

Scott Point Waterworks District

Calendar Year 2023

Water Quality Report

This report for Scott Point Waterworks District (“the District”) covers the period of January 1, 2023 to December 31, 2023 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. System maintenance and water quality sampling are done by North Salt Spring Waterworks District (“NSSWD”) under contract. The Trustees provide oversight of the testing program and provide reporting.

Notice of this report is sent to all residents and it is posted on the District’s website at www.scottpointwaterworks.com. The contents of this report are reviewed at the Annual General Meeting held each spring.

SYSTEM DESCRIPTION

Scott Point drinking water is obtained from three groundwater wells. Primary treatment at Well 1 is oxidation filtration, followed by cartridge filtration, and reverse osmosis; Well 3 treatment consists of sand filtration followed by oxidation filtration; and Well 4 treatments is through sand filtration, ion-exchange tannin reduction, oxidation filtration and 5 micron cartridge 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” or “Island Health”). This Testing Plan specifies the weekly, monthly, quarterly and annual sampling required. In 2023, 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, which now includes a Drought Plan. The trustees review and update this plan annually and provide copies to VIHA and

NSSWD. The ERP is posted to the District's website at www.scottpointwaterworks.com/governance/emergency-response/. A summary sheet is also posted at each treatment plant

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 an 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 VIHA. 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 all 3 source wells are tested for the presence of bacteria before and after treatment.

Scott Point Waterworks District

Water Quality Summary

Bacteria Testing

2023

	Location	Units Limit	Total Coliform CFU/100ml	Total Non- Coliform CFU/100ml	Fecal Coliform CFU/100ml
			0	0	0
JAN	466 SPD		0	0	0
FEB	107 MC		0	0	0
MAR	466 SPD		0	0	0
APR	107 MC		0	0	0
MAY	466 SPD		0	0	0
JUN	107 MC		0	0	0
JUL	466 SPD		0	0	0
AUG	107 MC		0	0	0
SEP	466 SPD		0	0	0
OCT	107 MC		0	0	0
NOV	466 SPD		0	0	0
DEC	107 MC		0	0	0
	1raw		0	2	0
	1prod *		0	0	0
	3raw		0	2	0
Q 1 Wells	3prod		0	0	0
	4raw		0	7	0
	4prod *		0	0	0
	1raw		0	0	0
	1prod *		0	0	0
Q 2 Wells	3raw		0	0	0
	3prod		0	0	0
	4raw		0	0	0
	4prod *		0	0	0
	1raw		0	0	0
	1prod *		0	0	0
Q 3 Wells	3raw		NOT RUNNING		
	3prod		NOT RUNNING		
	4raw		0	0	0
	4prod *		0	0	0
	1raw		0	0	0
	1prod *		0	0	0
Q 4 Wells	3raw		NOT RUNNING		

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, except Well 1 tested above the new lower MAC for manganese of 0.12 mg/L, and Well 4 tested above the MAC for iron and manganese. Sampling was taken in August during a period of high consumption and none of the water from Well 4, which contains higher levels of manganese, iron, and calcium chloride, was being re-processed through the RO. The RO continues to be effective at removing the iron and manganese below MAC levels, and reducing overall water hardness.

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 2023:

- Quarterly testing at the ends of the system recorded levels of tri-halomethanes as: January <.01 µg/l, April 33.0 µg/l, July 51.6 µg/l, October 153 µg/L. The CDWQ Guidelines give the MAC as 100 µg/l. The MAC was exceeded while the RO was off-line for leak repairs in October.
- Semi-annual sampling for bromate levels in Well 1 treated water were recorded as: 1.44 µg/l; all below the MAC of 10 µg/L.
- October testing results for halo-acetic acids were reported in May as 10.8 µg/l, and October 15.3 µg/L; below the MAC of 80 µg/L.
- The District tests quarterly for Total Organic Carbon, an indicator of Disinfectant By-Product potential. TOC is no longer listed in the CDWQG, but the B.C Ministry of Environment recommends a maximum of 4 mg/L for raw water and 2 mg/L for treated water. In 2023, there were 0 readings in excess of these amounts.

ORDERS

The District received no orders from regulatory authorities in 2023.

OPERATIONAL ISSUES

2023 was an exceptional year for drought. The Province ended up declaring a Level 5 drought for the south Island, and the District moved Watering Restrictions to Stage 4 – most restrictive. While well levels were pulled below 10-year averages throughout the summer, there was adequate supply. However, to protect groundwater supply, it was not possible to re-process Well 4 water through the RO due to the water losses that occur in treatment. This had a detrimental impact on overall levels of manganese and hardness of the water supply.

It was noted that naturally occurring manganese is not being effectively removed during pre-treatment and ends up clogging the Well 1 reverse osmosis membranes.

The membranes were replaced in November are now being regularly acid washed to remove deposits. The effectiveness of the new Filox media in the pre-treatment is not meeting expectations and a consultant has been retained to recommend changes in operation to improve performance.

The issues with manganese in the system when the RO is not operating resulted in a couple of reports of residents of brown water at their tap. Releases of manganese from the system can occur after rapid temperature rises or periods of excess flow in the main. The water always clears up after running taps for a few minutes. The District has recommended that residents install a NSF 61 carbon filter on their drinking water and change the cartridge in accordance with manufacturer's recommendations.

Some residents are reporting a "limescale" built up in their glassware, kettles and showerheads. The District believes this is coming from water hardness, particularly the "very hard" water produced at Well 4; and is monitoring the impact of hardness and pH levels. The operating plan calls for re-process 50% of the treated water from Well 4 to be re-processed through reverse osmosis treatment. This plan is generally effective, but Well 4 could not be re-processed during the summer drought and the RO plant was offline several times during year, noticeably in November and December dealing with leaks. After returning the RO to service in December, it is expected that the impact will reduce. The District also plans to test a Template Assisted Crystallization at its Well 3 during 2024 to gauge the impact on limescale formation.

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. The most noticeable action is not re-processing any Well 4 water while Watering Restrictions were in place.

MAJOR UPGRADES AND REPAIRS

After replacing the RO membranes in August 2022, they were again replaced in November 2023.

There were no repairs to the water main and its components during 2023.

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. The last cross connection survey of residents was done in 2019 and a number of premises have

since installed gardening systems with the potential for contamination. A new survey is planned for 2024 to confirm that all premises either have no cross-connection, or have appropriate back-flow prevention devices or air gaps in place.

In 2020, the District commenced a multi-year plan to replace/repair meter sets and/or services lines to meet current standards. In 2023, 3 meters were replaced at treatment plants, two meters were reset above the water table, and 10 premises meters were replaced.

COMPLAINTS

There were no formal complaints made in 2023.

ADVISORIES

No temporary advisories were issued in 2023.

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 – 131 mg/L, Well #3 – 21.8 mg/L and Well #4 – 145 mg/L. **It is recommended people on sodium restricted diets use an alternative source for drinking water.**

Chlorine: Chlorine is used for disinfection and is a key component of the multi-barrier approach to ensuring water quality. However, chlorine can react with naturally occurring compounds to form disinfectant by-products which have a health concern. In the past 3 years levels of DBPs, particularly Tri-halomethane compounds have not exceeded the MAC and the District lifted the permanent advisory in 2021. **It is recommended that people concerned about chlorine and chlorine by-products compounds should consider point-of-use treatment with NSF approved activated carbon, with cartridges changed in accordance with manufacturer's recommendations.**

Manganese: Manganese is a naturally occurring mineral in the groundwater. Treatment removes most of the manganese, but at times it can exceed water quality guidelines and can persist in water mains. Residents experiencing brown water should run taps until water runs clear. **It is recommended that formula for infants be made from alternate source of water.**