

December 11, 2023

File No.: 5500-22-SR-01

Dear Property Owner:

**Re: Water Quality Issue Update – Surfside Water Service Area**

### **Background**

The water supply for the Surfside Water Service Area (SSWSA) originates in two shallow wells located south of Surfside Drive in the Marshall-Stevenson National Wildlife Area. Due to their proximity to the ocean, the water in these wells typically shows a spike in salinity content at the end of the dry season in September. The salinity spike typically disappears quite quickly when the fall rains arrive. This increase in salinity is commonly referred to as saltwater intrusion and indicates that the freshwater aquifer level in that area has dropped to the point where salt water from the ocean can flow into the aquifer. The chloride ion or sodium ion concentration in the water, measured in milligrams per litre is what determines the water's salinity. Tests are done in an independent water testing laboratory and takes seven to ten days to get the results. Alternatively, an electrical conductivity test can be done in the RDN Water Services laboratory. While not as accurate as ion testing, the in-house test can quickly show the relative salinity of the water.

Drinking water in British Columbia is required to meet the standards set by the Canadian Guidelines for Drinking Water Quality. The Standards can be viewed online here: <https://bit.ly/CdnDWGuidelines>. Two standards are presented in the guidelines: an aesthetic objective (AO) and a maximum allowable concentration (MAC). The AO is related to how the water looks or tastes, not its effect on human health. Water is no longer considered drinkable when it exceeds the MAC. For the main indicators of salinity, chloride and sodium, the AO is less than 250 milligrams per litre (mg/l) and less than 200 mg/l respectively. A MAC is not provided in the guidelines for either chloride or sodium, though the guidelines indicate that for health considerations "*persons on strict sodium reduced diets applying to all sources, levels in drinking water should be below 20 mg/L*". It is further suggested that applying the guidelines for these two parameters (which we refer to as salinity in the SSWSA) should be based on taste, as salty water will be quite unpleasant to drink before it reaches harmful concentrations of sodium or chloride.

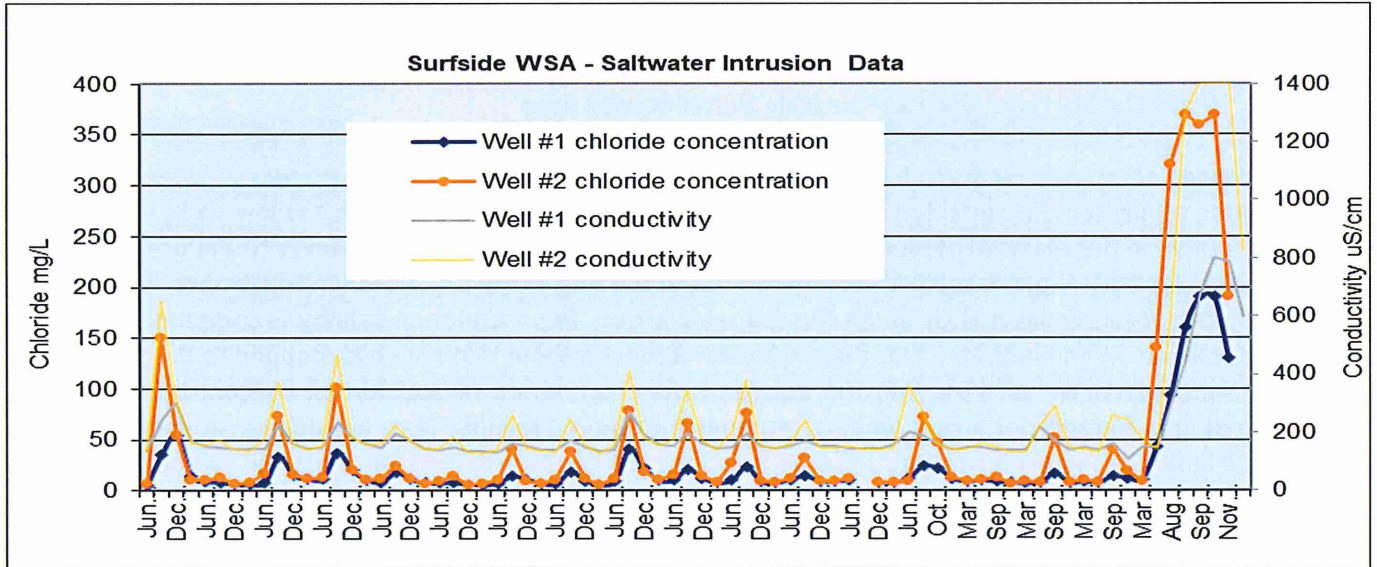
### **2023 Water Quality**

In late August 2023, the RDN's regular testing of the SSWSA wells revealed a sharp increase in salinity in Surfside Well #2. That well was isolated, and water was supplied to the SSWSA exclusively from Surfside Well #1 which also had high salinity but much lower than #2. Island Health was notified of the change and the frequency of testing of both wells was increased. The Ministry of Forests<sup>1</sup> (MoF) was also notified as they are responsible for enforcing groundwater licensing regulations. The MoF's Regional Hydrogeologist and Groundwater Protection Officer reviewed the testing data and well operations. They provided advice on possible changes that could be made well operations to lessen the exposure to saltwater intrusion. The changes that were physically possible were done. At that time, the Regional District of Nanaimo (RDN) also made conceptual plans for a temporary emergency water connection to the Town of Qualicum Beach if the salinity increased to a problematic level. A formal request was not made to Qualicum Beach as this level was not reached.

---

<sup>1</sup> All provincial water-related activities were moved from the Ministry of Forests to the new Ministry of Water, Land, and Resource Stewardship in November 2023

The increased salinity continued until the winter rains came in late October and early November, at which point the salinity began to decrease. While the salinity has not yet dropped to seasonal normal levels, it continues to decrease. The SSWSA will remain on Stage 4 Watering Restrictions until the salinity levels are normal. A graph of the salinity data over time is included below:



**2024 Outlook**

Vancouver Island experienced the most severe drought in memory in 2023. If that climate condition persists in 2024, it is likely that the saltwater intrusion or high salinity will return earlier than normal and last longer than it did in 2023. If there are early signs that this is happening, the SSWSA will move to Stage 4 Watering Restrictions in the late spring, and this will likely become the new normal for this water service area in the short term. For longer-term solutions to the water quality issues, there are some alternatives:

- Installing desalination facilities to treat the existing wells
- Requesting a water allocation from the provincial government to withdraw water from the Little Qualicum River via a new riverside well and new surface water treatment facility
- Negotiating a bulk water supply agreement with the Town of Qualicum Beach or the Little Qualicum Water Works (Improvement District)

The RDN plans to investigate these alternatives in 2024 and will provide an update to residents as more information becomes available. Significant funds will be required to act on any of the alternatives.

If you have any questions or concerns, please email me at [mwalters@rdn.bc.ca](mailto:mwalters@rdn.bc.ca).

Yours truly,

Murray Walters  
 Manager, Water Services