



Making a difference...together

**CEDARS OF TUAM WATER SERVICE COMMITTEE
2008 – 2009 OPERATIONS REPORT
MAY 23, 2009**

The following information is provided for the Cedars of Tuam water service area.

Capital Project

In the past year, Capital Regional District (CRD) staff have continued to investigate possible options for securing a new source of water for the Cedars of Tuam service area, and have upgraded the existing well system.

Upgrades at Existing Well Site

In addition to the marginal well yield (less than four litres per minute in summer and fall), the existing well system is aging and is of rudimentary design and construction. Problems with the well casing, which date back to its original construction and an early attempt at restoration, allow fine sand and silt to migrate into the pump and treatment works, particularly when the well is stressed in summer and fall. Before fall 2008, chlorine was injected at a constant rate when the well pump was running, relying on a constant water flow rate when the pump was energized. This system was vulnerable to overdosing of chlorine when the well level is low, either due to silt clogging a cartridge filter (slowing the water production rate with the pump running), or due to loss of well pump pressure (airlocking) when the well is overdrawn and air enters the pump. Although staff and committee had previously avoided expending project funds to rehabilitate the existing well system on the basis that it may be made redundant by a new source of water, it became apparent in the summer of 2008 that upgrades could no longer be avoided given the increasing frequency of operating problems, and uncertainty regarding alternative water sources.

Between September and November 2008, CRD staff purchased and installed a chlorine monitoring and control system and reconfigured the wellhead piping to enable the system to maintain a continuous chlorine residual in the reservoir in the range of 0.25-0.5 milligrams per litre (mg/l), which is the optimum range for distribution. The well pump cycle frequency was also increased in order to minimize well drawdown per pump cycle, and the associated risk of airlocking. The well was cleaned and inspected to verify that the casing is intact, and the access driveway over private property was improved for accessibility in winter and to reduce the tripping hazard for grazing animals. The total cost of capital project work at the existing well site was \$18,637.

Search for a New Water Source

Efforts to secure a new source of water for Cedars of Tuam continue. Since the 2008 AGM, staff have conducted the following work toward this end:

- Approached owners of the Isabella Point School site and the Ruby Alton property to explore the possibility of establishing right of way and developing a well for Cedars of Tuam.
- Refined earlier assessments by consulting engineer of suitability of target sites for a well.
- Formally requested permission to develop a test well on the Isabella Point School site.
- Supported by the request of the Fulford Water Service Committee, developed a budgetary cost to connect Cedars of Tuam to the Fulford water system.
- Obtained contractor's cost estimate to lay a 75mm diameter submarine water pipeline between the Fulford wharf and the Cedars of Tuam area.
- Conducted conceptual design and budgetary costing of possible options for the purpose of short-listing options to pursue further.
- Discussed several possible options and associated costs and benefits with the Cedars of Tuam Water Service Committee, and with the community.
- Refined design concepts and cost estimates for the options to connect to the Fulford system and to develop a test well at the Isabella Point school site, as requested by the Cedars of Tuam Water Service Committee.

- Applied for a one-year extension of the grant contract completion date to 31 March 2011.
- Secured permission to develop a test well on the Isabella Point School site (subject to specific siting requirements yet to be met).

The total cost to the capital project to complete this work in the past year was \$3,511. Adding this to the expenditure of \$4,036 between 2003 and 2007 on efforts to secure a new water source, the total project expense on this effort to date is \$7,550.

None of the possible options identified to date can be completed within the available budget. The two scenarios the committee has directed staff to further develop are interconnection with the Fulford system and the development of a well at the Isabella Point School site. Either scenario would require additional borrowing, resulting in substantial increases in user charges (or collection of a substantial parcel tax) over the 15-year amortization period of the loan.

If a suitable well can be developed at the Isabella Point school site and is connected to the distribution system via Isabella Point and Roland Roads, the bare construction cost is expected to be in the order of \$500,000 (of which \$300,000 is pipeline construction in road rights of way). There is significant risk and uncertainty in the cost estimate associated with the acquisition of right of way on the school site, and there is also a significant risk that a test well on the school site proves inadequate for the needs of the community. With design, project management and contingency included, the cost would be in the order of \$750,000, which would require an increase in annual cost per customer in the range of \$4,800 to repay the debt over 15 years. If a more direct pipeline route can be negotiated via an easement on private property, the cost might be significantly reduced.

The possible option to connect Cedars of Tuam to the Fulford system would cost in the order of \$210,000 to construct, or \$300,000 with design, project management and contingency included. Assuming Cedars of Tuam becomes part of the Fulford water service area as a result of interconnection, an additional purchase of capacity in the Fulford system would apply, and Cedars of Tuam participants would become participants in the Fulford fee and charge structure. The net result would be an increase in the annual cost to Cedars of Tuam customers in the range of \$2,200 as debt is repaid over 15 years.

Next Steps

Over the coming year, staff will continue to work with the committee and the community to determine how best to allocate the remaining project funds. Possibilities include the development and testing of a well at the Isabella Point School site (roughly \$50,000), further development of the Fulford scenario (e.g. preliminary engineering design, detailed cost estimate, development of cost sharing framework, approvals to proceed), or further improvements to the existing system (e.g. electrical improvements and remote monitoring system, roughly \$25,000). If the requested grant contract extension is approved by the Province, work could continue until 31 March 2011. The remaining budget in the capital project is \$73,815 (\$26,185 of \$100,000 original budget was spent as of 15 May 2009).

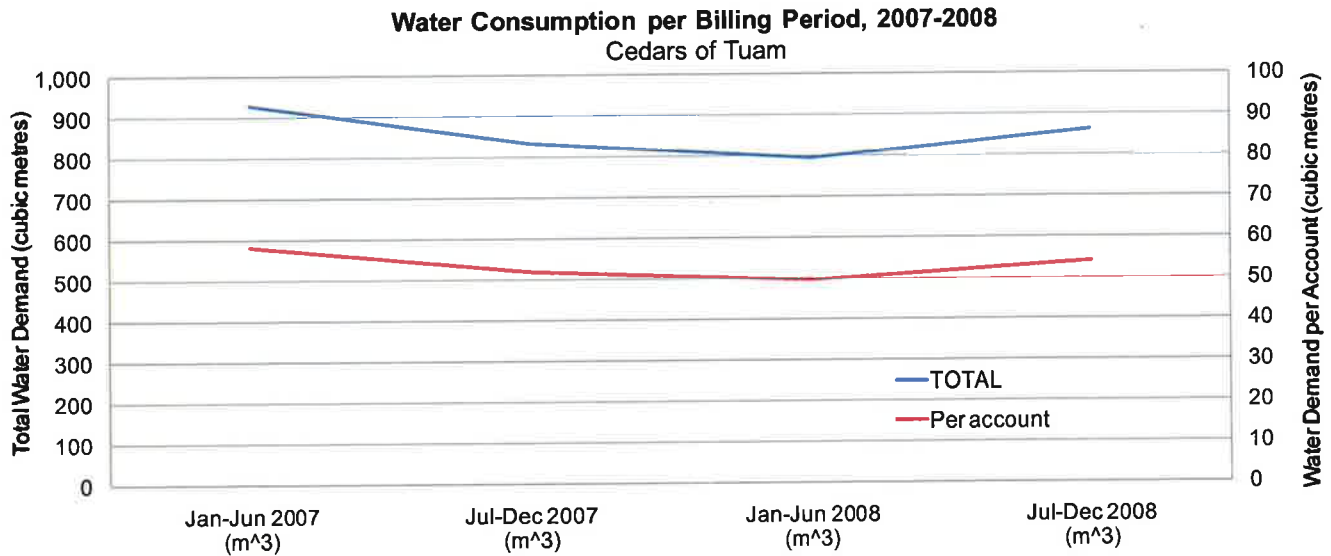
Until a new source of water is developed, the Cedars of Tuam water service will continue to rely on trucked water as required in summer and fall to augment well production. Water conservation and rainwater harvesting retrofits to existing homes have the potential to reduce demand on the well, reducing the quantity of water that needs to be trucked to the well site. Although Cedars of Tuam residents already use much less water than typical Salt Spring Island or Greater Victoria residents, some reasonable water conservation opportunities likely still exist. Replacing frequently used toilets that use more than six litres per flush is a reasonably inexpensive means to significantly reduce water use. Irrigation using tap water could be strictly limited or prohibited (if in fact anyone currently does it), and older top-loading washing machines could be replaced with much more water efficient front loading machines. Rainwater harvesting systems could be developed for non-potable uses indoors and outdoors.

Water Supply and Demand

A total of 1,754 cubic metres (m³) of water was abstracted from the Cedars of Tuam well in 2008. This amount includes approximately 260 m³ that overflowed from the reservoir in May as a result of a control float malfunction. Total water demand in the Cedars of Tuam service area in 2008 was 1,656 cubic metres (m³), 6% less than the 2007 demand of 1,761 m³ (Figure 1). Expressed as a continuous flow (annual average well demand), this represents 3.15 litres per minute in 2008, and 3.35 litres per minute in 2007. Although the well demand is somewhat greater in

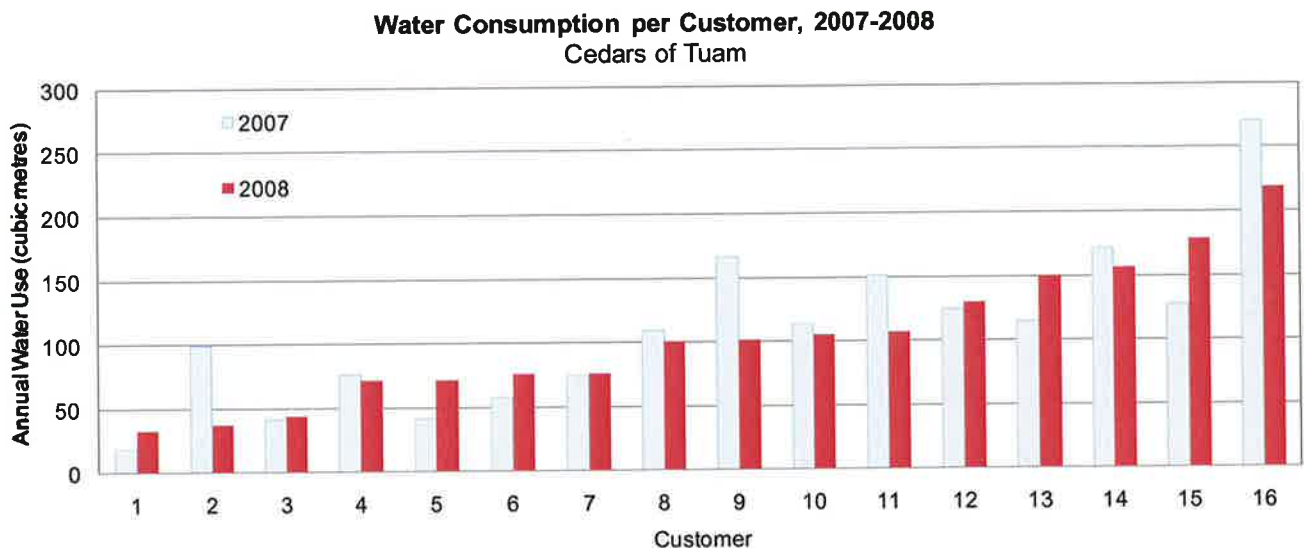
summer, the well has not been capable of meeting summer demand in the past three years, and water has been delivered by truck to meet summer and fall demand.

Figure 1. Water Consumption 2007-2008



Water demand per average household decreased from 110 m³ in 2007 to 104 m³ in 2008. As shown in figure 2, there is a wide range of annual usage in the service area, reflecting that several dwellings are unoccupied for a significant portion of the year, and that some dwellings have only a single full-time occupant. However, even the highest user in the Cedars of Tuam area uses less water per year than an average single-family dwelling in Greater Victoria, and only marginally more than an average customer of a water system with a surface water source on Salt Spring Island.

Figure 2. Water Consumption per Customer



Water Quality

The CRD carries out regular testing of the water supply to ensure water quality testing meets the guidelines set out in the *Canadian Drinking Water Guidelines (CDWG)*, and the requirements of the British Columbia *Drinking Water Protection Act and Regulation* as administered by the Vancouver Island Health Authority (VIHA). Water delivered to the Cedars of Tuam area typically meets the CDWG, and consistently meets VIHA standards.

Water quality complaints in the Cedars of Tuam area have typically related to high chlorine levels. In 2008, residual chlorine concentrations were elevated to unpleasant levels on several occasions as a result of known limitations of the well and chlorine metering system, aggravated by overdrawing of the well. As a result of the improvements to the well system completed late in 2008, residual chlorine has consistently remained within the optimum range of 0.25-0.5 mg/l in 2009 to date.

Financial Condition

Attached is a copy of the *Statement of Financial Activities* as prepared by the CRD Finance and Corporate Services Department for the year 2008. The statement provides an overview of the revenues and expenditures for last year. The revenue of \$19,487 represents primarily user fees, plus small amounts for interest on savings and miscellaneous revenue such as late payment charges.

Expenditures include all costs to administer the service. General services are charges levied by CRD Corporate Services for the financial processing of the budget and collection of fees and charges. Other includes all expenses needed for the operation of the service including all CRD labour costs for day to day operations, CRD service personnel hours performing maintenance and repairs, chemicals, electricity, water testing costs, maintenance parts allowances for electrical and mechanical equipment, rental or equipment as necessary and allowances for technical and staff support to the committee, and for the payment of debt. The total expenditures for 2008 were \$20,876.

The difference between revenue and expenditures in 2008 amounted to a shortfall of \$1,389 at year-end, which was offset by a surplus of \$2,324 carried forward from 2007, leaving a surplus of \$935 that was carried forward to 2009. As reported at the 2008 AGM, the surplus carried forward into 2008 enabled the service to cover operating cost inflation without increasing user fees in that year.

CRD staff prepare an annual operating budget each September, to be passed by the CRD Board as an interim budget by year-end and finally adopted in March of the following year. The 2009 budget for Cedars of Tuam reflects the need to adjust revenues to offset increasing operating costs, through an increase in the fixed annual user charge from \$1,115 to \$1,163 (4.3%). This represents the first change in the user fee since the CRD took over the utility in 2004.

The committee has established a reserve fund for the purpose of future equipment replacement. The fund earned \$199 in interest in 2008, resulting in a balance of \$4,700 at 31 December 2008.

Water System Problems - Who to Call

To report any event or to leave a message for the Cedars of Tuam water system operator:

First Call: 250-537-4314

If you do not reach someone at 250-537-4314, please report emergency events directly to:

1-250-388-6275 - ask for pager 2614

When connected to the pager message system, please leave your name, your phone number, a brief description of the problem and that the problem is with the **Cedars of Tuam** water system. Expect a phone call from a CRD duty operator within a short time.

CS:ls

CAPITAL REGIONAL DISTRICT

**WATER REVENUE FUND
STATEMENT OF FINANCIAL ACTIVITIES (UNAUDITED)
For the year ended December 31, 2008**

	Cedars of Tuam Water Supply
REVENUES	
Transfers from government	\$ -
Sale of services	19,333
Other revenue from own sources:	
Interest earnings	29
Other revenue	125
Grants in lieu of taxes	-
	<u>19,487</u>
EXPENDITURES	
General government services	1,500
Grants in aid	-
Other	19,320
Salaries and wages	-
Other fiscal services	56
Recovery	-
	<u>20,876</u>
NET REVENUES (EXPENDITURES)	(1,389)
Transfers to own funds:	
Water Capital Fund	-
Reserve Funds	-
Equipment Replacement Fund	-
Transfers from own funds:	
Reserve Funds	-
CHANGE IN FUND BALANCE	(1,389)
Opening balance	2,324
CLOSING BALANCE	<u>\$ 935</u>