Surfside Water System

2018 Annual Report

CRD | Drinking Water

Introduction

This report provides a summary of the Surfside Park Estates Water Service for the year 2018. 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 Surfside is a rural residential development located on Mayne Island in the Southern Gulf Islands Electoral Area which was originally serviced by a private water utility. In 2003 the service converted to the Capital Regional District. The Surfside Water Service (Figure 1) area is made up of 127 parcels of which 107 parcels can be inhabited (based on the 2002 feasibility study) encompassing a total area of approximately 25 hectares. Of the 107 parcels, 64 were connected to the water system in 2018; no change from the previous year.

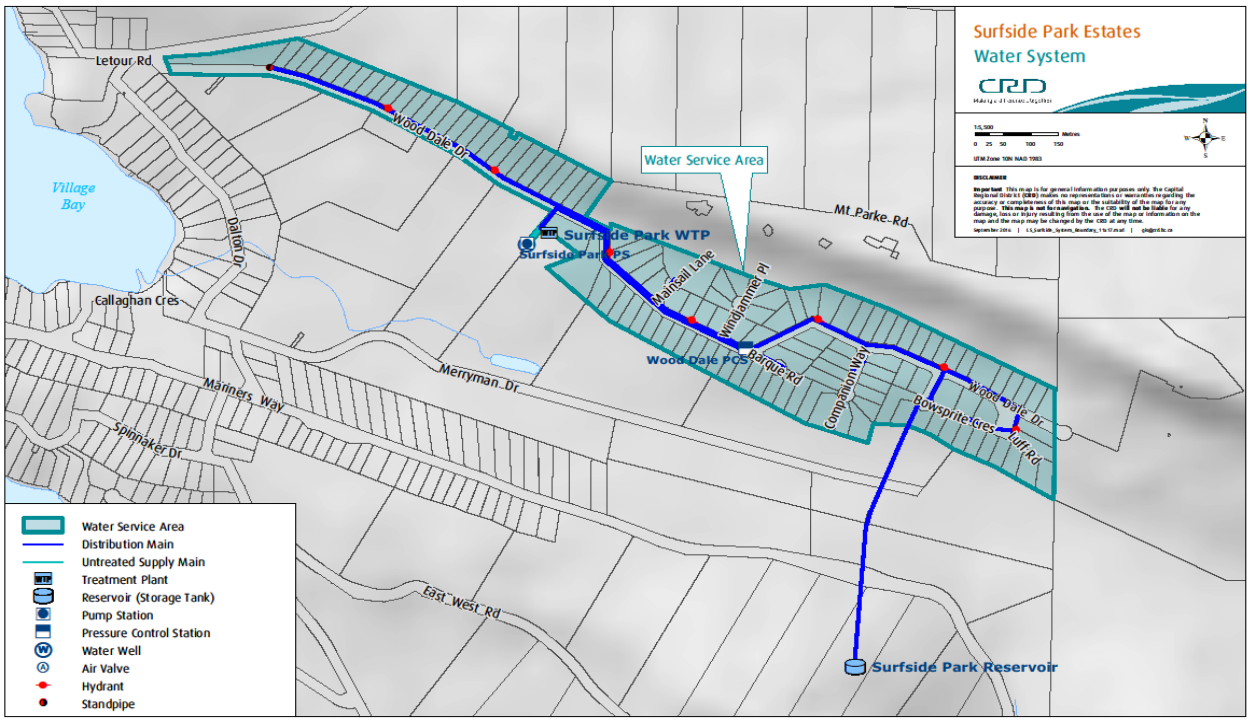

Figure 1: Surfside Park Estates Water Service.

The Surfside water system is primarily comprised of:

- One ground water well, related pumping and control equipment and building;
- Disinfection process equipment (filters, ultraviolet light and chlorine);
- Two steel storage tanks (total volume is 113 cubic metres);
- Distribution system (3,800 m of water mains); and,
- Other water system assets: 64 service connections and meters, 5 hydrants, 3 standpipes, 30 gate valves, 1 air release valve, SCADA system and mobile generator.

Water Supply

Ground water supply monthly water levels are highlighted for 2018 in Figure 2. Ground water levels for 2018 are within the typical historical range for the service.

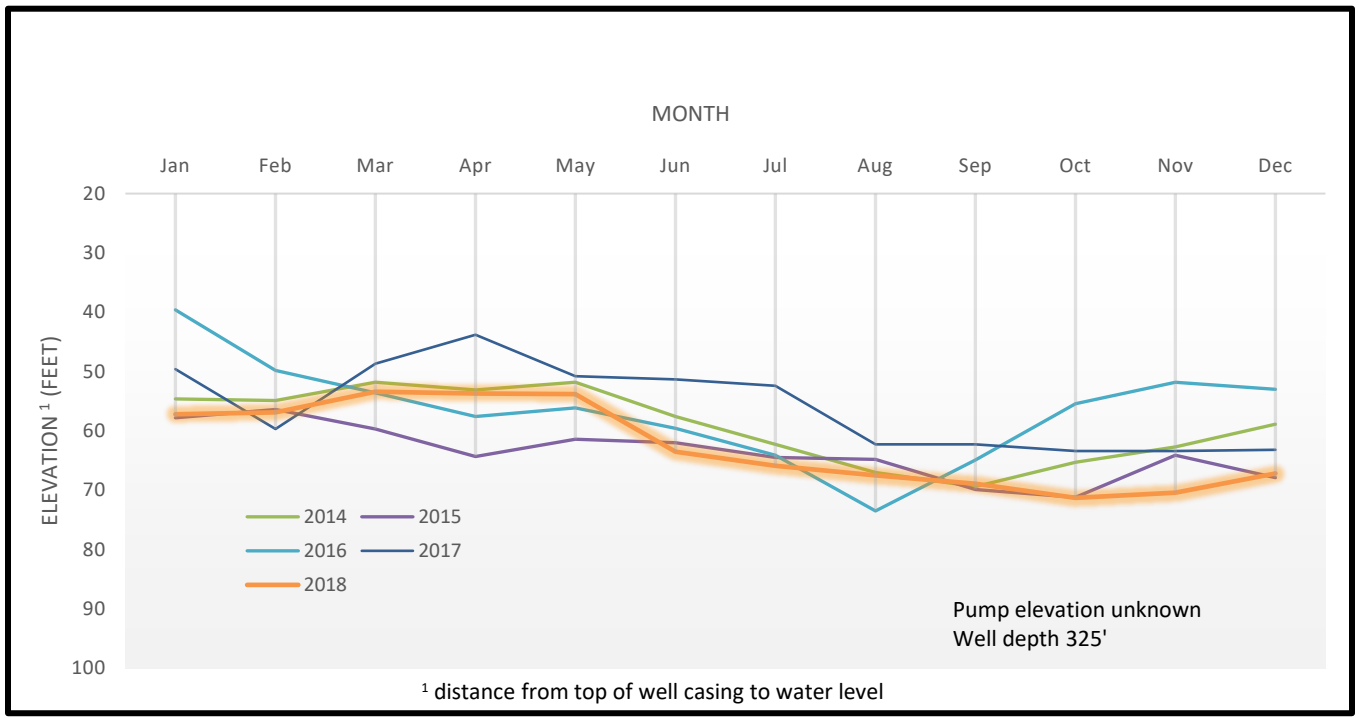

Figure 2: Surfside Park Estates Well #5A Ground Water Supply Monthly Water Level

Water Production and Demand

11,877 cubic meters (m^3) of water was extracted (water production) from the ground water source (Well #5) in 2018; a 12% increase from the previous year and a 6% increase from the five year average (Figure 3). Water demand (customer water billing) for the service totaled 4,133 cubic meters of water; a 2% reduction from the previous year and a 2% reduction from the five year average.

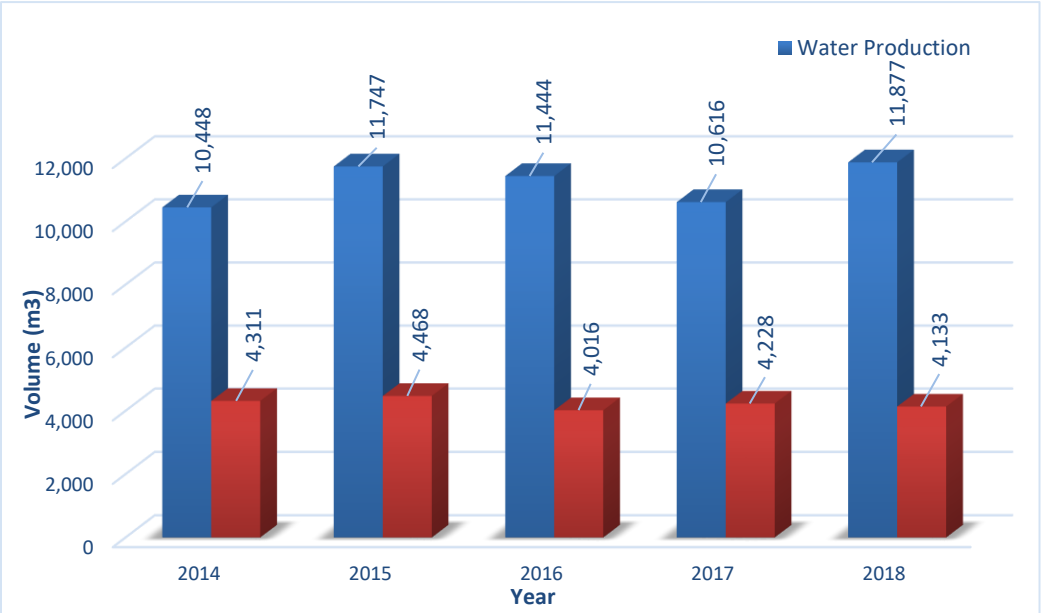

Figure 3: Surfside Park Estates Water Service Annual Water Production and Demand.

The difference between annual water production and annual customer 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 2018 non-revenue water (7,744 cubic meters) represents approximately 65% of the total water production for the service area. Approximately 264 cubic meters of water can be attributed to operational use so the remaining amount (63%) of non-revenue water is considered significant for a small water service.

Figure 4 below illustrates the monthly water production for 2018 along with the historical water production information. Typically, the monthly water production trend is greatest during the summer period (June – Sept).

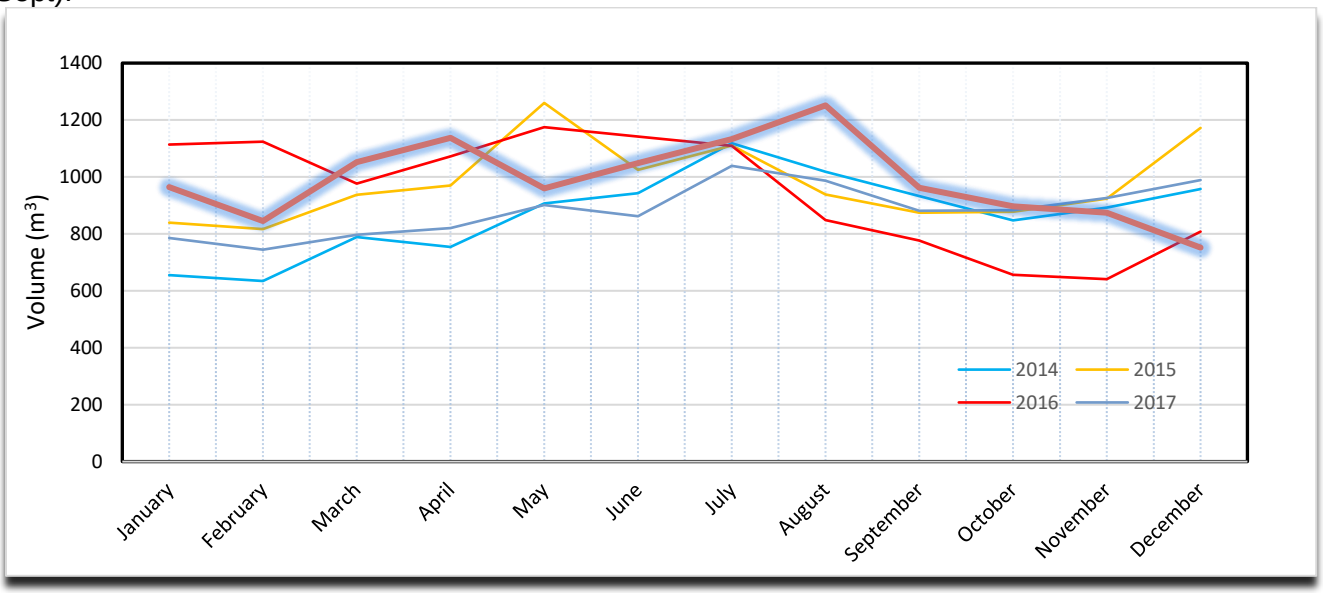

Figure 4: Surfside Park Estates Water Service Monthly Water Production.

Drinking Water Quality

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

The water system performed well in 2018 and consistently supplied drinking water of good quality to its customers. None of the raw or treated water samples tested positive for E.coli or total coliform bacteria in 2018. The raw water exhibited consistently high arsenic concentrations.

The data below provides a summary of the water quality characteristics in 2018:

Raw Water:

- Results from Well #5, the primary source, indicated that produced water contained no *E.coli* bacteria and no total coliform bacteria.
- The raw water continued to have naturally high concentrations of arsenic and manganese. The arsenic concentration range in the raw water was from 45 to 63 µg/L.
- The raw water turbidity was low with a mean of 0.42 NTU.
- The raw water was slightly hard (median hardness 36.5 mg/L $CaCO_3$).
- The median pH was 8.82.

Treated Water:

- The treated water was safe to drink with no *E. coli* or total coliform bacteria.
- The treated water turbidity was very low with a median of 0.15 NTU.
- The arsenic concentration after treatment was always below the maximum allowable concentration (MAC) of 10 µg/L. The annual median arsenic concentration was 4.78 µg/L.
- Very low manganese concentration indicate the effectiveness of the filtration system in terms of arsenic and manganese removal.
- The annual average levels of the disinfection by-product total trihalomethanes were well below the MAC.
- The free chlorine residual concentrations ranged from 0.16 to 1.34 mg/L in the distribution system indicating good secondary disinfection in most parts of the system except for some dead-end sections with older water age.

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

Operational Highlights

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

- August 22, 2018 – Leak repair 346 Wooddale Road
- September 18, 2018 – Distribution valve replacements at 371 Wooddale Road and Barque Road (Capital Work)
- September 20, 2018 – Leak detection program (Capital Work)
- October 19, 2018 – Chemical feed pump repairs.
- December 5, 2018 – Leak repair reservoir distribution main (Capital Work)
- December 20, 2018 – Storm event emergency response.

Capital Project Updates

The Capital Projects that were in progress or completed in 2018 included:

- Surfside Reservoir #2 – Concrete Cradle Assessment – An engineering consultant completed an assessment of the concrete cradles supporting the steel tanks in 2017. Recommendations included undertaking a future assessment on the steel tanks. Upon further inspection it was determined that the tank assessment wasn't required. Funds are to be returned to the capital reserve.
- Leak Detection Program & Repairs – A leak detection program was conducted by CRD Operations, the first phase of the detection was carried out with some leaks discovered and repaired. The second phase is to be completed in 2019.
- Valve Replacements – The failed valves for a hydrant in front of 371 Wooddale Road and another on Barque Road were replaced by CRD Operations. The project was completed under budget with the surplus returned to capital reserves.

Financial Report

Please refer to the attached *Statement 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.

Submitted by:	Matt McCrank, M.Sc., P.Eng., Senior Manager, Infrastructure Operations
	Ian Jesney, P.Eng., Senior Manager, Infrastructure Engineering
	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
	Rianna Lachance, BCom, CPA, Senior Manager, Financial Services
Concurrence:	Ted Robbins, BSc, C.Tech, General Manager, Integrated Water Services

Attachment: 2018 Financial Summary (Statement of Operations)

CAPITAL REGIONAL DISTRICT

SURFSIDE WATER
Statement of Operations (Unaudited)
For the Year Ended December 31, 2018

		2018	2017
Revenue			
Transfers from government		33,150	33,150
User Charges		71,526	68,778
Other revenue from own sources:			
Interest earnings		160	54
Other revenue		384	423
Transfer from Operating Reserve Account		-	-
Total revenue		105,220	102,404
Expenses			
General government services		4,785	4,510
Contract for Services		18,126	17,278
CRD Labour and Operating costs		27,187	34,197
Debt Servicing Costs		18,601	18,590
Other expenses		16,754	18,078
Total expenses		85,453	92,654
Net revenue (expenses)		19,766	9,750
Transfers to own funds:			
Capital Reserve Fund		17,966	9,250
Operating Reserve Fund		1,800	500
Annual surplus (deficit)		-	-
Accumulated surplus, beginning of year		-	-
Accumulated surplus, end of year	$	-	-

CAPITAL REGIONAL DISTRICT

SURFSIDE WATER
Statement of Reserve Balances (Unaudited)
For the Year Ended December 31, 2018

	Capital Reserve	
	2018	**2017**
Beginning Balance	47,154	45,368
Transfer from Operating Budget	17,966	9,250
Transfers from completed capital projects	729	-
Interest Income	364	535
Transfer to Capital Project	(50,200)	(8,000)
Ending Balance	16,013	47,154

	Operating Reserve	
	2018	**2017**
Beginning Balance	1,843	1,153
Transfer from/(to) Operating Budget	1,800	652
Interest Income	70	38
Ending Balance	3,713	1,843