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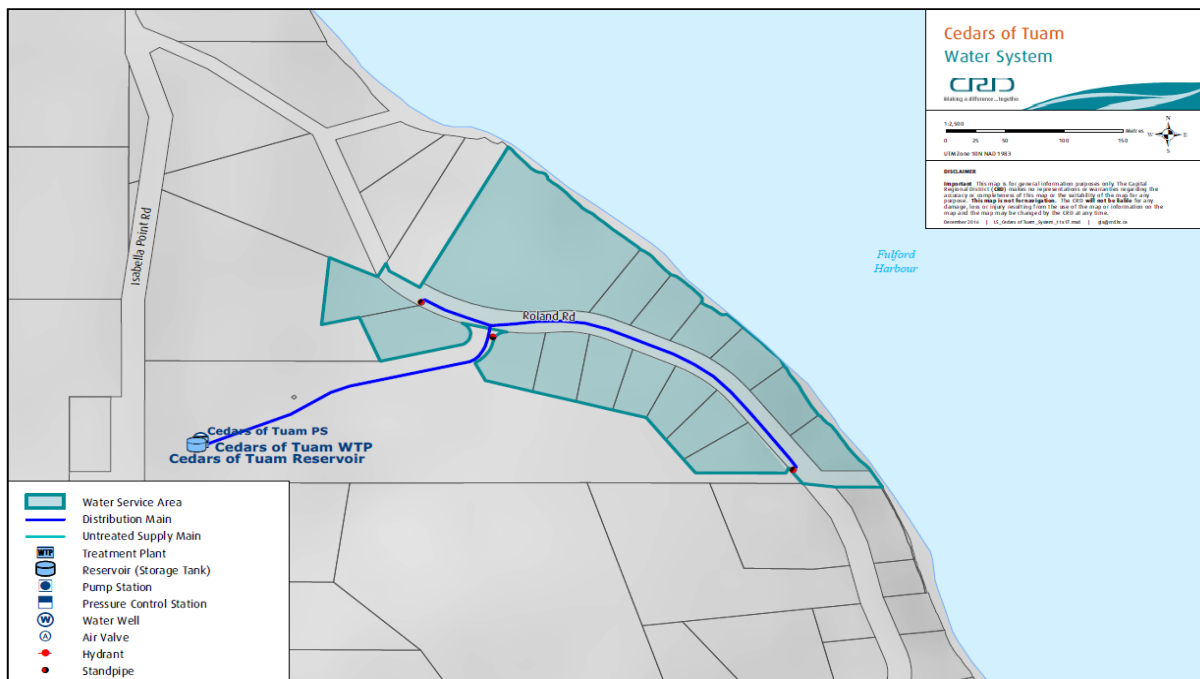
## CEDARS OF TUAM WATER SERVICE 2018 ANNUAL REPORT April 17, 2019

### Introduction

This report provides a summary of the Cedars of Tuam Water Service for 2018. It 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 Cedars of Tuam Water Utility is a rural residential community located on Salt Spring Island. The service was created in 1970 and became a CRD service in 2002. The Cedars of Tuam Water Utility (Figure 1) is comprised of 16 parcels of land, all of which are connected to the system.



**Figure 1: Cedars of Tuam Water Service**

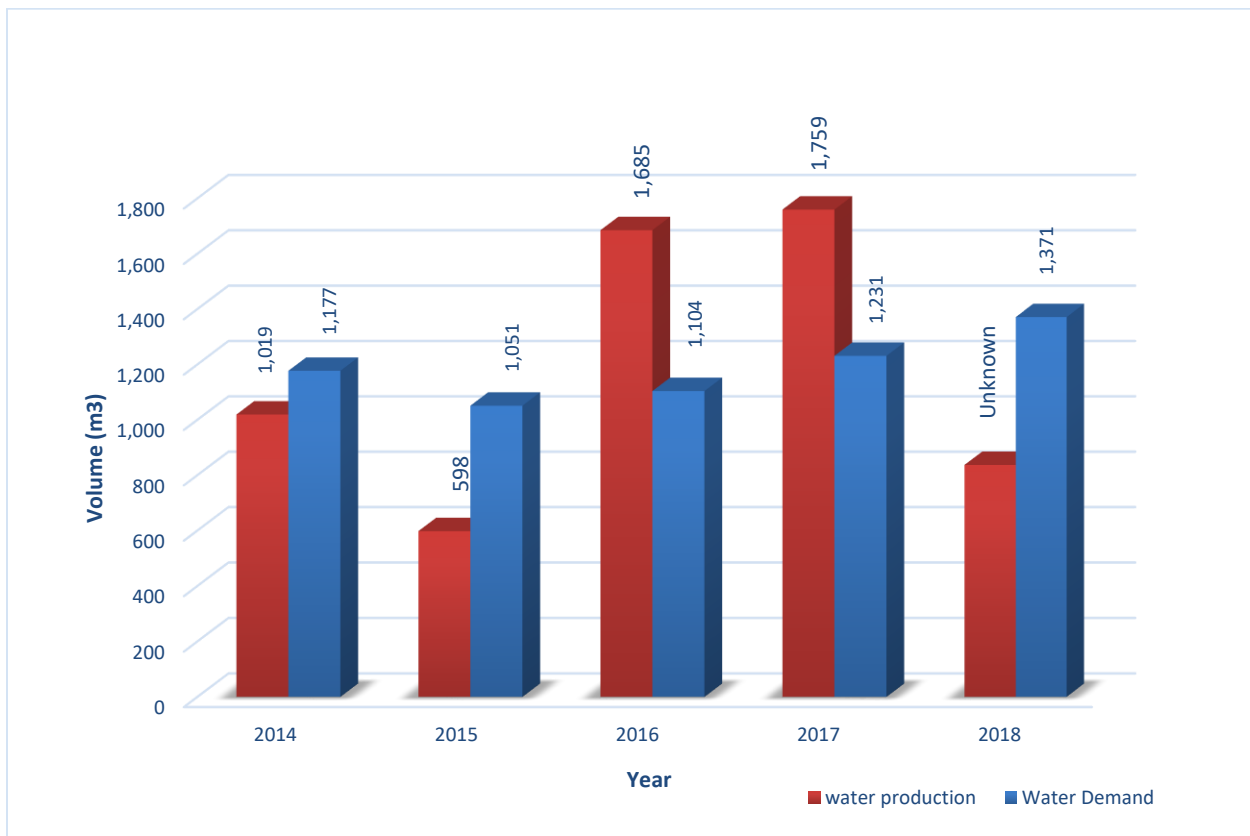
The Cedars of Tuam water system is primarily comprised of:

- One ground water source well
- a water treatment plant (WTP) that has a vortex sand separator and provides disinfection using sodium hypochlorite;

- 1 water reservoir – 46 m<sup>3</sup> (10,000 lg);
- 650 meters of water distribution pipe;
- standpipes and gate valves;
- water service connections complete with water meters.

### Water Production and Demand

Referring to Figure 2, unfortunately the amount of water extracted (water production) from the ground water in 2018 is unknown. This is the result of inaccurate water meter readings due to sand intrusion of the ground water source. Sand builds up in the meter creating a false under reading. Water demand (customer water billing) for the service totaled 1,371 m<sup>3</sup> of water; an 11% increase from the previous year and a 19% increase from the 5 year average.



**Figure 2: Cedars of Tuam Water Service Annual Water Production and Demand**

The Cedars of Tuam Water System is fully metered, and water meters are read quarterly. Water meter information enables water production and consumption to be compared in order to estimate leakage losses in the distribution system. The difference between water produced and water demand (total metered consumption) is called non-revenue water and includes distribution leaks, meter error, and unmetered uses such as standpipe usage, distribution system maintenance and process water for the treatment plant. For 2018, the non-revenue water cannot be calculated due

to the erroneous raw water meter production information. This inaccurate water production information could be resolved by replacing the water meter with a different technology that is not influenced by sand or grit in the raw water source.

### **Water Quality**

The analytical results (biological, chemical and physical parameters) of water samples collected in 2018 from the Cedars of Tuam Water System indicated that the drinking water was safe to drink and mostly within Guidelines for Canadian Drinking Water Quality (GCDWQ) health-related regulatory and aesthetic limits, including disinfection by-products. Only the turbidity in the raw and treated water regularly exceeded 1 NTU since July 2018. The well water was subject to significant sand intrusion which caused the high turbidity levels. However, indicator bacteria were non-detect in the raw or treated water and therefore the treated water was safe to drink. The well should be thoroughly inspected and potentially rehabilitated or replaced as there is a risk of complete failure leaving the utility without its only water source.

Typical Cedars of Tuam Water System drinking water quality characteristics for 2018 are summarized as follows:

- Source water from the well was free of total coliform and *E. coli* bacteria throughout the year.
- The raw water turbidity was well over 1 Nephelometric Turbidity Units (NTU) during the month of July, August, September and November (peak 28 NTU).
- Manganese concentrations were low throughout the year as usual but iron concentrations increased in the late summer. The iron concentrations, however, did not exceed the aesthetic objective of 300 µg/L. This increase in iron concentration in the late summer / fall has been observed in previous years and seems to coincide with aquifer recharge after the first post-summer rains.
- Treated water was free of any indicator bacteria and was safe to drink.
- The treated water turbidity was generally over 1 NTU after June. On July 5, the highest treated water turbidity of the year was recorded with 9.5 NTU.
- Disinfection by-product concentrations were well below the GCDWQ limits. Total organic carbon concentrations were low with an annual median value of 0.82 mg/L.
- The mean annual free chlorine concentration in the system was an acceptable 0.49 mg/L.

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**

- Replacement of chlorine analyser ORP and PH probes.
- Emergency response to high turbidity water quality issues.
- December 20<sup>th</sup> windstorm response.

## CAPITAL IMPROVEMENTS

The following four capital projects were planned for 2018:

1. Negotiate access road statutory right of way (\$1,000 allocated, none spent). Received confirmation the right of way at 184 Roland Road (F21218 and EG107995) extends from Roland Road to Isabella Point Road. The current access to the well site is difficult for operations to access requiring physical improvements for maintenance tasks, however the work may vary depending on the outcome of the asset management plan.
2. Asset Management Plan (AMP) (\$8,100 allocated, \$4,999 spent). To identify condition of assets, develop prioritized list of infrastructure replacement. This work was started in 2018, and should be completed in 2019.
3. Concept Designs for Connecting to New Well on School District property (\$10,503 allocated, \$4,124 spent). To obtain preliminary infrastructure design and cost estimates to tie in the new well.

## 2018 FINANCIAL REPORT

Please refer to the attached *Statement of Operations*. Revenue includes fixed user fees (User Charges), consumption based revenue (*Water Sales*), 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.

2018 User Fee charges were \$1,795 per Single Family Equivalent (SFE).

The balances in the Cedars of Tuam Water service capital funds and reserve funds at December 31, 2018 were:

Description	Balance as of the end of 2018
Operating Reserve Fund	\$8,007
Capital Reserve Fund (1057 101843)	\$6,561
Funds remaining to spend on projects in progress (WLA3024)	\$13,389

**Water System Problems - Who to Call:**

To report any event or to leave a message regarding the Cedars of Tuam Water System, call either:

**CRD water system emergency call centre: 1-855-822-4426 (toll free)**  
**CRD water system emergency call centre: 1-250-474-9630 (toll)**  
**CRD local operator (Ganges Wastewater Treatment Plant): 250-537-4314**  
**CRD water system general enquiries (toll free): 1-800-663-4425**

When phoning with respect to an emergency, please specify to the operator, the service area in which the emergency has occurred.

Submitted by:	Matt McCrank, M.Sc., P.Eng., Senior Manager, Infrastructure Operations
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Attachment: Statement of Operations

## CAPITAL REGIONAL DISTRICT

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### CEDARS OF TUAM WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2018

	2018	2017
<b>Revenue</b>		
User Charges	28,720	25,980
Sale - Water	2,036	1,292
Other revenue from own sources:		
Interest earnings	7	7
Other revenue	530	39
Transfer from Reserve Account	723	-
Total revenue	<u>32,016</u>	<u>27,318</u>
<b>Expenses</b>		
General government services	1,800	1,700
Contract for Services	44	23
CRD Labour and Operating costs	23,370	16,577
Debt Servicing Costs	1,330	1,624
Other expenses	4,443	3,511
Total expenses	<u>30,987</u>	<u>23,435</u>
<b>Net revenue (expenses)</b>	1,030	3,883
Transfers to own funds:		
Capital Reserve Fund	-	-
Operating Reserve Fund	1,030	3,883
<b>Annual surplus (deficit)</b>	-	-
Accumulated surplus, beginning of year		
<b>Accumulated surplus, end of year</b>	<u>\$ -</u>	<u>-</u>

## CAPITAL REGIONAL DISTRICT

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### CEDARS OF TUAM WATER Statement of Reserve Balances (Unaudited) For the Year Ended December 31, 2018

	Capital Reserve	
	2018	2017
<b>Beginning Balance</b>	16,731	22,426
Transfer from/(to) Operating Budget	-	-
Transfers from completed capital projects	-	3,053
Interest Income	330	252
Transfer to Capital Project	(10,500)	(9,000)
<b>Ending Balance</b>	<u>6,561</u>	<u>16,731</u>

	Operating Reserve	
	2018	2017
<b>Beginning Balance</b>	7,507	3,523
Transfer from/(to) Operating Budget	307	3,883
Interest Income	193	101
<b>Ending Balance</b>	<u>8,007</u>	<u>7,507</u>