

Cedars of Tuam Water System

2019 Annual Report

CRD | Drinking Water

Introduction

This report provides a summary of the Cedars of Tuam Water Service for 2019. 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.

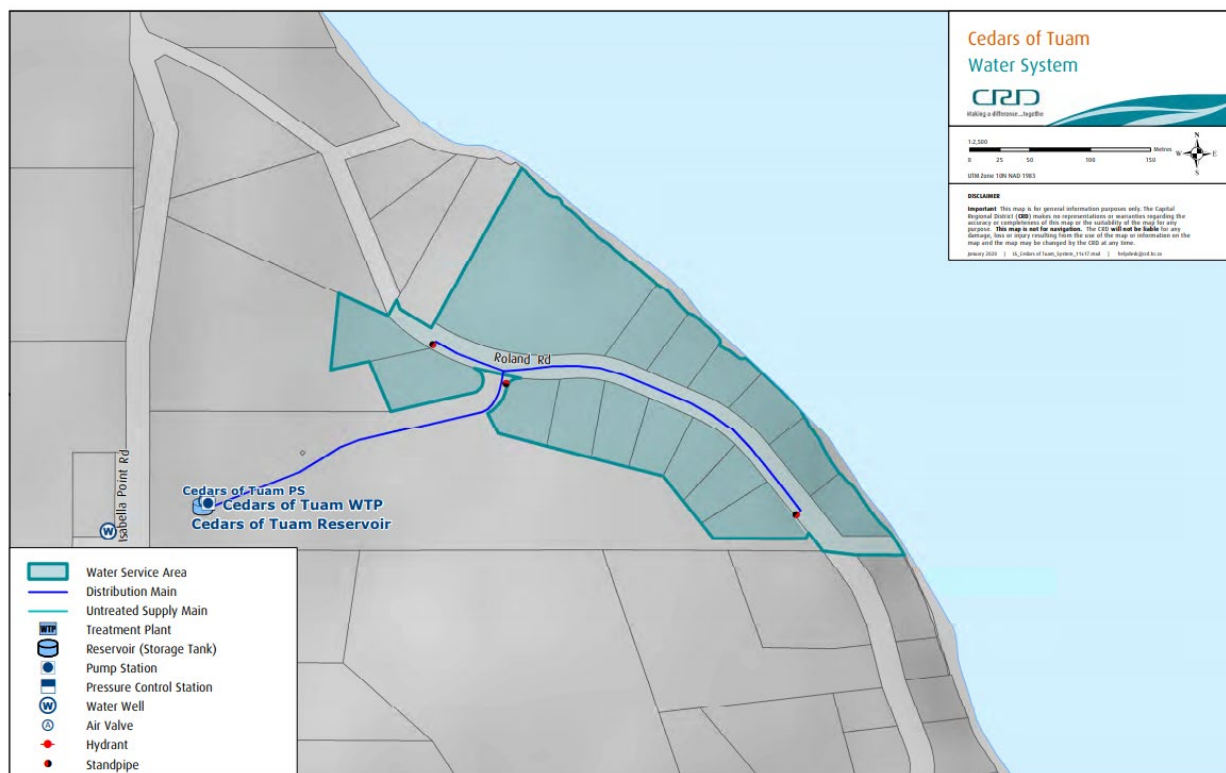


Figure 1: Cedars of Tuam Water Service

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 m³ (10,000 lg);
- 650 meters of water distribution pipe;
- standpipes and gate valves;
- water service connections complete with water meters.

Water Supply

Referring to Figure 2, unfortunately the amount of water extracted (water production) from the ground water in 2019 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 1,511 m³ of water; a 10% increase from the previous year and a 27% increase from the 5 year average.

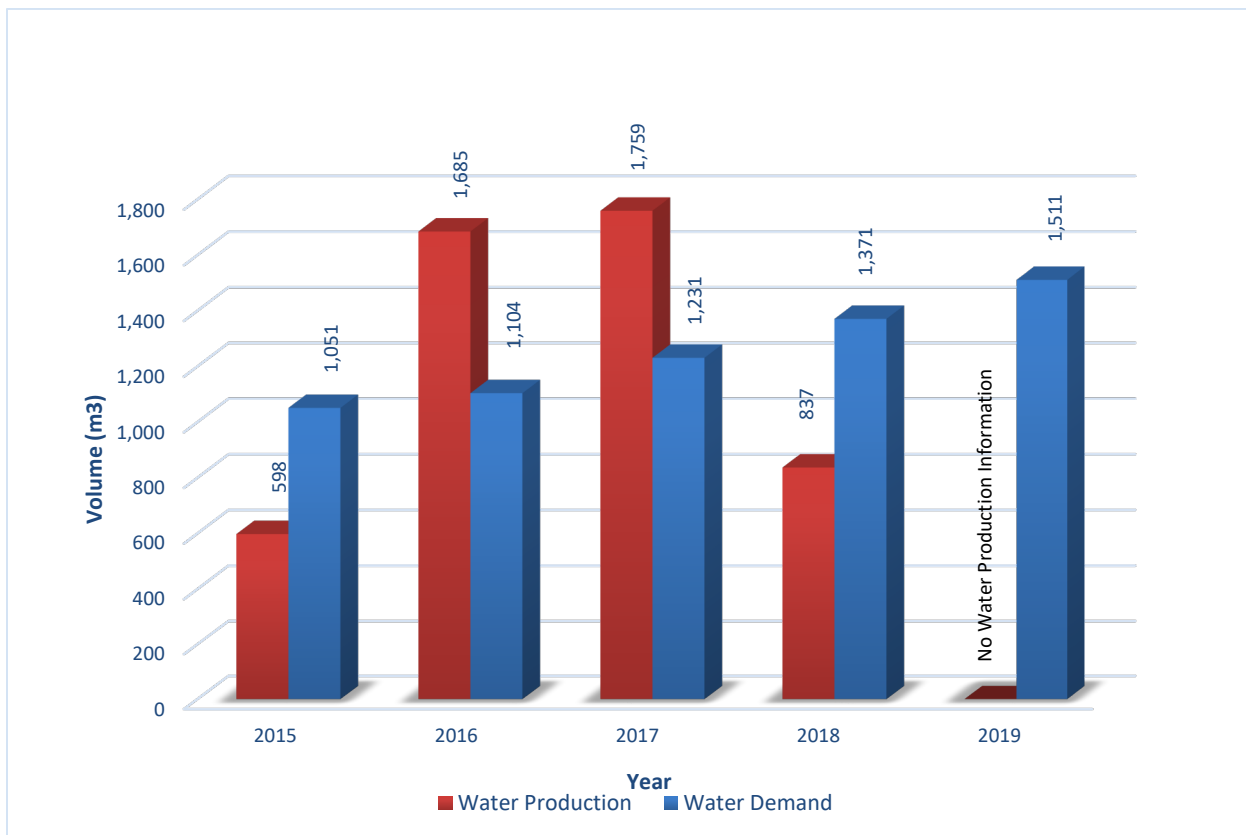


Figure 1: Cedar of Tuam Water Service Annual Water Production and Demand

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 2019, the non-revenue water cannot be calculated due to the erroneous raw water meter production information. This inaccurate water production information will need to be resolved by either replacing the water meter with a different technology that is not influenced by sand or grit in the raw water source or investigating and eliminating the sand intrusion into the well.

Drinking Water Quality

The analytical results (biological, chemical and physical parameters) of water samples collected in 2019 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 periodically exceeded 1 NTU between September and December. The well water was again subject to sand intrusion which caused the high turbidity levels. However, indicator bacteria were non-detect or in very low concentrations in the raw and non-detect in the 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 2019 are summarized as follows:

- Source water from the well was free of *E. coli* bacteria throughout the year and exhibited only low concentrations of total coliform bacteria on two occasions; January and September.
- The raw water turbidity was over 1 Nephelometric Turbidity Units (NTU) during the months of July and September. The highest raw water turbidity was 2.2 NTU which was much lower than in 2018.
- 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 from September to December. On October 29, the highest treated water turbidity of the year was recorded with 3.1 NTU. In general, the turbidity exceedances at the treatment plant were lower and shorter compared to 2018.
- Disinfection by-product concentrations were well below the GCDWQ limits. Total organic carbon concentrations were low with an annual median value of 0.72 mg/L.
- The median 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

- There were no significant operational issues to report outside of regular standing and preventive maintenance for the service in 2019.
- Reservoir draining cleaning and inspection was planned for 2019 but not completed. This was partially due to limited resources. This maintenance work is now planned for 2020

Capital Project Updates

The following project was planned for 2019:

1. Asset Management Plan (AMP) (\$11,300 allocated, \$ 10,482 spent). To identify condition of assets, develop prioritized list of infrastructure replacement. The asset management plan was continued in 2019, and will be completed in 2020.

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.

2019 User Fee charges were \$1,841.76 per Single Family Equivalent (SFE).

Water System Problems - Who to Call:

To report any event or to leave a message regarding the Cedar Lane 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 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 Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection Rianna Lachance, BCom, CPA, CA, Senior Manager, Financial Services Karla Campbell, Senior Manager, Salt Spring Electoral Area |
| Concurrence | Ted Robbins, BSc, C.Tech, General Manager, Integrated Water Services |



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Salt Spring Administration

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CAPITAL REGIONAL DISTRICT

CEDARS OF TUAM WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2019

| | 2019 | 2018 |
|---|---------------|---------------|
| Revenue | | |
| User Charges | 31,310 | 28,720 |
| Sale - Water | 2,142 | 2,036 |
| Other revenue from own sources: | | |
| Interest earnings | 68 | 7 |
| Other revenue | 114 | 530 |
| Transfer from Operating Reserve | - | 723 |
| Total Revenue | 33,633 | 32,016 |
| Expenses | | |
| General government services | 1,670 | 1,800 |
| Contract for Services | 56 | 44 |
| CRD Labour and Operating costs | 19,953 | 23,370 |
| Debt Servicing Costs | - | 1,330 |
| Other expenses | 3,553 | 4,443 |
| Total Expenses | 25,231 | 30,987 |
| Net revenue (expenses) | 8,402 | 1,030 |
| Transfers to own funds: | | |
| Capital Reserve Fund | 5,702 | - |
| Operating Reserve Fund | 2,700 | 1,030 |
| Annual surplus (deficit) | - | - |
| Accumulated surplus, beginning of year | | |
| Accumulated surplus, end of year | \$ - | - |

CAPITAL REGIONAL DISTRICT

CEDARS OF TUAM WATER Statement of Reserve Balances (Unaudited) For the Year Ended December 31, 2019

| | Capital Reserve | |
|---|-----------------|--------------|
| | 2019 | 2018 |
| Beginning Balance | 6,562 | 16,731 |
| Transfer from Operating Budget | 5,702 | - |
| Transfers from completed capital projects | 3,709 | - |
| Interest Income | 182 | 330 |
| Transfer to Capital Project | (3,000) | (10,500) |
| Ending Balance | 13,155 | 6,562 |

| | Operating Reserve | |
|--------------------------------|-------------------|--------------|
| | 2019 | 2018 |
| Beginning Balance | 8,007 | 7,507 |
| Transfer from Operating Budget | 2,700 | 1,030 |
| Transfer to Operating Budget | - | (723) |
| Interest Income | 271 | 193 |
| Ending Balance | 10,977 | 8,007 |