

NO: R084

COUNCIL DATE: May 13, 2019

REGULAR COUNCIL

TO: **Mayor & Council**

DATE: **May 9, 2019**

FROM: **General Manager, Engineering**

FILE: **5600-43**

SUBJECT: **City of Surrey Water System Annual Report for 2018**

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report for information; and
2. Authorize staff to forward a copy of this report and the related report titled “City of Surrey Water System Annual Report for 2018”, a summary of which is attached to this report as Appendix “I”, to the Medical Health Officer (“MHO”) in accordance with the requirements of the Drinking Water Protection Act.

INTENT

This report represents the Annual Report for 2018 of the City of Surrey Water System, which has been prepared in accordance with the requirements of the British Columbia Drinking Water Protection Act (the “Act”).

DISCUSSION

The Provincial Water Act requires municipalities, or any water supplier, to report the results of water quality monitoring. The City, in cooperation with the Fraser Health Authority and Metro Vancouver, has developed a water quality monitoring and reporting plan for the City’s water distribution system. The protocol document sets out monitoring parameters, the reporting structure, and response plans to emergency situations, such as incidents of high bacteria counts or other types of contamination, should they occur. Accordingly, the City satisfies this requirement through the preparation of an annual written report that is made available to water consumers and is forwarded to the MHO as information.

A summary of the City of Surrey Water System Annual Report for 2018 is attached to this report as Appendix “I”. The full report will be available for viewing on the City’s website and will be forwarded to the MHO, subject to approval by Council of the recommendations contained in this report.

The City of Surrey purchased all of its water in 2018 from Metro Vancouver. Metro Vancouver monitors all of the parameters of the City's source water within the Metro Vancouver system from the reservoirs of the North Shore Mountains through the Metro Vancouver distribution system to the delivery points in Surrey.

Within the City distribution system, samples are taken on a regular basis and tests are conducted on those samples which include bacteria, turbidity (cloudiness), as well as chemical and physical parameters unique to distribution systems. Weekly samples are obtained at 51 water sampling sites located strategically across the City's water distribution system. These samples are collected by Metro Vancouver staff and are forwarded to the Metro Vancouver testing laboratory in Burnaby.

In 2018, three thousand two hundred eight (3,208) water samples were analyzed and all of the samples were found to be in compliance with of the Act.

Chlorine Levels

The City monitors chlorine residuals through sampling sites results, and overall chlorine residuals exceed the standards specified in the Act and the Guidelines for Canadian Drinking Water Quality.

At times, portions of the City's distribution system have experienced lower than desirable chlorine residual, to which the City's response is to flush the area until chlorine residuals are greater than 0.2mg/L. The lower than desirable chlorine residual values may be attributed to mainline segments which are "dead-ended"; that is, they are not looped or interconnected with other segments of mainlines. The City, where possible, is requiring looping of existing dead-ended mains either as new development occurs or through Capital Projects. Where it is not possible to loop a main, blow offs, which are valves that are installed at the end of the non-looped water mains, give the City the ability to flush the water main at the main ends. Further, the City institutes a flushing and maintenance program to improve water quality in affected areas.

Cross Connection Control Program

The City administers a comprehensive Cross Connection Control program to minimize the risk of contaminants originating from private properties entering into the City's water network and private properties' plumbing systems. The program includes enforcement of annual testing of backflow preventers, and the installation of backflow preventers for all new construction (plumbing permit requirement) as well as existing industrial, commercial and institutional properties by a cross connection survey requirement.

In 2018, the number of testable backflow preventers registered with the City increased by 1,382 (9.3%) for a total of 13,171 devices. These assemblies were installed through development, renovations or the cross connection control survey requirement. Annual testing of back flow preventers is required by the City, and owners that are found to be in non-compliance were notified to comply or face bylaw enforcement.

Drinking Water Quality Summary

Overall, the 2018 Water System Annual Report confirms and demonstrates that the City year-over-year continues to deliver drinking water to good standards, and there are no concerns with bacterial contamination (E. Coli coliforms). In addition, the City continues to comply to all applicable drinking water acts and regulations. This track record has ensured that the City's customers are receiving clean, safe, clear and healthy drinking water.

SUSTAINABILITY CONSIDERATIONS

The City of Surrey Water System Annual Report for 2018 supports the objectives of the City's Sustainability Charter 2.0. In particular, this Annual Report relates to the Sustainability Charter 2.0 themes of Ecosystems and Infrastructure. Specifically, this Annual Report supports the following Strategic Direction ("SD") and Desired Outcome ("DO"):

- Water, Air and Soil SD6: Develop and encourage stronger policies and strategies that support clean water, soil and air; and
- Water DO16: Surrey's water is clean, abundant and safe for drinking.

CONCLUSION

The City remains diligent and proactive in monitoring, operating and maintaining the City's water distribution system to ensure that the City's water customers continue to receive safe and clean drinking water.

Based on the above discussion, it is recommended that Council:

- Receive this report for information; and
- Authorize staff to forward a copy of this report and the related report titled "City of Surrey Water System Annual Report for 2018", a summary of which is attached to this report as Appendix "I", to the Medical Health Officer ("MHO") in accordance with the requirements of the Drinking Water Protection Act.

Fraser Smith, P.Eng., MBA
General Manager, Engineering

RK/HJ/cc

Appendix "I" - Summary of the City of Surrey Water System Annual Report for 2018

Summary of the City of Surrey Water System Annual Report for 2018

In 2018, the City of Surrey purchased all the water that it supplied to its residents from Metro Vancouver (i.e., the Greater Vancouver Water District).

The City’s water distribution mains are approximately 1,861 km in length making it the longest distribution network in British Columbia. Main length increased by 0.2% in 2018 due to growth and development.

Surrey’s geography and development pattern is serviced with thirty-nine (39) pressure zones and nine (9) pumping stations.

The City’s maintenance program includes a unidirectional flushing program of its mains once every five (5) years. This is to maintain high water quality throughout the distribution network. This program, combined with pipe upgrades and water supply controls by Metro Vancouver, has minimized the need for any abrasive or mechanical cleaning of the City’s water mains.

Monitoring of the water quality within the City’s system is undertaken at fifty-one (51) strategically located sampling sites. Weekly samples are collected and tested by Metro Vancouver at their Water Laboratory in Burnaby. Tests include bacteriological analysis, turbidity, and chlorine residuals.

In 2018, 19% of the City’s water operating and maintenance budget was spent ensuring the City’s water quality met the BC Drinking Water Protection Regulation (“BCDWPR”). Three thousand two hundred eight (3,208) water samples were analyzed and all were in compliance with Schedule A of the BCDWPR.

The City has response procedures dealing with water quality issues or infrastructure failures, such as water main breaks. These procedures incorporate steps for repairs and communication between the City, Metro Vancouver, and Fraser Health Authority.

Chlorine residuals are monitored throughout the distribution system. In 2018, 87% of the 3,208 samples taken were greater than 0.2 mg/L. Where there are increased HPC (heterotrophic plate counts), as the result of low chlorine residual and circulation issues, staff flush the affected section to replace water in the mains, thus increasing chlorine residuals. HPC is not mandatory under the 2018 Guidelines for Canadian Drinking Water Quality; however, the City of Surrey continues to use this methodology to ensure the quality of the water is maintained. The City continues to improve these low flow areas by looping mains and increasing water usage through service connections to new residences and businesses.

Metro Vancouver Water Laboratory performs tests quarterly on water within the City’s system for disinfection by-products (Haloacetic Acids and Trihalomethanes) and semi-annually for pH and select metal concentrations. Sampling sites for these tests were selected in accordance with a monitoring and reporting plan established between the City and Metro Vancouver staff. The results of these tests meet or exceed the 2018 Guidelines for Canadian Drinking Water Quality.

There were no reported incidences of tampering or vandalism with the City's water system in 2018. System security includes lighting, locks, and alarms at pump stations as well as back flow prevention check valves on service connections. The City also has a cross connection program to guard against contaminants entering the system due to faulty connections.

In 2018, the number of testable backflow preventers registered with the City increased by 1,382 (9.3%), for a total of 13,171 assemblies. These assemblies were installed through development, renovations or the cross connection control ("CCC") survey requirement. Through the CCC survey, the City ensures institutional, commercial and industrial operations remain in compliance with the *Surrey Waterworks Cross Connection Control By-law, 2013, No. 17988*.

The City of Surrey remains diligent in maintaining its water distribution system to high quality standards and in ensuring the delivery of high-quality water to the City's residents and businesses.