks Allison water system.

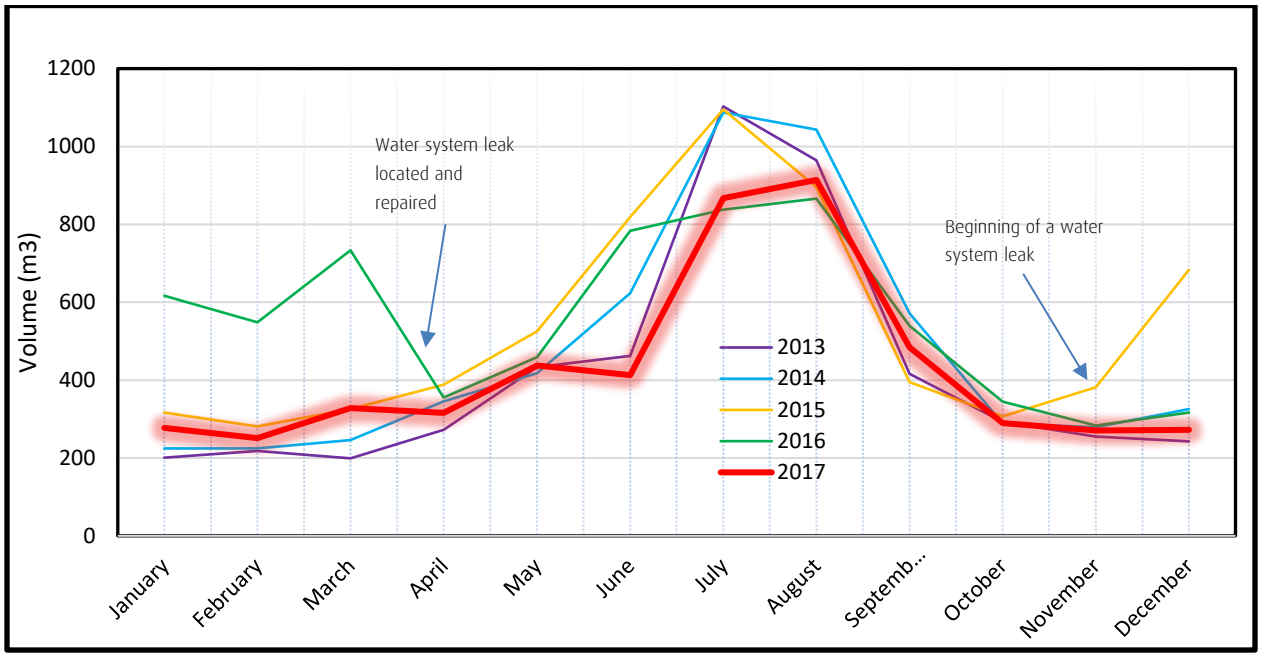

Figure 4: Sticks Allison Water Service Monthly Water Production.

Drinking Water Quality

Staff completed the water quality monitoring program at Sticks Allison based on the regulatory requirements and system specific risks. Samples were collected at regular frequencies from the raw water as well as from a number of sampling stations at the treatment plant and in the distribution system. The samples were shipped for various analyses to CRD's Water Quality Lab or to external laboratories for special analyses, including disinfection by-products or metals.

The water system performed well in 2017 and consistently supplied drinking water of good quality to its customers. The groundwater well produced generally good quality source water with the exception of a few episodes characterized by elevated iron and manganese concentrations. After chlorination, this can lead to brown/yellow water discoloration and become a nuisance for customers. These elevated iron and manganese

concentrations, however, have no health implications. None of 44 compliance samples from the distribution system tested positive for indicator bacteria in 2017.

The data below provides a summary of the water quality characteristics in 2017:

Raw Water:

- The Sticks Allison well produced raw water that contained no *E. coli* bacteria and almost no total coliform bacteria.
- The raw water contained iron and manganese at medium level concentrations that can sometimes exceed the aesthetic objectives in the Guidelines for Canadian Drinking Water. These exceedances were found in samples from early and late summer but the elevated iron and manganese concentrations in the raw water likely persist over most of the summer period.

Treated Water:

- The treated water was safe to drink with no confirmed *E. coli* or total coliform bacteria concentrations in any samples.
- The treated water turbidity was very low with a median of 0.3 NTU.
- The iron and manganese concentrations in the distribution system were generally below the aesthetic limits according to the Guidelines for Canadian Drinking Water Quality but exceeded the limits on August 15, 2017. No customer complaints were received during the summer. Periodic flushing of standpipes at the far ends of the system during the summer months would ensure that elevated iron and manganese concentrations do no accumulate in the pipes and cause customer dissatisfaction.
- The annual average levels of the disinfection by-product total trihalomethanes were well below the maximum allowable concentration.
- The free chlorine residual concentrations in the distribution system ranged from 0.04 to 1.75 mg/L with a median of 0.34 mg/L indicating sufficient secondary disinfection.

Water quality data collected from this drinking water system can be reviewed on the CRD website:

https://www.crd.bc.ca/about/data/drinking-water-quality-reports/southern-gulf-islands-water-quality-reports/sticks-allison-water-quality-reports

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Operational Highlights

The following is a summary of the major operational issues that were addressed by CRD Integrated Water Services staff:

- January 11, 2017– Repairs to the wireless reservoir water level sensing communications system.
- May 5, 2017 - Performed three year annual fire hydrant preventative maintenance.
- September 28, 2017 – Repairs to leaking water system lines within the pumping building.

Capital Project Updates

The Capital Project that was completed in 2017 was:

1. WTP Electrical Service Repair –The existing electrical service entrance mast was replaced with an electrical service rated steel mast.

Financial Report

Please refer to the attached S*tatement of Operations*. *Revenue* includes parcel taxes (*Transfers from Government*), fixed user fees (*User Charges*), interest on savings (*Interest Earnings),* a transfer from the maintenance reserve account, and miscellaneous revenue such as late payment charges (*Other Revenue*).

Expenses includes all costs of providing the service. *General Government Services* includes budget preparation, financial management, utility billing and risk management services. *CRD Labour and Operating Costs* includes CRD staff time as well as the costs of equipment, tools and vehicles. *Debt servicing costs* are interest and principal payments on long term debt. *Other Expenses* includes all other costs to administer and operate the water system, including insurance, supplies, water testing and electricity.

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.

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CRD
Making a difference...together

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CAPITAL REGIONAL DISTRICT

STICKS ALLISON WATER
Statement of Operations (Unaudited)
For the Year Ended December 31, 2017

		2017	2016
Revenue			
Transfers from government		5,000	5,330
User Charges		40,561	39,070
Other revenue from own sources:			
Interest earnings		2	54
Other revenue		392	725
Total revenue		45,955	45,179
Expenses			
General government services		2,320	2,380
CRD Labour and Operating costs		31,857	28,981
Debt Servicing Costs		-	-
Other expenses		8,268	7,986
Total expenses		42,445	39,348
Net revenue (expenses)		3,510	5,831
Transfers to own funds:			
Capital Reserve Fund		1,510	8,963
Operating Reserve Fund		2,000	2,000
Annual surplus (deficit)		-	(5,132)
Accumulated surplus, beginning of year		-	5,132
Accumulated surplus, end of year	$	-	-

CAPITAL REGIONAL DISTRICT

STICKS ALLISON WATER
Statement of Reserve Balances (Unaudited)
For the Year Ended December 31, 2017

	Capital Reserve	
	2017	**2016**
Beginning Balance	18,228	11,120
Transfer from Operating Budget	1,510	8,963
Transfers from completed capital projects	2,478	-
Interest Income	203	145
Transfer to Capital Projects	(8,000)	(2,000)
Ending Balance	14,419	18,228

	Operating Reserve	
	2017	**2016**
Beginning Balance	3,886	1,886
Transfer from/(to) Operating Budget	2,000	2,000
Interest Income	118	-
Ending Balance	6,004	3,886