

Surfside Water System

2016 Annual Report

CRD | Drinking Water

Introduction

This report provides a summary of the Surfside Park Estates Water Service for the year 2016. 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 and 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 2016.

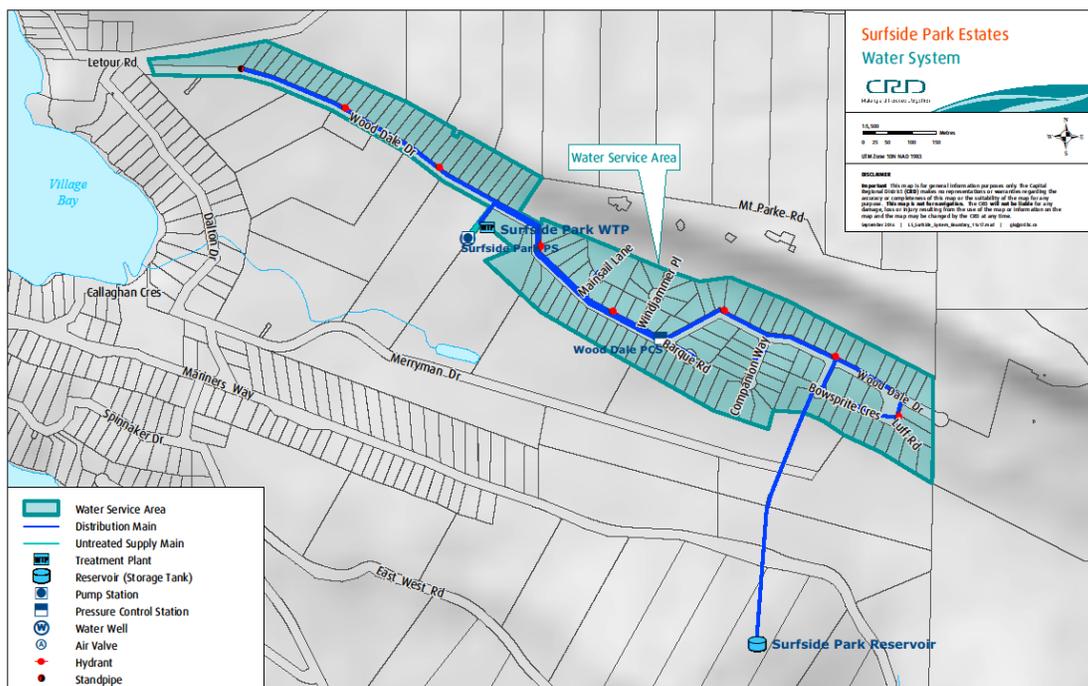


Figure 1: Surfside Park Estates Water Service.

The Surfside water system is primarily comprised of (source: CRD Webpage and Strategic Asset Management Plan):

- The Surfside Park Estates Water System obtains its drinking water from a well;
- The water treatment process consists of arsenic removal, ultraviolet disinfection and adding chlorine;
- Treated water is pumped to the distribution system (3,800 metres) and Surfside Reservoirs #1 and #2, separate storage tanks located adjacent to each other (total volume of 113.5 cubic metres);
- Service connections are provided to the property line;
- Service from the property line to the dwelling is the homeowners' responsibility; and,
- The distribution system also contains hydrants and standpipes.

Water Supply

Referring to Figure 2 below, ground water supply monthly water levels are highlighted for 2016. Ground water levels for 2016 are within the typical historical range for the service.

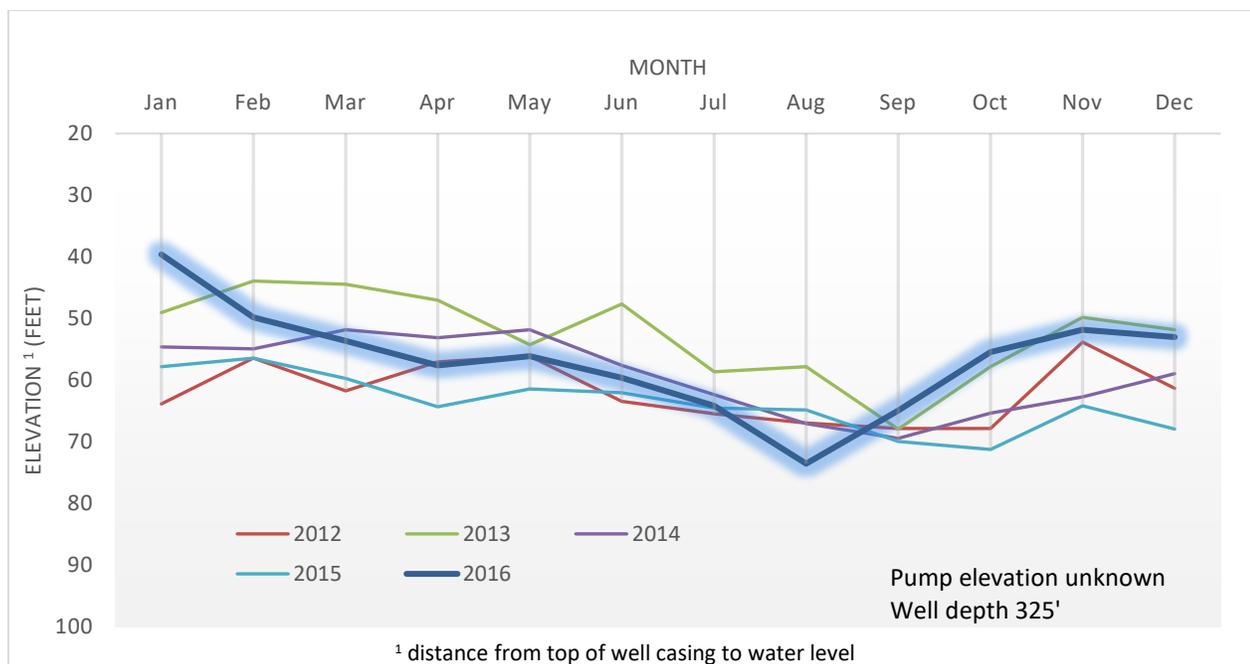


Figure 2: Surfside Park Estates Well #5A Ground Water Supply Monthly Water Level

Water Production and Demand

Referring to Figure 3, 11,444 cubic meters of water was extracted (water production) from the ground water source (Well #5) in 2016; a minor reduction from the previous year and a 17% increase from the five year average. Water demand (customer water billing) for the service totaled 4,016 cubic meters of water; a minor reduction from the previous year and a seven percent reduction from the four year average.

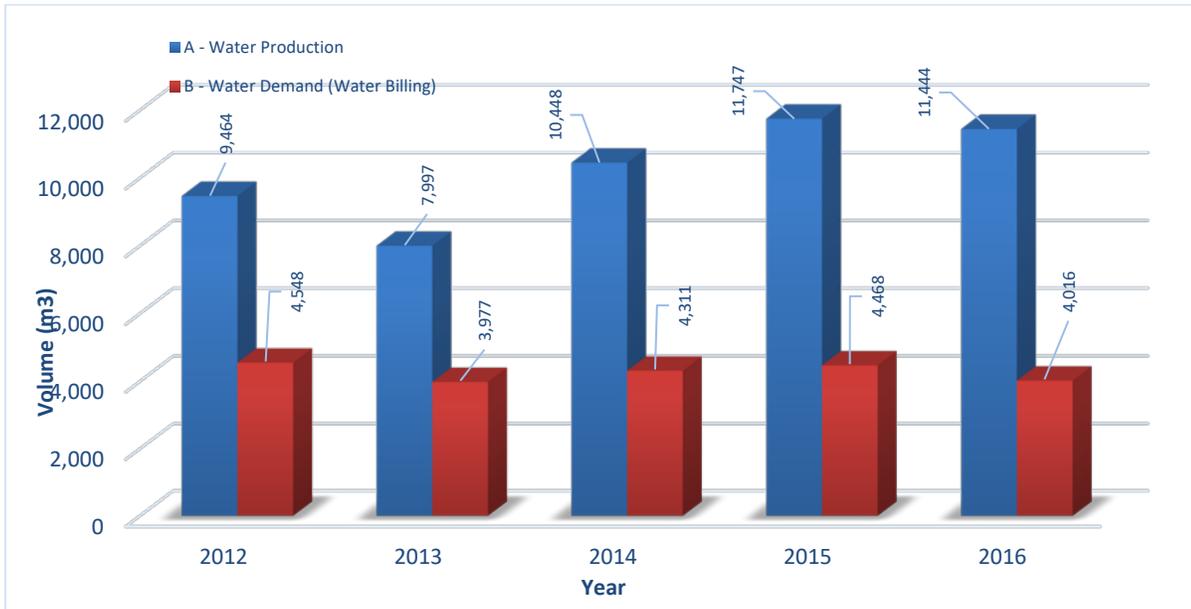


Figure 3: Surfside Park Estates Water Service Annual Water Production and Demand.

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 2016 non-revenue water (7,428 cubic meters) represents about 65% of the total water production for the service area. However approximately 264 cubic meters of water can be attributed to operational use but even so, this amount of non-revenue water is considered significant for a small water service.

Figure 4 below illustrates the monthly water production for 2016 along with the historical water production information. Typically, the monthly water production trend is greatest during the summer period (June – Sept). With respect to 2016 water production information below, it is apparent that the production data does not fit this trend.

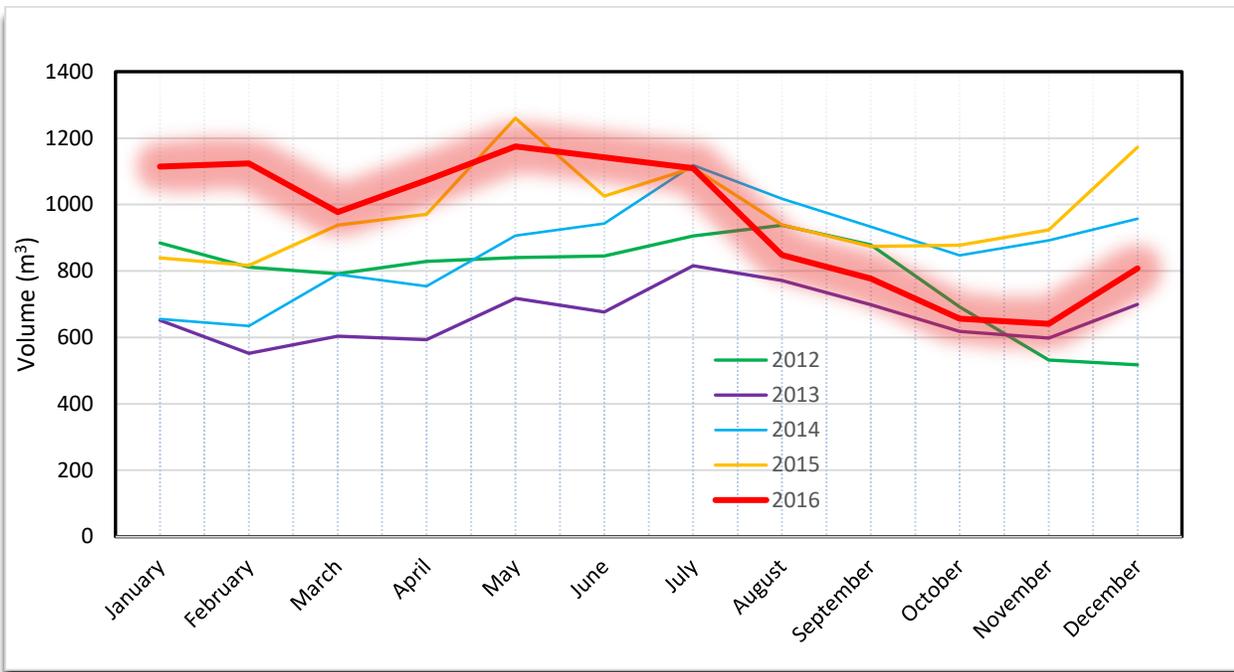


Figure 4: Surfside Park Estates Water Service Monthly Water Production.

Drinking Water Quality

Staff carried out the water quality monitoring program at Surfside based on the regulatory requirements and system specific risks. We collected samples 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 2016 and consistently supplied drinking water of good quality to its customers. Only one of 64 compliance samples tested positive for total coliforms in 2016. Staff promptly collected resamples which tested negative: indicating no contamination of the drinking water.

The data below provides a summary of the water quality characteristics in 2016:

Raw Water:

- Results from Well #5, the primary source, indicated that produced water contained no *E. coli* bacteria and almost no total coliform bacteria.
- The raw water continued to have naturally high concentrations of arsenic and manganese. The median arsenic concentration in the raw water was 49 µg/L.
- The mean raw water turbidity was very low with 0.31 NTU.
- The raw water was slightly hard (median hardness 47.5 mg/L CaCO₃).
- The median pH was 8.78.

Treated Water:

- The treated water was safe to drink with no confirmed *E. coli* or total coliform bacteria.
- The treated water turbidity was very low with a median of 0.13 NTU.

- The arsenic concentration after treatment was always below the maximum allowable concentration (MAC) of 10 µg/L. The annual median arsenic concentration was 4.40 µg/L.
- A low median manganese concentration of 2.0 µg/L 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 0.22 to 1.87 mg/L in the distributions system indicating good 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/surfside-park-estates-water-quality-reports>

Operational Highlights

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

- January 29, 2016 – Pipe leak repairs/replacement at the Surfside Water Treatment Facility.
- February 24, 2016 – Mechanical repairs of pre-filter water system at the Surfside Water Treatment Facility.
- July 20, 2016- Water distribution system leak repairs at 412 Wood Dale Drive
- August 10, 2016 – Water distribution system leak repairs at 309 and 311 Wood Dale Drive.

Capital Project Updates

The Capital Projects that were in progress or completed in 2016 included:

1. Strategic Asset Management Plan – the Strategic Asset Management Plan (study) was delivered in draft in December of 2013 and the next edition is in progress.
2. Safety Equipment – eyewash and drench hose equipment was installed at the water treatment plant location to aid the operator should the disinfectant chemical come in contact with the operator.

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.

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Attachment: 2016 Financial Summary (Statement of Operations)



Making a difference...together

Integrated Water Services

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CAPITAL REGIONAL DISTRICT

SURFSIDE WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2016

	2016	2015
Revenue		
Transfers from government	33,150	33,150
User Charges	67,720	61,012
Other revenue from own sources:		
Interest earnings	37	223
Other revenue	408	447
Transfer from Operating Reserve Account	-	5,000
Total revenue	101,315	99,832
Expenses		
General government services	5,270	5,270
Contract for Services	14,714	14,004
CRD Labour and Operating costs	43,476	46,227
Debt Servicing Costs	18,622	19,288
Other expenses	14,545	25,944
Total expenses	96,627	110,732
Net revenue (expenses)	4,688	(10,900)
Transfers to own funds:		
Capital Reserve Fund	7,078	15,281
Operating Reserve Account	500	500
Annual surplus (deficit)	(2,890)	(26,681)
Accumulated surplus, beginning of year	2,890	29,571
Accumulated surplus, end of year	\$ (0)	2,890

CAPITAL REGIONAL DISTRICT

SURFSIDE WATER Statement of Reserve Balances (Unaudited) For the Year Ended December 31, 2016

	Capital Reserve	
	2016	2015
Beginning Balance	21,513	6,132
Transfer from Operating Budget	7,078	15,281
Transfers from completed capital projects	18,416	-
Interest Income	361	100
Transfer to Capital Project	(2,000)	-
Ending Balance	<u>45,368</u>	<u>21,513</u>

	Operating Reserve	
	2016	2015
Beginning Balance	805	5,305
Transfer from/(to) Operating Budget	500	(4,500)
Ending Balance	<u>1,305</u>	<u>805</u>