

Water Quality Report

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Summary

Two samples collected at the property 33030 132nd St SE, Sultan, WA 98294, owned by Swordfern, LLC were tested using a water testing field kit that includes DIY well water test kit, pH/temperature meter, TDS Meter, and Refractometer for 16 parameters and compared to the national EPA drinking water standards. The sample location one stream did not meet the EPA standards for Coliform Bacteria and the in-house built slow sand filter did not meet the EPA standards for Coliform Bacteria or Lead. Based on these results the water sources are not potable and may lead to illness if consumed.

Equipment Used

- Apera Instruments PH20 Value Pocket pH tester (SN T215321071) accuracy ± 0.2 pH, passed manufacturing QC 07/28/21, passed in-house calibration 11/03/22
- 7.0 pH Apera Instruments buffer solution (accuracy ± 0.01 pH lot # 320197 exp 08/08/23)
- 4.0 pH Apera Instruments buffer solution (accuracy ± 0.01 pH lot # 310136 exp 08/01/23)
- Ecoxall Deionized water
- Agricultural Solutions Salinity Refractometer (model # WL0020-ATC) calibrated in field 12/29/22
- Dumsamker Digital TDS meter (accuracy ± 0.2 % model # DU-TDSW)
- Zoo Med ReptiTemp Digital thermometer
- Kages PVC habitat enclosure 5'x5'x2'
- 200w ceramic heat bulb
- Safe Home Well Water test kit (lot # WCDIY007): Total Hardness, Free Chlorine, Iron, Copper, Nitrate, Nitrite, Calcium, Total chlorine, Fluoride, Total Alkalinity, Carbonate, pH
- Safe Home Lead in Drinking water Test Kit: Lead
- Safe Home Bacteria in Water Test Kit: Coliform bacteria

Method

All testing was done in the field by Genevieve Faye and not at an EPA certified laboratory. The instruments and DIY well water testing kit can be used to determine if the water sources are unsafe for consumption but are not EPA certified. Two water sources at 33030 132nd St SE, Sultan, WA 98294, owned by Swordfern, LLC were tested by request of Spencer Campbell.

pH and temperature: Sources were directly tested on 11/3/22 for pH and temperature using Apera Instruments PH20 Value Pocket pH tester directly after passing in-house calibration by Genevieve Faye using 7.0 pH Apera Instruments buffer solution, 4.0 pH Apera Instruments buffer solution, and Ecoxall DI water.

12-in-1 parameters: 500 mL Samples were tested using Safe Home Well Water test kit (lot # WCDIY007) in parts per million (ppm) for Total Hardness, Free Chlorine, Iron, Copper, Nitrate, Nitrite, Calcium, Total chlorine, Fluoride, Total Alkalinity, Carbonate, pH. The 12-in-1 test strips were submerged into samples for 2 seconds and results were read after 30 seconds by matching the color of each pad with its respective parameter value on the test strip pouch.

Total Dissolved Solids: Dumsamker Digital TDS meter was submerged ~ 1" into each 500 mL sample until reading stabilized between 10-30 seconds and results were recorded.

Salinity: ~1 mL of the slow sand filter and stream were measured for salinity using Agricultural Solutions Salinity Refractometer directly after in-field calibration. Results were recorded in Specific Gravity (D 20/20) and parts per thousand (‰)

Lead: ~1 mL water sample from the slow sand filter was tested using Safe Home Lead in Drinking water Test Kit on 12/29/22. Test vial was swirled for several seconds to mix reagent into solution with the water. Test strip was submerged in solution for 10 minutes. **At the 10 minute mark results indicated lead concentration is above the EPA Action level of 0.015 ppm.**

Coliform Bacteria: 50 mL samples were collected for Coliform Bacteria testing on 12/29/22 at 13:24 using Safe Home Bacteria in Water Test Kit with test media composition of Sodium Chloride, Tryptose, Dipotassium Hydrogen Orthophosphate, Potassium Dihydrogen Phosphate, L-Tryptophan, D-Glutiol. Collection temperature was Stream 8.2°C and slow sand filter 8.1°C. Samples were incubated at ~35°C for 24.5 hours, start time 14:15 12/29/22 - 14:53 12/30/22. Result reading temperature was Stream 34°C and slow sand filter 34°C. **Both samples at the 24.5 hour mark had turned from yellow to green indicating the presence of Coliform Bacteria.**

Results

Parameter	EPA Limit	Slow Sand Filter	Location 1 Stream
Hardness (ppm)	N/A	25	0
Free chlorine (ppm)	4.0	<1	<1
Iron (ppm)	0.5	0	<0.1
Copper (ppm)	1.3	0.5	0.5
Nitrate (ppm)	10	0	0
Nitrite (ppm)	1	0	0
Calcium (ppm)	N/A	<25	<25
Total Chlorine (ppm)	4.0	<1	<1

Fluoride (ppm)	4.0	0	0
Total Alkalinity (ppm)	N/A	20	20
Carbonate (ppm)	N/A	<10	<10
pH (test strip 12/29/22)	>6.0 - <9.0	6.5	6.5
pH (meter 11/3/22)	>6.0 - <9.0	8.1	7.8
Temperature (°C)	N/A	8.1	8.2
Total Dissolved Solids (ppm)	500	31	12
Coliform Bacteria	Negative	Positive	Positive
Lead (ppm)	0.015	> 0.015	Not tested
Salinity (Specific Gravity (D 20/20) and parts per thousand (‰))	N/A	1.001 d 20/20 and 2 0/00	1.001 d 20/20 and 2 0/00

Conclusion

The slow sand filter and location 1 stream at 33030 132nd St SE, Sultan, WA 98294, owned by Swordfern, LLC are not potable and may lead to illness if consumed. Further testing is necessary by an EPA certified lab before any water sources on the property are deemed potable.

Sources

Links to sources can be found on the Kanboard Swordfern's Forest Task 727 Water Quality Testing external links section. [Swordfern's Forest, #727 - Water quality testing \(ultroneous.org\)](https://ultroneous.org/Swordfern's-Forest-#727-Water-quality-testing)