

Qualicum Bay Horne Lake Water District Annual Report 2021

Qualicum Bay Horne Lake Water District Board of Trustees:

Adrian Piloto

Wim Jellema

Irene Doyle

Jeff Cain (*currently serving as Chair, as elected by the board of trustees.*)

Mark Smailes

Ian McJannet

Monthly board meetings are held the 3rd Wednesday of each month at the Qualicum Bay Horne Lake Water District Office at 1:00 pm. Public are welcome to attend. For upcoming dates, please check at the office or visit the website at: www.qbhlwater.ca In addition to the monthly board meetings, there are select committees that meet throughout the year on an as-needed basis. Committees provide advice and recommendations to the board of trustees – it is up to the board to take action or make a decision. Select committees are established to consider or inquire into a specific matter.

History

The Qualicum Bay Horne Water District was incorporated under the Water Act in 1968 and is an Improvement District as defined under the Local Government Act. The District's Letters patent define a mandate to acquire, maintain and operate works for water supply and distribution and all matters incidental.

Water supply is currently provided by three wells located on Horne Lake Road. These wells tap the Quadra Sands Aquifer and provide high yield and good quality water which is good for human consumption without treatment. The high iron and manganese content is an ongoing concern. Two above-ground bolted steel tanks hold a volume of 110,000 imperial gallons each. The system on average produces a pressure of 70 psi. The QBHL Water system was constructed in phases with the original lines built in the late 1960s. The current water system has approximately 17,550 meters of distribution main, which is generally linear.

The average house uses about 85 gal/day

Administration

The Administrator is responsible for the overall administration of the District. The Administrator acts as both the Corporate Officer and Financial Officer as established by Bylaw No. 108 "Officer Position Establishment Bylaw".

Corporate administration includes the following:

- preparing accurate meeting minutes of the board of trustees and its committees and ensuring the safe keeping of minutes, bylaws, and other improvement district records;
- providing access to all improvement districts records as required by law or authorized by the board of trustees;
- signing and certifying copies of bylaws and other documents as required or requested;
- accepting, on behalf of the improvement district or the board of trustees, notices and documents given or provided to the improvement district or the board of trustees; and

Qualicum Bay Horne Lake Water District Annual Report 2021

- keeping the improvement district seal and having it affixed to documents as required.

Financial administration includes the following:

- levying taxes, water tolls and other charges;
- receiving all monies paid to the improvement district;
- keeping all funds and securities of the improvement district;
- expending and disbursing money in the manner authorized by the board of trustees;
- investing funds in investments under section 745(4) of the Local Government Act;
- preparing, maintaining and keeping safe the accurate records and full accounts of the improvement district's financial affairs;
- compiling and supplying information on the financial affairs of the improvement district required by the Inspector of Municipalities; and reviewing and preparing annual budgets with Finance Committee and fulfilling
- Financial year end auditor's requirements.

Studies Completed

Wellfield Capacity Assessment

The Qualicum Bay Horne Lake Waterworks District (QBHLWD) operates a well field on Horne Lake Road and currently supplies water to approximately 1,070 residents, with 617 full-time active connections. The QBHLWD services residential homes, trailer parks, Qualicum First Nations, and commercial and industrial users. Waterline Resources Inc. (Waterline) completed a Well Protection Plan for the QBHLWD well field in 2017. In August 2019, Waterline was retained to complete an assessment of the well field capacity to assist with future planning and operations as the demand for water increases.

The following conclusions were reached based on the well field capacity assessment:

- The individual long-term well capacities are 1,094 m³ /d, 891 m³ /d, and 1,209 m³ /d for Well #1, #2 and #3, respectively.
- The total cumulative well field capacity is approximately equal to the capacity of the most productive well or 1,209 m³ /d due to interference effects between pumping wells;
- The average daily water demand during the critical summer months in 2019 was 730 m³ /d, which accounts for approximately 60% of the well field's total capacity; and
- The monitoring data and long-term water level trend indicates the well field is sufficient for QBHLWD's current water supply requirements.

The following recommendations are provided for consideration by the QBHLWD:

- The well capacity estimates are based on short duration pumping events using basic hydrogeological assumptions. A longer duration constant-rate test would be

Qualicum Bay Horne Lake Water District Annual Report 2021

recommended to confirm aquifer recharge and boundary conditions if the QBHLWD is planning to increase groundwater production above 1,209 m³ /d in the future.

- A well field performance monitoring plan should be implemented as part of the water district's routine monitoring and maintenance activity. Performance monitoring includes pumping rates, water levels, and key water quality parameters. An annual review of this information will help provide advanced warning of potential water supply problems (e.g., declining well capacity, early signs of well deterioration, over pumping the aquifer, water quality changes, etc.).

Covid 19

The Qualicum Bay Horne Lake Water District (QBHLWD) would like to thank residents for your understanding as we continue to follow the recommendations of the provincial health authorities. We are actively monitoring the COVID-19 situation and continue to implement steps to support the provincial recommendations. The health and safety of our community is our top priority.

Services will remain operational, and staff will continue to conduct business. We encourage on-line banking or e-transfer for payments to your QBHLWD accounts, or you may drop off payments at the office through a secured mail slot in the front door. Payment receipts can be mailed out upon request. Using electronic payment options will limit contact with office staff to keep them healthy and available to maintain operations of the water system. We are in the process of setting up Pre-Authorized Payments, please contact the office if you are interested.

Phone: 250 757-8507, Email: qbhlwater@shaw.ca. Website: www.qbhl.ca

Wellhead protection plan. The wellhead protection plan is a tool used to protect the water source including the supply wells and the aquifer. The high-risk hazards are:

- Agriculture: heavy chemical use farming, pesticides and fertilizers, manure storage;
- Transportation Corridors; fuel spills on highways, roadsalts
- Commercial; gas stations, paint strippers, dry cleaners, auto body and repair;
- Industrial: chemical, petroleum, wood processing, food processing;
- Municipal; storm water runoff, pesticides and fertilizers;
- Residential: septic systems, abandoned well, sewer mains.

Qualicum Bay Horne Lake Water District Annual Report 2021

Manganese.

The Ministry of Environment revised the water quality standards in June of 2019. Prior to 2019 the only guideline for manganese was an aesthetic objective (AO) of equal or less than 0.05 milligrams per litre (mg/L) the guideline was updated in June 2019 to include a Maximum Allowable Content (MAC) of 0.12 mg/L (120 ug/L). The manganese levels in two of our three wells exceed the MAC for manganese.

- Well #1 – Manganese 143 ug/L
- Well #2 – Manganese 135 ug/L
- Well #3 – Manganese 102 ug/L

At the latest inspection of the water system, January 27, 2020, the Drinking Water Officer (DWO) recognized that the manganese concentration was elevated and stated that *“the Drinking Water system research options to reduce the concentration to below the MAC”*. Our contractor began a program of blending the wells, each with well #3 which reduced the concentration of manganese. He also ran testing on different points in the distribution system. The reports show the levels of manganese at the distribution points are well below the MAC, (60.8 ug/L at Leon Road), including the taps at the reservoir. These results were reported to Island Health.

QBHL will be conducting a full test of the water in November 2022 as required by Island Health.

A suggested treatment option to remove manganese from the District’s water supply is to install water treatment plant using the base methodology of chlorination and filtration. We estimate an average capital cost (\$2020 CAD) of \$1,141,000. Over a 20-year life, we estimate a water treatment plant would result in an overall life-cycle cost of \$2,837,000. A report can be found on the website.