

**CEDARS OF TUAM WATER SERVICE COMMITTEE
2006 – 2007 OPERATIONS REPORT
MAY 15, 2007**

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

Community Water Improvement Program Grant

As was reported at the last annual general meeting, the Capital Regional District (CRD) had received a Community Water Improvement Program Grant from the Ministry of Community Services. The community share in the \$100,000 project would be one-third or \$33,000. Funds must be expended by 31 March 2010. The community, at the time of takeover by the CRD, approved a borrowing of \$24,000 for water system upgrades. These funds, plus funds put into reserve each year for the past several years, has allowed the committee to now meet its commitment under the project and to have a small but important reserve to provide emergency funds for repairs to the system as they arise. The contributions to the reserve each year were realized through deferral of some maintenance routines. As the capital project should now proceed, these maintenance items, such as reservoir cleaning, also need to move forward.

Project Costs and Delays

It will be obvious to all that little or no progress has been made to resolving the long standing issue of an alternate water supply for the community. The optimum design for the system is a well in close proximity to the existing. This design would allow for the minimum construction cost for water main. The groundwater geologist has identified the most likely bedrock formations in the area in which to locate a reasonable source of water, quality and quantity however all of the locations lie on the Isabella Point Road side of the subdivision which would require a watermain extension across private property to be most cost effective or a main which follows Isabella Point Road down to Roland Road and then back to the subdivision which would be cost prohibitive. Staff have met with the primary land owner to discuss potential options for crossing the private lands but have been unable to identify, at least at this time, an option that is acceptable. To avoid private property issues, CRD engineers approached the Ministry of Transportation to determine if a well could be located on road right of way. The ministry expressed a number of concerns with the concept and advised CRD staff it was unlikely to obtain a favourable response to an application for construction on the right of way. In their evaluation Ministry staff identified insufficient road width, difficulties in future to realign the road if necessary and potential contamination issues which might be traced back to the road surface or maintenance as reasons why a domestic well would not be considered. While other opportunities for wells might be found within the subdivision, the cost of access to private lands remains an issue, which coupled with a lower than desirable probability to locate water in sufficient quantity, do not favour this approach.

Other Options Considered

Engineers have looked at other options besides groundwater. The industry has for many years, been perfecting desalination as a means to produce potable water. The cost of the membranes used to extract water, leaving behind salt and other impurities has been steadily falling for many years. While the efficiency of the desalination process has also been increasing, the increase in operating costs necessary to operate such a facility for the Cedars of Tuam water district are considered just too high. The additional operating costs are needed for electricity, chemicals, and membrane replacement and may, as a minimum, add \$3,000 to \$5,000 per year to the current budget adding significantly to the current user charges.

CRD has been for some time working on a means to integrate water systems such that operating costs can be shared by more users and the overall level of service of supply can be increased for similar costs. In this

manner the engineers have considered an underwater main from the Fulford water service area to connect to and supply water to the Cedars of Tuam community. Such an arrangement has been used for many years to provide Piers Island with water from Vancouver Island. The proposal would include two small diameter lines, one primary, one redundant, each feeding water to the system and using the current water tank for balancing. The tank would remain as a backup supply in the event that both lines were somehow severed and needed repairs. Fulford Harbour is in the process of completion of a new water treatment process which will provide a high quality of water to its users. The plant is expected to be operational next spring.

New Fulford Harbour Water Service Proposal

The integration of the two systems is not complex but would require several issues to be resolved to be successful including:

- Ensuring the system construction costs can be accommodated within the current budget.
- Agreement from the province the amended proposal would be acceptable for funding under the Community Water Improvement Program grant.
- Agreement from the Fulford Water Service committee to merge the two water services.
- Agreement from the Cedars of Tuam Water Service committee to merge the two water services.
- Establishment of a new merged service and merged service committee.

The two communities will need to be assured that the proposal to merge the two water areas is achievable. For the two committees to agree, they will need to consider the wishes of their electorate, they will need to review the cost implications and they will need to ensure the engineering is sound. If the committees can demonstrate to their electorate the proposal is beneficial, the CRD would approach the ministry regarding the necessary change in the bylaw to merge the two services to one.

What would this mean for the two areas? Cedars of Tuam residents would begin paying for the debt and operation of the Fulford system on the same basis as a residence in Fulford. At the same time, the debt now owing by Cedars of Tuam would be merged with the Fulford debt. The operating budget for the new Fulford Harbour water service would increase to provide for service to the new expanded area. The debt payment for the new area would be funded as a parcel tax (rather than a user fee) with the operating costs recovered primarily by way of fixed fee. CRD staff have initiated work on a new budget for this option. At this time, it would look that the total cost, parcel tax and user fee, to a Cedars of Tuam resident would amount to \$1,235. This represents an increase in the fee to residents of about \$10 per month, commencing in 2008.

Existing Supply Well / Tank

The ability to extract water from the existing well was a challenge later in the summer of 2006. As a precaution, a few loads of water were brought in to the community. The summer of 2006 was an extended dry period which raised issues with many wells on Salt Spring Island. The supply line between the well and the water tank experienced a blockage at this same time period. A temporary line was installed to bypass this line. Regardless of whether the decision is made to draw water from Fulford or seek water from another well, cleanout of the reservoir is warranted, as would be repair of the present supply line. These works should be scheduled for later this month, in advance of the dry season. Funding for the work will need to come from the operating budget. The committee's allowance for a transfer of funds to the reserve in 2007 could be used for this purpose.

Cedars of Tuam 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)*. There have been a number of complaints from the community respecting abnormally high chlorine residual levels in the system through April. The use of chlorine in the water system is intended for public protection. Minimum concentrations of chlorine (chlorine residual) have been established by the industry to ensure bacterial growth is controlled. The measurement of chlorine residual is obtained by field testing at locations furthest away from the point of entry. Operators err on the side of caution and typically balance the system to identify a minimum residual of 0.3mg/l at the ends of

the system. There is always a challenge in the operation of a small water system to balance the requirements for minimal protection at the ends of the system against the dosage at the source supply (which has to be higher), however the familiarity with the system generally allows the operator to be quite accurate in adjusting the chlorine dosage rate over time. Each water system is unique. A larger system, that is one with more distance between source and last customer, will consume chlorine at a higher rate than a shorter one, based on the time water is in the pipe before delivery to the last customer. In these larger systems it is often required to dose the water system at 1.0 mg/l or more to ensure a minimum residual at the last customer. In these same systems the closest customers to the source will see a fairly consistent residual chlorine dosage at the tap which will be similar to the dosage rate, and well in excess of what Cedars of Tuam customers have become accustomed to. The reason this is not an issue is that water users are more sensitive to changes in the residual level than the absolute level. The typical levels in the Cedars of Tuam system are maintained between 0.3 and 0.5 which is what users have become accustomed to. Through April then, and perhaps before, residents were responding to higher levels than normal for the utility although the levels did not trigger any concern for health.

The inconsistency of the residual levels suggests that something has changed in the operation of the system. In a review of this operation it is likely the variation can be traced back to the supply system between the well pump and the water tank. Operations staff reported a blockage in the supply line to the tank, prompting a temporary bypass of the line to be installed. Staff have been requested to avoid extraordinary expenditures at the site owing to the possibility that any works might be made redundant by the capital upgrade. It appears the temporary line has not been providing the same level of mixing in the reservoir as the original design. As the operator had not varied his routine for testing the tank, it now appears there has been a potential for the actual level in the system to be misinterpreted. As the operator tested for and received a lower than acceptable level in the tank, he boosted the level of dosage to compensate. The result was a higher than normal dosage entering the system until the tank was again tested and dosage reduced. The operator has now varied the method of testing at the reservoir, and hence the problem of variable residual should be alleviated. We apologize for this situation. Staff will be working with resident Ron Bain to monitor more closely the concentration in the distribution system to ensure the situation has been reversed.

Emergency Response

The division maintains emergency response plans for each of its water utilities. The plan provides for prompt action to issues which would pose an immediate concern for public health or a longer term, less acute issue which needs to be attended to. Examples would include contamination of source, loss of disinfection, main break, extended power outage etc. For those issues which are acute and which might affect public health, the system would be isolated and residents notified. If the situation is not acute, the focus of staff will be to correct the problem such that no loss of service results. Where the situation includes loss of water, residents of course will be aware, but will also be kept informed. Many water systems on the islands suffered considerable damage and loss of water through the winter of 2006/2007. The CRD is revisiting its response plans as a consequence of these situations.

If residents do have a concern, they should report it. Contact numbers are provided at the end of this report.

Water Consumption

Residents of the area continue to show considerable respect for their limited water supply. Cedars of Tuam always posts one of the lowest user rates for the islands, both winter and peak seasons. With renewed interest in water conservation, many other water utilities are looking to your consumption numbers as a goal to work towards. Typical annual rates of usage for other groundwater systems would be in the order of 150 gallons per day per household compared to Cedars of Tuam which is between 85 and 100 gallons per day.

2006 2007 Annual Budget

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 budget prepared for 2006 was largely unchanged from previous years. The committee and staff have strived to maintain the user fee at a

constant level and again there was no change in 2006 or this year. As was noted earlier there has been a philosophy in minimizing expenditures to ensure there was more funds held in reserve to be applied to the capital project. Operating in this manner has allowed the committee to set aside funds into the reserve on a year by year basis of around \$2,300 - \$2,500. The downside of this process is that maintenance of some critical but expensive items has been deferred. The water utility has standpipes which should be included in a replacement program and there is work to be done on the reservoir. On this basis the community may need to support an increase in fees to begin to undertake some of this work. This matter will be confused somewhat if the utility is merged with the Fulford utility.

With the transfers to reserve in 2006, the reserve fund stood at \$2,920 at year end. To complete the commitment to fund one-third of the capital project, \$9,127 was transferred out of the fund earlier in 2006 to the capital fund. The committee has budgeted to also transfer a further \$2,430 to the fund in 2007, although other pressing works may convince the committee to defer this transfer to fund other works.

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: 537-4314

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

1-250-388-6275 and 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.

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