



## Drinking Water Annual Report -2017

### City of Quesnel Water System

#### Introduction

The City of Quesnel annual water report is intended to provide users of the system a summary of water quality testing results, water management practices, maintenance work, and improvements made to the system during 2017. All water users are required to, under the British Columbia Drinking Water Regulations Drinking Water Protection Act, provide a similar annual report to their users. This report has also been submitted to the Northern Health Authority and is posted on the City of Quesnel website. [www.quesnel.ca](http://www.quesnel.ca)

#### Water Distribution System Overview

The City of Quesnel services approximately 10,000 residents, operating 6 groundwater production wells as the sole source of water for its citizens. In 2017 these groundwater production wells consumed 2,539,687 cubic meters of water, which is an increase of 255,544 cubic meters from the usage recorded for 2016. This water is provided to the distribution system untreated and there are no treatment or disinfection processes required at this time. As part of the water distribution system, the City maintains 8 water reservoirs, 5 booster pump stations, 2 main pressure regulating valve (PRV) stations and approximately 100 km of water mainlines.

The replacement of the Pinecrest Water Reservoir and the Pinecrest Booster Station Upgrade project began in 2017 and is expected to be complete in early 2018. The new water reservoir replaces an existing concrete tank style reservoir constructed and in use since the 1970's. The volume of stored water available for consumption and fire protection will be increased substantially and also the incidences of equipment failure reduced. This infrastructure is vital to the water distribution system as a whole. This project is a greatly needed investment ensuring reliable operations and uninterrupted water supply to the current and future taxpayers of the City of Quesnel.

#### Water Management

The provincial government regulates and licenses water use in British Columbia under the Water Sustainability Act (WSA), which replaced the Water Act in 2016. The WSA includes regulations and requirements for well construction and maintenance, groundwater use and licensing, compliance, and dam safety. Prior to the WSA, groundwater use was not licensed



in British Columbia. Currently City staff are in the licensing application process and have submitted an environmental assessment to the licensing authority for review. Annual fees are charged based upon the volume of water used.

In British Columbia and the Yukon, water distribution system classification and operator certification are controlled by the Environmental Operators Certification Program. The purpose of this system is to match the qualification levels of operators with the complexity of the facilities they will operate to help ensure that facilities are operated by appropriately qualified personnel. All personnel carrying out operating duties at a water or wastewater facility must be certified at a level that is appropriate for their responsibilities and the facility they are operating. The City of Quesnel water distribution system is classified as a Class 2 system. As Class 2 Water Distribution Operators, City staff are required to possess a minimum of 5400 hours of experience (or 3 year full time), achieve a minimum score of 70% on written examinations and must receive 24 hours of approved training in every two year period to maintain their certification. Operator training is critical to maintaining facility classification and ensures that current industry standards and best practices are being met. Training also provides staff an opportunity to network with other operators over common challenges faced in field operations.

The water system emergency response plan is updated and reviewed on an annual basis. Operating procedures continue to be revised and reworked in order to protect public health and safety and maintain critical infrastructure. It is critical to the operation of the water distribution system that the pumps and equipment are maintained to the highest standard possible and to the manufactures recommendations.

The SCADA (Supervisory Control and Data Acquisition) monitoring system provides staff the ability to observe real-time data and information of water system conditions including well operation and reservoir levels. System operators have the ability to remotely respond to system conditions and demands. Should an alarm condition arise in the water system, the SCADA will contact the operator by cell phone to report the condition. This reduces failure of equipment as well as increases pumping efficiency. Upgrades to the SCADA are ongoing as equipment becomes obsolete and communications to station require updates to operate effectively.

In 2017 the City of Quesnel introduced a Water Stewardship program intended to raise community awareness around the importance of water conservation and source protection. Two water Ambassadors were employed over the summer season and attended local events, visited classrooms, produced educational literature which were hand delivered to homes and businesses, and hosted free education sessions open to the public at large.



## WATER QUALITY

Samples are taken at the start, middle and end of the entire City water distribution system. Lab results are transmitted to the City via email, as well as to the Public Health Engineer at Northern Health. Results are then downloaded into the City's water quality database, Water Trax.

If it is observed during testing that certain parameters exceed the limits specified in the GCDWQ or BCDWR guidelines, a procedure is in place for retesting and notification of any results or conditions that render or could render the water unfit to drink.

The standard protocol when a water sample is found to contain the presence of coliforms, however minute, is to resample the water immediately at the same location and resubmit for testing. The provincial Environmental Health Officer will determine if any action by the City is necessary only after a second test also shows the presence of coliforms.

In accordance with the regulations of our operating permit, the City has a plan in effect to respond to emergencies to ensure the delivery of safe drinking water to all its residents.

In 2017 308 samples were tested for Ecoli and total coliforms. There were zero exceedences of Ecoli and 14 exceedences for total coliform. In the case of an exceedance, the line was flushed and resampled at the same site until coliform was not detected.

Complaints regarding water quality are addressed and followed up on a case by case basis. The majority of customer complaints are of "dirty" or black water. This is due to manganese found in the City water which adheres to pipe walls in the distribution system until it is disturbed or breaks free. Homeowners are advised to run a cold tap until the water clears. In some cases the City will flush the mains through a hydrant or blowoff. All mains are flushed each fall to remove mineral scale and buildup in the lines in addition to ensuring proper operation and maintenance of all City fire hydrants. The guideline for Canadian Drinking Water Quality aesthetic objective for manganese is 0.05 mg/L. The City of Quesnel wells vary from .014-.59 mg/L.

There are occasional complaints of cold water smelling like rotten eggs or sulfur. This is caused from the City water having a reaction with the small diameter "feed line" tubing which connects the household plumbing to the faucet under the sink. It is most common in homes that have new or recently upgraded taps or plumbing fixtures. A corrective measure for this is suggest homeowners replace the feed lines with metal tubing such as copper or alternatively clean the lines with sodium hypochlorite (household bleach), then rinse and reinstall.

City of Quesnel Bylaw 1567 of 2004 was adopted in 2005 to ensure provisions for the elimination of cross connections between potable water and any non-potable source. The City has two Certified Backflow Assembly Testers on staff that annually tests assemblies in City parks and the City water supply system to protect against potential backflows and cross connections. They also install backflow prevention devices which are a secondary line of defence for backflow prevention.

It is the responsibility of the owner or operator of private buildings to install and test the approved backflow assembly upon installation and annually thereafter by a certified tester. Following the test, a copy of the report is to be forwarded to the City of Quesnel. This program has not been completely implemented as there is a lack of resources and staff to track and account for these assemblies. What staff time is available is focused on communication with contractors/plumbers and high risk users. The main group addressed is industrial, commercial and institutions. Utilities staff communicate and keep a watchful eye out for any potential cross connections.

## **CONCLUSION**

The 2017 City of Quesnel Water System Annual Report is presented to Council as required by the British Columbia Drinking Water Regulations Drinking Water Protection Act. It has been established as a requirement to ensure accountability to the community for the water service provided. In order to meet the terms and conditions of the City's Water System Operating Permit issued by the BC Drinking Water Officer, this report is made available to the public.

Additional information may be obtained from the City of Quesnel Utilities Department at 250-992-6330, attention: Joe Law, Utilities Superintendent.

Attachment "A" contains:

- a list of the sampling point sites and the parameters tested for the City of Quesnel

Attachment "B" contains:

- Water sampling result summary reports for 2017.

## **LINKS:**

The Health Canada website ( [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca) ) contains "Summary of Guidelines for Canadian Drinking Water Quality", which Health Canada publishes on current guidelines and updates each spring on their website.