



# Year End Water Quality Report

2104 Twin Creek Road  
Gibsons, BC

Year ending 2023

<b>Authorized Person:</b>	Georges E. Alexis
<b>Date of the service:</b>	2024-03-28
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## Introduction

**Customer Contact:**

The contact for this work was:

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**Authorized Person:**

- ◆ Georges E. Alexis, P Eng, ChE
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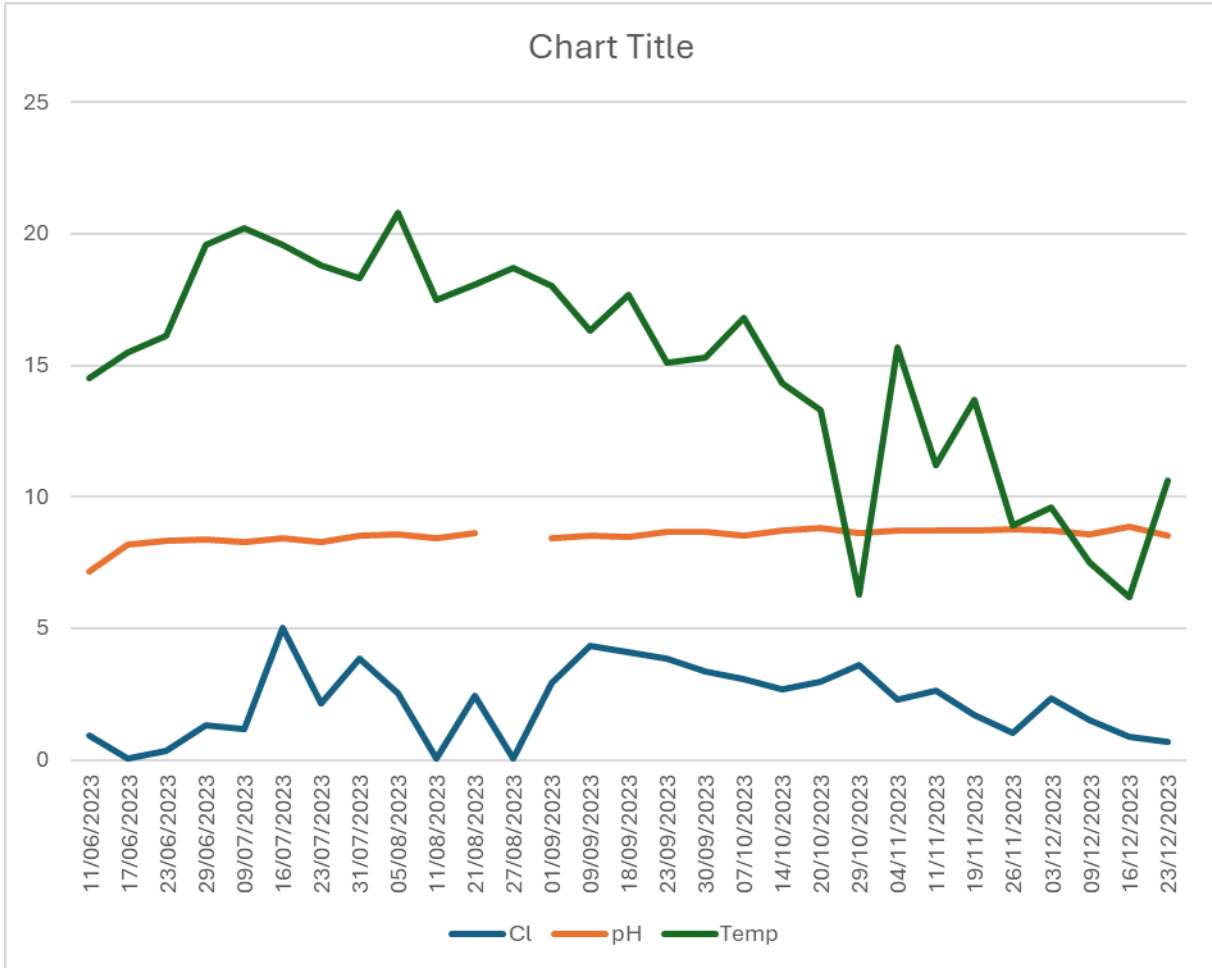
**Scope of Service:**

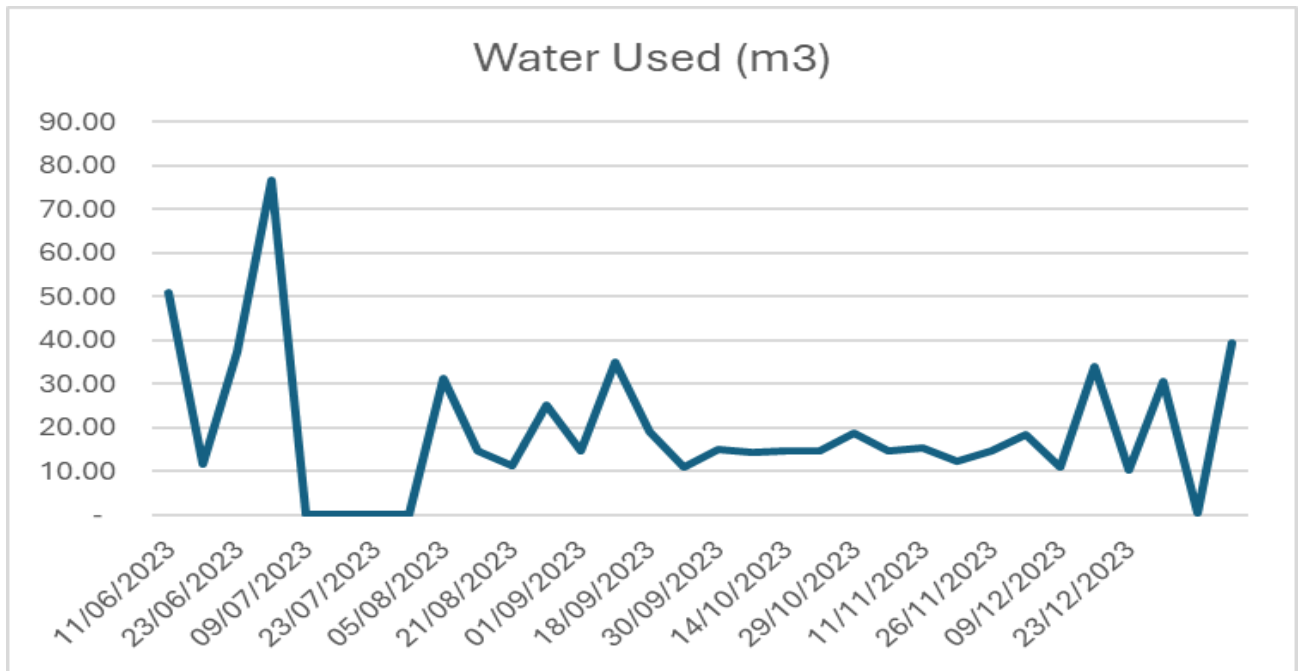
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## Summary

Tests were conducted weekly at 2104 Twin Creek RV Park. The tests were done to monitor Cl concentration and pH. The Cl pump is controlled by the flow totalizer. Initially, this flow totalizer was installed underground. As a result, it was not functioning properly. For a while, the Cl pump was being turned on manually to maintain the proper Cl residual.

## Data Collected





## Observations

As required, water samples were collected monthly for analysis at a third-party lab. During these tests, full metal scans were completed. After the well was drilled, an analysis was performed which showed high levels of Manganese. As a result, we had discussions with Vancouver Coastal Health about monitoring the Manganese levels.

Our hope was to oxidize the Manganese with the oxidant and remove the oxidized Manganese with the filters. After the system was started up, we managed to achieve our goals. The Manganese levels were lowered from 0.12 mg/L down to less than 0.001 mg/L. Provided the pH is maintained under 8.5 and the Cl concentration is high enough, we feel that the Manganese levels can be controlled with oxidation and filtration.

No other metals were of concern in all our tests.

The UV system is operating well. Fe is maintained at less than 0.3 mg/L, hardness is at 39 mg/L, turbidity is 0.71 NTU and the Mn is less than 0.05 ppm. All other metals are below MAC. New light bulbs have been purchased in case either of them fails.

## Recommendations

We recommend that the flow totalizer be replaced, and that the Cl injection pump is adjusted to maintain Mn oxidation levels and above the permit requirements. We also recommend that the baffling efficiency be increased by having one of the storage tanks overflowing into the other. This will increase the contact time. We also recommend that a connection be made to take raw water samples from the well. This would be beneficial during troubleshooting should an issue arise. Another option would be to install a Greensand Plus system. This would automatically remove the oxidized Manganese. The system would backwash when needed. This would work better in the long term.

Also, the Cl injection point is done in an underground tee. Usually, the water from the well pump would be looped into a building that would contain the flow totalizer, mixing tee, Cl storage tank and injection pump, the dole valve with sample point before and after Cl injection. The building would also need to contain an exhaust fan to get rid of any Cl gas.

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