



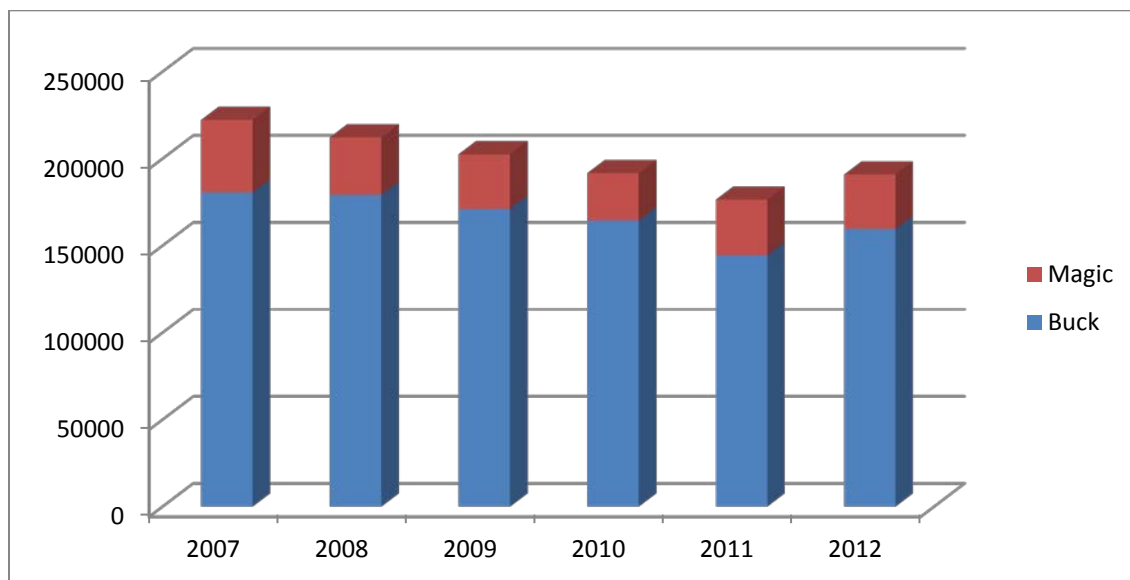
Making a difference...together

**MAGIC LAKE ESTATES WATER AND SEWER SERVICES  
2012 ANNUAL REPORT  
August 17, 2013**

**Water Supply and Demand**

Total annual water production through the two Magic Lake Estates (MLE) water treatment plants in 2012 was 180,883 m<sup>3</sup>, an increase of 4,433 m<sup>3</sup> or 2.5% from 2011. The total draw from the two lakes (Buck and Magic) since 2007 is shown in **Figure 1** below.

**Figure 1 – Total Water Production 2007-2012**

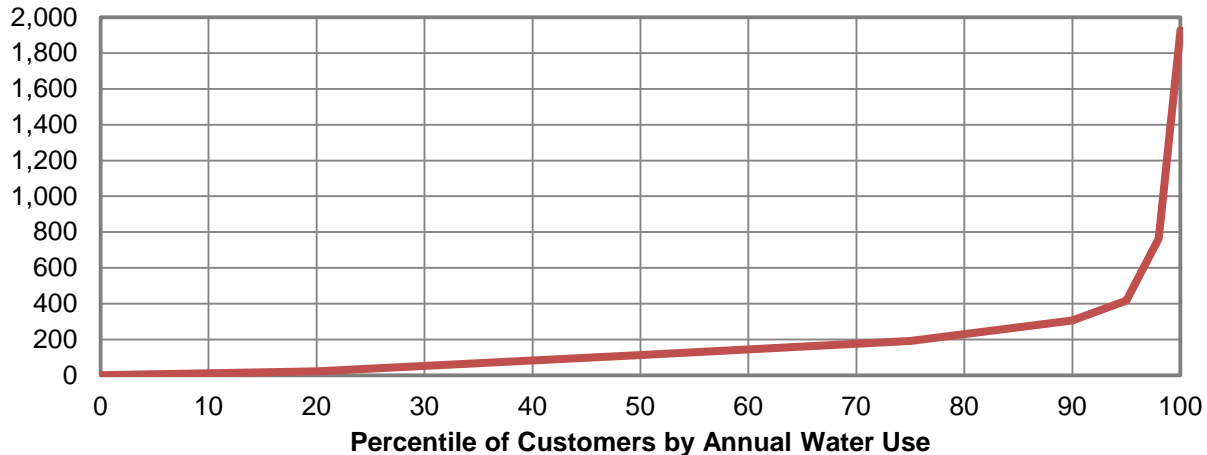


Water meters have been read every three months since June 2010. The total amount of water delivered to customer connections in 2012 was 131,803 m<sup>3</sup>, or 131 m<sup>3</sup> per connection based on 1005 connections. The difference between total production through the plants and total metered customer use (non-revenue water) is 49,080 m<sup>3</sup>. This equates to 27% of total production, and is excessive compared to other similar systems. Non-revenue water includes system leaks, fire-fighting and system flushing (filters and distribution system) activities. Leaks on private side plumbing are recorded by individual meters at property line and are not considered as non-revenue water. Based on Capital Regional District (CRD) experience with other small water utilities, installation of meters (completed in 2010) and replacement of infrastructure (planned for current and subsequent years) will lead to significant reductions in non-revenue water over time.

The variation in water usage by customers is shown in **Figure 2**. Approximately 20% of customers use less than 22 m<sup>3</sup>/year, 50% use less than 113 m<sup>3</sup>/year and 75% use less than 192 m<sup>3</sup>/year of water. Approximately 100 customers use more than 300 cubic metres per year

of water, representing a significant opportunity for water savings.

Figure 2. Annual Water Use per Connection (cubic metres)



In order to encourage water conservation and to address issues of fairness, the Magic Lake Estates Water and Sewer Local Services Committee decided to implement consumption based billing effective July 1, 2013. The new consumption charges were subsequently approved by the CRD Board under Bylaw No. 3892. The new quarterly bills will be comprised of the following charges:

- \$62.50 fixed fee (payable by all water users)
- \$0.50/ m<sup>3</sup> extra charge for quarterly usage over 50 m<sup>3</sup> (applies to top 15% of water users only)
- \$1.00/ m<sup>3</sup> extra charge for quarterly usage over 80 m<sup>3</sup> (applies to top 6% of water users only)

The fixed fee component will support the operating costs of the utility. The extra charges will be put in a reserve account to be used for future infrastructure renewal projects.

## DRINKING WATER SYSTEM

### Drinking Water Quality - 2012

Typical Magic Lake Estates drinking water quality characteristics include:

- Treated water is bacteriologically safe to drink;
- Treated water turbidity (cloudiness) is usually less than the *Guidelines for Canadian Drinking Water Quality* (GCDWQ) limit of 1 nephelometric turbidity units (NTU);
- Total organic carbon is moderate (ranging from 4 to 7.8 milligrams per litre (mg/L)).
- Disinfection by-products such as trihalomethanes (THM) did not exceed the GCDWQ limit of 100 mg/L;
- Metals are typically below limits;

- The raw source waters are quite coloured but once disinfected with ozone and chlorine, the treated water falls within the limit of 15 true colour Units (TCU);
- The water sources are subject to algal blooms which can affect taste and odour and clog home filters.

Water Quality data collected from this drinking water system on the CRD website:  
<http://www.crd.bc.ca/southerngulf/water/magic-lake/water-quality.htm>

### **Operations - 2012**

The Magic Lake Estates (MLE) water system has operated reliably in the past year. Events and activities included:

- Cleaned Buck Lake water treatment plant intake screen
- Replaced failed chlorine recirculating pump at Buck Lake water treatment plant
- Repaired water main leak at 3704 Bosun Way
- Resolved chlorine analyzer problems at Buck Lake water treatment plant
- Discovered six leaking water services (private side) – owners notified
- Conducted various leak detection exercises
- Dealt with various and intermittent power outages at water treatment plants and reservoirs
- Installed two new water services: Schooner Way and Privateers Road
- Installed radio communications for SCADA to monitor water level readings at Captains reservoir
- Experienced SCADA issues at Frigate reservoir – resolved by technical staff

### **Water System Upgrade Project**

Proposed upgrades to the Buck Lake Dam and Magic Lake Estates Water System began in late summer of 2012 and are expected to be completed by late 2013. Two projects, one with several components, will run concurrently:

#### **Buck Lake Dam Spillway Replacement**

The new 1.8m box culvert and spillway at Buck Lake was required to replace the old corrugated pipe through the dam which the Ministry of Environment Dam Safety Branch (Dam Safety) advised was unsuitable to meet present standards. Construction started in early September 2012 and was substantially completed in January 2013. Site landscaping was completed in May 2013 and minor deficiencies are currently being rectified. Once the deficiencies are complete, a Notice of Acceptance will be provided to the contractor. The project will be completed within the approved budget.

The Buck Lake Spillway project is 100% funded by MLE, no grant was received for this work.

### **Water Treatment and Infrastructure Improvements**

This project includes the following components:

- New water treatment plant located at the CRD yard at 47284 Schooner Way
- New raw water pump stations from Magic and Buck Lakes
- New raw water main from Buck Lake to the water treatment plant
- Replacement of the Frigate Reservoir at the existing site
- Replacement of some existing water distribution mains

Consulting engineering services are being provided by AECOM and the construction contract was awarded to Rohl Enterprises. Construction started in early November 2012 and the current status of the project is as follows:

- water main work is now 100% complete
- water treatment plant basement, foundation walls, main floor slab and roof are complete
- Dissolved Air Floatation (DAF) treatment equipment has arrived and has been installed
- work on the building's exterior and interior walls is almost complete
- mechanical piping, HVAC and electrical work is currently underway
- initial commissioning of the treatment plant is scheduled for late summer and is to be fed from Magic Lake
- work on the new Frigate tank and the retrofit conversion of the existing Buck Lake treatment plant to a raw water pumping station is scheduled for the fall of 2013.

MLE received a 2/3 grant from the Building Canada Fund on the water treatment and Infrastructure Improvement project. The overall grantable budget for these works is \$6,925,000, with an additional \$150,000 allocation for CRD to oversee the works and Consultant. This project is expected to be completed within approved budgets.

## **SEWER SYSTEM**

### **Permit Compliance – Marine Discharges**

Both the Schooner and Cannon wastewater treatment plants have operated out of compliance with permits at times during the past several years. The most persistent compliance issues relate to excessive flows during wet weather due to inflow and infiltration (rain-water entry and groundwater leaking into sewers). These conditions cause the discharge flow rates to exceed permit limits, and excessive flow rates through the treatment plants also occasionally cause effluent quality limits to be exceeded. In 2012 the Cannon plant was out of compliance 6 out of 12 months, for exceedance of allowable flows; and the Schooner plant was out of compliance 5 out of 12 months, for exceedance of allowable fecal coliform levels.

### **Asset Condition Evaluation and Engineering Study**

In 2012 an engineering study and asset management plan was completed by Stantec Inc. This includes a prioritized list of recommended capital works, including conceptual designs and cost estimates for projects. The recommended list of upgrades will address the on-going permit

compliance issues mentioned above. A plan for completion and financing of the upgrades will be considered by the Committee after completion of the current water projects.

### **Operations - 2012**

Aside from the wet weather problems noted above, the Schooner and Cannon treatment plants continue to perform well considering their age. Events and activities in the past year included:

- Cleared two plugged sewer laterals and aided in repairs to 9 sewer laterals damaged by ROHL
- Cleared numerous blockages and rag fouling of Return Activated Sludge (RAS) pumps at Schooner treatment plant
- Resolved excessive sludge loading at Schooner treatment plant
- Replaced Chart Drive micro-flushing control unit
- Responded to various communication failures at both Cannon and Schooner plants
- Experienced multiple hydro failures at both treatment plants
- Repairs to Muffin Monster (macerator), UV light rack and air blowers at Cannon treatment plant
- Failed monthly effluent sample at Schooner treatment plant due to UV light issue – resolved and passed re-test
- Emergency hauling of raw sewage from Schooner treatment plant due to power outage to avoid sewage overflow
- Considerable time spent with BC Hydro during 60 pole replacement
- Various sections viewed and inspected with pipe camera equipment
- Outfall inspections by divers will be completed this fall as per discharge permit requirements.

### **Chart Drive Septic System**

The Chart Drive septic system is at the end of its useful life and requires replacement. Staff is monitoring the system closely for evidence of failure; however, the system appears to have operated without evidence of serious problems in the past year.

### **ANNUAL BUDGET AND FINANCIAL REPORT**

Attached are copies of the *Statements of Operations (Unaudited)* for Magic Lake Estates Water and Sewer services as prepared by CRD Finance and Corporate Services for the year 2012. The statements provide an overview of the revenues and expenditures for the year.

*Revenue* includes parcel taxes (*Transfers from government*) and user fees (*Sale of services*), and small amounts for interest on savings and miscellaneous revenue such as connection charges and late payment charges (*Other revenue*). *Expenses* include all costs of providing the service. *General government services* include budget preparation, financial management, utility billing, and risk management services. *Other expenses* includes all other costs to administer

and operate the water system, and the principal and interest payments on borrowing to finance capital projects. *Other fiscal services* includes administration costs for loans.

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.

#### Magic Lake Water #1 and #2

Magic Lake Estates includes two water services. Magic Lake #1 is the primary service, which provides for the operation and maintenance of the water system and most of its capital improvements. Magic Lake #2 was established in 2000 to fund the debt servicing for a watermain replacement project in 2000 and 2001. The area boundaries for both services are the same, except that owners who elected to prepay their parcel tax for the watermain replacement project are excluded from the Magic Lake #2 service and are not assessed a parcel tax for the service. The financial statement includes both services.

#### **Magic Lake Water – 2012 Statement of Operations**

The MLE Water 2012 revenue of \$1,011,946 includes \$738,157 parcel tax and \$251,903 user fees. The total expenses of \$648,492 includes \$22,915 for administration, \$614,020 for operating expenses and \$11,557 *Other fiscal services*. The difference between revenue and expenses in 2012 amounted to a net revenue of \$363,454.

Adding the 2012 \$363,454 net revenue to the 2011 carry forward balance of \$92,665 created a 2012 year end surplus of \$456,119, of which \$142,000 was transferred to the capital fund for the upgrade project and \$116,182 transferred to reserve funds leaving an accumulated surplus of \$197,937 carried forward to 2013.

As of December 31, 2012 the Magic Lake Water Reserve Fund contained \$440,597 and the Capital Fund \$1,168,483.

#### **Magic Lake Sewer – 2012 Statement of Operations**

The MLE Sewer 2012 revenue of \$453,889 includes \$281,366 parcel tax and \$168,762 user fees. The total expenses were \$358,873.

The difference between revenue and expenditures in 2012 resulted in an accumulated end-year surplus of \$95,016, which when added to the 2012 carry forward of \$89,232 created a year end surplus of \$184,248. Of the year end surplus, \$122,445 was transferred to reserve funds leaving a 2013 carry forward balance of \$61,803.

As of December 31, 2012, the Magic Lake Sewer Reserve Fund contained \$205,160.

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Attachment: 2

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Concurrence