

Scott Point Waterworks District

Calendar Year 2021

Water Quality Report

This report covers the period of January 1, 2021 to December 31, 2021 and is issued in accordance with section 11 of the British Columbia Drinking Water Protection Regulation of the Drinking Water Protection Act, which requires public reporting of quality monitoring within six months of the end of the calendar year. Water quality sampling is conducted by North Salt Spring Waterworks District (“NSSWD”) under contract. The Trustees provide oversight of the testing program and provide reporting.

SYSTEM DESCRIPTION

Scott Point drinking water is obtained from three groundwater wells. Primary treatment at Well 1 is oxidation followed by greensand filtration and reverse osmosis; at Well 3 it is provided by oxidation followed by sand filtration and Pyrolox absorption; and at Well 4 water is treated through sand filtration, ion exchange tannin reduction, oxidation, and greensand filtration. Disinfection consists of chlorine, in the form of sodium hypochlorite, injected prior to water being introduced into a common distribution system and the residual chlorine is monitored weekly at the ends of the system. A single reservoir tank located at Well 1 maintains system pressure. The water main consists of 2000 m of NPS 4, AC pipe with a dead end at 2 locations.

OVERSIGHT

The District files an annual Water Quality Testing Plan with Vancouver Island Health Authority (“VIHA”). This Testing Plan specifies the weekly, monthly, quarterly and annual sampling required. In 2020, all samples specified in the plan were completed and the results from a certified laboratory were forwarded to VIHA. Additional information on the Water Quality Testing Plan and testing results are available on the District’s website at www.scottpointwaterworks.com/water-quality-2. This Annual Water Quality Report is made available to all residents via email and at the District’s AGM.

The District has an Emergency Response Plan. The trustees review this plan annually and copies are provided to VIHA and NSSWD. Copies are also posted in each treatment plant and at <http://www.scottpointwaterworks.com/governance/emergency-response/>. At the request of VIHA, a pandemic response was added to the plan in March 2020.

The District's system is classified as a Small Water System under the Environmental Operators Certification Program ("EOCP"). Routine operation and maintenance tasks on the District's system are provided by NSSWD under contract. The NSSWD operators are all qualified at EOCP Levels I to IV, all of which exceed the requirements of a Small Water System. One trustee is qualified as EOCP Small Water System operator.

The District has completed a source to tap assessment using Ministry of Health guidelines. This formed part of the analysis that resulted in the District completing a physical risk assessment as part of its Long Term Planning process. A copy of the 10 Year Plan and the physical risk assessment are available on the District's website under the Governance tab.

The District also subscribes to the Multi Barrier Approach for Ensuring Safe Water promoted by Health Canada. The details of the District's Multi-Barrier Approach are available at <http://www.scottpointwaterworks.com/water-quality-2/>

GLOSSARY

CDWQG = Canadian Drinking Water Quality Guidelines set by Health Canada

MAC = Maximum Allowable Concentration

mg/L = milligram per litre – equivalent to parts per million;

µg/l = micrograms per litre – equivalent to parts per billion;

DBP = disinfectant by-product – compounds formed through reaction with chlorine

OPERATING PERMIT

The District operates under a Small Water System Operating Permit issued by Island Health. There are no special conditions attached to the Operating Permit.

BACTERIOLOGICAL TESTING

The chlorine residual level at several locations is tested bi-weekly to ensure levels remain above 0.2 mg/L at the ends of the system, and above 0.8 mg/L in the Reservoir. NSSWD files a monthly report with SPWD confirming chlorine residuals.

Water is sampled monthly at alternating dead-ends of the system and tested for the presence of coliform and non-coliform bacteria and for e-coli. Each quarter including after the first fall heavy rainfall event, each source well is tested for presence of bacteria before and after treatment. A summary of all testing results is available at [http://www.scottpointwaterworks.com/wp-content/uploads/2022/03/2021-Summary-Bacteria-Testing-Sheet1.pdf /](http://www.scottpointwaterworks.com/wp-content/uploads/2022/03/2021-Summary-Bacteria-Testing-Sheet1.pdf/)

CHEMICAL TESTING

Product water at each of the three water treatment plants was tested in August for the presence of a number of metals and salts before and after treatment. Results are

available on the District's website at www.scottpointwaterworks.com/water-quality-2/testing-reports/ and show water treatment continues to be effective in removing a number of elements.

Results from raw water from wells can exceed the MAC contained in the CDWQG set for Iron, Magnesium, Manganese and Sodium. All results for treated water were below the MAC (including the new lower MAC for manganese of 0.12 mg/L) which indicates the continuing effectiveness of treatment.

Testing for the presence of Disinfectant By-products in the water as a result of chemical reactions between naturally occurring elements and the chlorine used for disinfection, continued in 2021

- Quarterly testing at the ends of the system indicated that levels of tri-halomethanes did not exceed the CDWQ Guidelines MAC of 100 µg/l. Readings were recorded as: January 98.5 µg/l, April 4.8 µg/l, July 91.5 µg/l, October 79.3 µg/L.
- Semi-annual sampling for bromate levels in Well 1 treated water were recorded as: January 0.8 µg/l, July 7.99 µg/l, October 2.8 µg/l; all below the MAC of 10 µg/L.
- October testing results for halo-acetic acids were reported as 'not detected'; against a MAC of 80 µg/L.

ORDERS

The District received no orders from regulatory authorities in 2021.

OPERATIONAL PROBLEMS

There were no malfunctions of disinfection equipment in 2021.

The long-standing issue of seawater intrusion into Well 1 continues to be a concern and is being managed through monitoring and adjustments of water sourcing during periods of high demand.

MAJOR UPGRADES AND REPAIRS

There was one minor upgrade in 2021 where the Greensand treatment at Well 4 was relocated in the process train to take advantage of lower flowrates and an automatic closing of the discharge during media regeneration. This has significantly improved cartridge filter life.

The Reverse Osmosis treatment at Well 1 experienced a severe deterioration in performance in the second quarter, and all 8 membranes were replaced. The membranes were fouled with manganese, likely a result of problems with potassium

permanganate injection experienced in 2020. While the 3 year life of the membranes is less than the expected 5 years, the new membranes have allowed a significant increase in water recovery.

The well pump at Well 4 was experiencing issues and the District pulled and replaced the pump with a lower capacity model to reduce the load on the well to what is referred to as “sipping” . This should reduce the impact on the well of higher demands during the summer months.

The District received approval from Island Health to install a RO Recycle Loop and re-process a portion of the RO waste to further improve RO efficiency and water recovery.

There were no repairs to the water main and its components during 2021.

PROGRAMS

Each spring the District has NSSWD conduct the annual water main flushing from the reservoir to each end of the system to remove sediment build up.

Cross connections are locations where it is possible for water to enter the system from water users’ systems and pose a risk of contamination. The District has installed back-flow prevention devices at each service location. In addition, the District conducted a cross connection survey of residents in 2019 that confirmed that all reporting locations either have no cross-connection or have appropriate back-flow prevention devices or air gaps in place. A new survey is planned for 2022.

The District commenced a multi-year plan to replace meter sets and services lines to meet current standards in 2020. In 2021, two meters were reset above the water table.

ADVISORIES

Some residents are noticing a “lime-scale” built up in their glassware, kettles and showerheads. The District monitors hardness and pH levels to determine the long-term level and is looking at adding scale prevention treatment. During 2021 .

PERMANENT ADVISORIES

The following Permanent Advisories are highlighted for attention:

Sodium: Sodium chloride occurs naturally. The sodium levels of water are within CDWQ Guideline limit of 200 mg/L but at times exceed the alert level for people on sodium-restricted diets of 20 mg/L (This is a permanent alert which the district has previously mailed to property owners). The August routine testing indicated sodium

levels in product water at Well #1 – 102 mg/L, Well #3 – 19 mg/L and Well #4 – 139 mg/L.

It is recommended people on sodium restricted diets use an alternative source for drinking water.

Disinfectant By-Products: In the past levels of DBPs, particularly Tri-halomethane compounds have exceeded the MAC. As of December 2021, no samples for DBPs have exceeded the MAC and the District has lifted the permanent advisory.

It is recommended that people concerned about these chlorine and chlorine by-products compounds should consider point-of-use treatment with NSF approved activated carbon.