

REGIONAL DISTRICT OF NANAIMO

Water Service Area Annual Report 2013



Nanoose Bay Peninsula Water Service Area

June 2014

REGIONAL DISTRICT OF NANAIMO

Water & Utility Services Department

6300 Hammond Bay Rd, Nanaimo, BC Canada V9T 6N2 | Ph 250-390-6560 | Fax 250-390-1542



Table of Contents

1.	Introduction.....	1
2.	Nanoose Bay Peninsula Water System.....	1
2.1	Groundwater Wells.....	1
2.2	Reservoirs	2
2.3	Distribution System.....	2
3.	Water Sampling and Testing Program.....	3
4.	Water Quality - Source Water and Distribution System	3
5.	Water Quality Inquiries and Complaints	3
6.	Groundwater Production and Consumption.....	3
7.	Maintenance Program.....	5
8.	Water System Projects	5
8.1	2012 Completed Studies & Projects	5
8.2	2013 Proposed Projects & Upgrades	6
9.	Emergency Response Plan.....	6
10.	Cross Connection Control.....	6
11.	Closing	7

Appendix A - Map of Nanoose Bay Peninsula Water Service Area

Appendix B - Water Quality Testing Results

Appendix C - Emergency Response Plan

1. Introduction

The following annual report describes the Nanoose Bay Peninsula (NBP) Water Service Area and summarizes the water quality and production data from 2013. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, the Emergency Response Plan, and the Cross Connection Control Program.

This report is to be submitted to Island Health by the Spring of 2014.

2. Nanoose Bay Peninsula Water System

The Nanoose Bay Peninsula Water System was established in 2005 by amalgamating the water service areas locally known as Madrona, Wall Beach, Driftwood, Nanoose (Beachcomber), Fairwinds, Arbutus Park, and West Bay. The previous service areas, if referred to in this report, are noted as neighbourhoods within the NBP service area. In 2013, the Nanoose Peninsula Water System was comprised of 2068 water service customers.

The water supply originates from 11 groundwater wells located in the area, and is supplemented seasonally (as required) with water from the Englishman River. The water supply is chlorinated and stored in several reservoirs throughout Nanoose Bay. A portable back-up generator is available in the event of a power outage. A map of the Nanoose Bay Peninsula Water Service Area is provided in Appendix A for reference.

2.1 Groundwater Wells

Eleven groundwater production wells are located in Nanoose Bay for water supply.

Well / Name	Well Depth	Wellhead Protection In Place	Treated/Untreated with Chlorine
Wallbrook #1	16.9 m	Yes	Treated
Madrona #4	52.1 m	Yes	Un-treated
Madrona #8	17.1m	Yes	Treated
Nanoose #2	53.3 m	Yes	Treated
Nanoose #3	52.7 m	Yes	Treated
Nanoose #4	59.1 m	Yes	Treated
Nanoose #6	107.0 m	Yes	Treated
Fairwinds #1	69.8 m	Yes	Treated
Fairwinds #2	75.3 m	Yes	Treated
Fairwinds #3	72.2 m	Yes	Treated
West Bay #3	75.6 m	Yes	Treated

2.2 Reservoirs

Seven water storage reservoirs are present in the Nanoose Bay Peninsula Water System as follows;

- Madrona (concrete) - 485 m³ (100,000 imperial gallons) capacity
- Beachcomber (steel) - 591 m³ (130,000 imperial gallons) capacity
- Eagle Heights (concrete) - 341 m³ (75,000 imperial gallons) capacity
- Dolphin (steel) - 455 m³ (100,000 imperial gallons) capacity
- Fairwinds Res #1 (concrete) - 701 m³ (154,000 imperial gallons) capacity
- Fairwinds Res #2 (concrete) - 701 m³ (154,000 imperial gallons) capacity
- Arbutus Park (concrete) - 568 m³ (125, 000 imperial gallons) capacity

2.3 Distribution System

The water distribution system in Nanoose Bay is summarized in the table below. Fire hydrants (287) are located throughout the water service area.

Watermain Material	Length of mains in NBP Water Service Area	Prevalence in Water Service Area
<u>Asbestos-concrete:</u> 150mm or smaller 200mm or larger	10.4 km 2.7 km	13.1% 3.4%
<u>PVC:</u> 150mm or smaller 200mm or larger	22.4 km 33.5 km	28.2% 42.1%
<u>Ductile Iron:</u> 150mm or smaller 200mm or larger	0.2 km 10.3 km	0.2% 13.0%

Note: 'PVC' is poly-vinylchloride (plastic)

Photo of Fairwinds Reservoir No. 1



3. Water Sampling and Testing Program

Water sampling and testing is carried out weekly in the distribution system. The following table includes a summary of all testing:

Timing	Location	Tests
Weekly	RDN (in-house) Laboratory	Total coliforms, E.Coli Temperature, pH, Conductivity, Turbidity Chlorine residual, Salinity, TDS
Monthly (Health Dept.)	BC Centre for Disease Control	Total coliforms, E.Coli
Monthly	RDN (in-house) Laboratory	Total Iron and Manganese
Annual Source Water Testing (every Fall)	North Island Labs	Complete potability testing of all raw well water, including T-Ammonia
Annual System Water Testing (every Spring)	North Island Labs	Complete potability testing of distribution system, including T-Ammonia
Temporary Extra Testing Once per month	North Island Labs	True colour, Ammonia, Iron, Manganese, and Chloramines in distribution system

4. Water Quality - Source Water and Distribution System

Up-to-date water quality reports and lab data are posted monthly on the RDN website at www.rdn.bc.ca in the SERVICES section, under “Water Services” then “WaterSmart Communities”. Tables of water quality testing results for both the source water and distribution system are provided at the end of this report under Appendix B.

In 2012, construction of a drinking water filtration plant was completed at 2480 Nanoose Road. This filtration plant has been in operation since November 2011, and its purpose is to filter out iron and manganese particulate from the groundwater pumped from Fairwinds Wells #1, 2, and 3, and the West Bay Well #3.

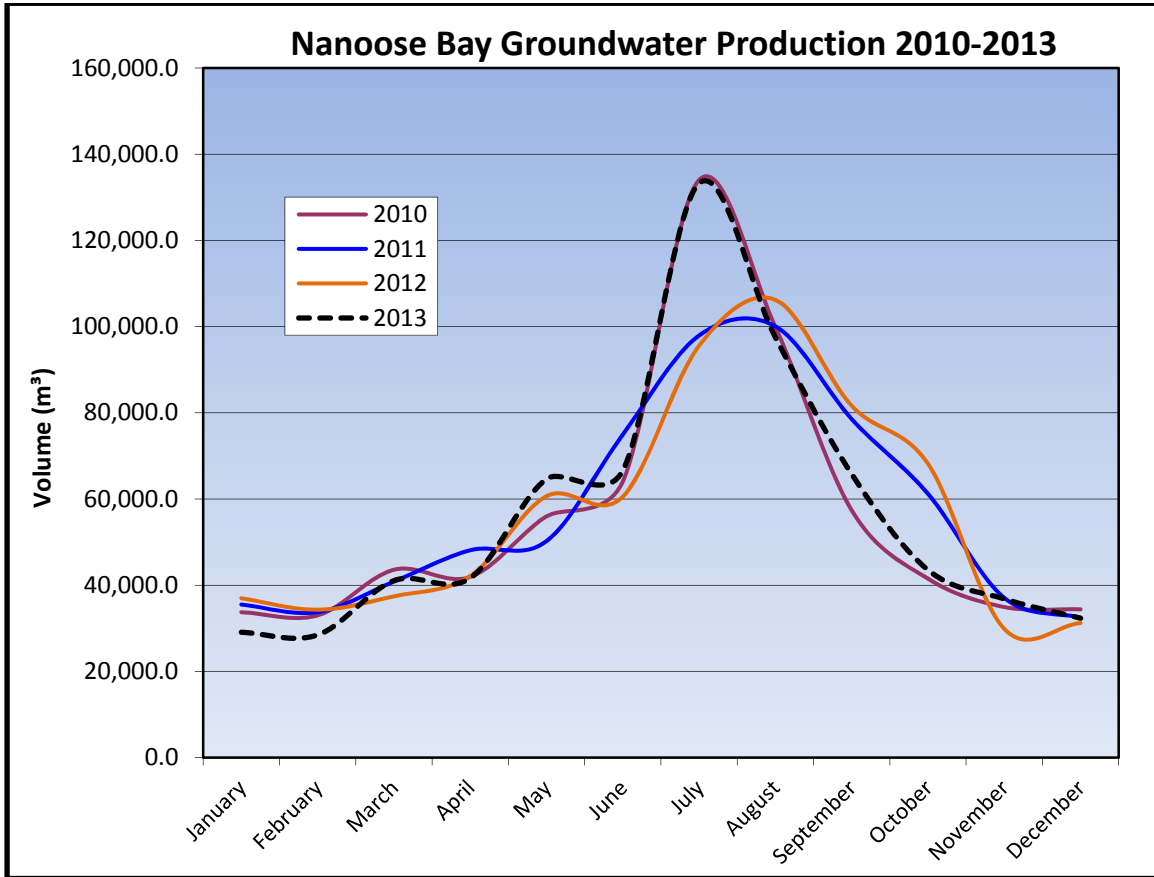
5. Water Quality Inquiries and Complaints

Several inquiries were received from the Nanoose Bay water service area in 2013 regarding the water hardness and whether in-home water softeners would still be required.

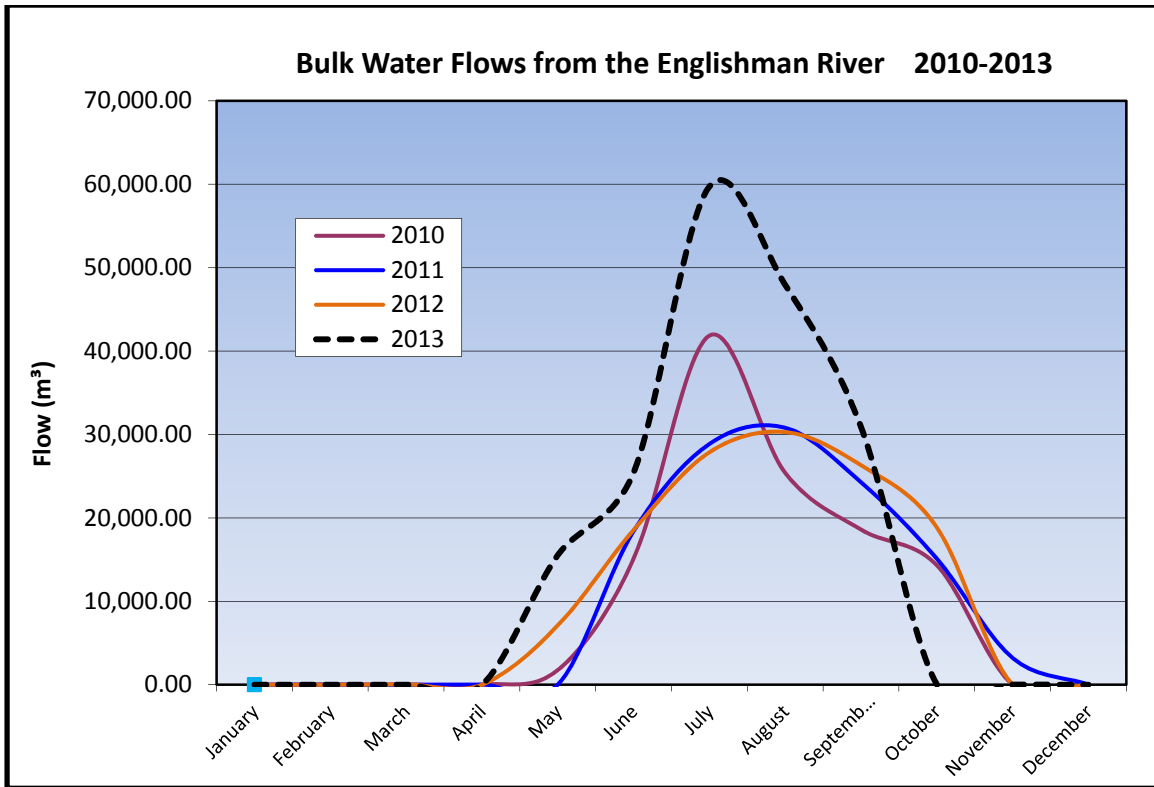
While the water hardness is not being treated at the water filtration plant, the tap water quality has improved. Filtered groundwater from the Fairwinds and West Bay wells is mixed with raw well water from the other Nanoose wells (when required), and stored in the same seven reservoirs throughout Nanoose Bay. The most notable improvement to the tap water is the reduced appearance of iron and manganese minerals (reddish-brown particulate).

6. Groundwater Production and Consumption

The monthly groundwater well production and bulk water flows for the past 4 years are shown in the charts below. Groundwater production in 2013 was very similar to 2010, higher than previous years. Bulk water flows from the Englishman River were significantly higher than in previous years.



In the Fall/Winter of 2013, the average usage per home in Nanoose Bay was 0.42 cubic metres per day (92 imperial gallons). In the summer, the average water usage was 1.19 cubic metres per day (262 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 283 L/day (based on 2.4 people/household). This consumption is 5% more than the RDN system average of 276 L/day/capita in 2013.



7. Maintenance Program

Weekly pump station inspections are carried out to reduce or eliminate the risk of contamination and system failure, and to ensure the consistent application of chlorine for treatment purposes. Watermains are flushed once annually in the Spring. In the Fairwinds neighbourhood the watermains are flushed a second time in the Fall. Fire hydrants are serviced once per year (either 'A-level' or 'B-level' maintenance). Water storage reservoirs are drained and cleaned once every two years. Twenty-four hour on-call coverage is in place to respond to water system emergencies and alarms.

8. Water System Projects

8.1 2013 Completed Studies & Projects

- Completed annual watermain flushing;
- Considered water storage options, i.e. new reservoir(s) vs. expensive upgrades
- Updated Standard Operating Procedures; and
- Enforced the outdoor sprinkling regulations;
- Carried out a comprehensive water conservation campaign (Team WaterSmart);
- Updated and improved the RDN website at www.rdn.bc.ca;
- Utilized the Auto E-message service to notify member residents of water service disruptions and upcoming maintenance activities;
- Applied a low-flush toilet incentive and rainwater harvesting incentive (rain barrels);
- Maintained excellent customer complaint and service request response times;
- Continued quality control through regular testing and monitoring of our water systems; and

- Completed additional educational programs.

8.2 2014 Proposed Projects & Upgrades

- Finalize water storage calculations and requirements;
- Update confined space entry training and purchase additional safety equipment;
- Drain and clean the water storage reservoirs;
- Finalize the Nanoose Bay Peninsula Water Service Area DCC and capital charge bylaws;
- Establish a borrowing bylaw for future capital in the Nanoose Bay Peninsula Water Service Area;
- Update the Madrona Pump Station logic controller;
- Redevelop the Madrona #8 well;
- Perform electrical/controller upgrades to the West Bay Pumphouse;
- Design and install Arbutus Park Pump Station upgrades;
- Design and install Gary Oak PRV and water main upgrades;
- Replace Ashcraft Road watermains, valves and associated works; and
- Continue to offer a low-flush toilet and rainwater harvesting (rain barrel) incentive.

9. **Emergency Response Plan**

The Regional District has an Emergency Response Plan (ERP) that contains procedures and contact information to efficiently respond to water system emergencies such as contamination of water supply, loss of supply, and pump failure. The ERP was reviewed and updated in 2013, and copies are available on our website, at each RDN office, in each pumphouse, and in each Water Services vehicle. A copy of the ERP is also attached to this report in Appendix C.

10. **Cross Connection Control**

A formalized Cross Connection Control Program was initiated in 2007. Cross connection controls in-place include dual check valves at each service connection, fire hydrant use permits, and water supply bylaws noting discontinued service if a threat to the water supply is perceived by staff.

In 2008, a review and comparison of successful cross-connection control programs in other small water systems nearby was undertaken. A database of commercial customers was set-up in order to keep track of the maintenance history of testable backflow prevention assemblies at each site. Three RDN Operations staff achieved Backflow Prevention Tester's certification.

In 2012, *Regional District of Nanaimo Water Use Regulation Bylaw No. 1654, 2012* was adopted which includes enhanced cross connection control and backflow protection wording. A separate Cross Connection Control bylaw was deemed not to be required.

11. Closing

An annual report for the year 2014 will be prepared and submitted to Island Health in the Spring of 2015. Annual reports are also available on our website at www.rdn.bc.ca in the SERVICES section, under “Water Services” then “WaterSmart Communities”.

**Completed Water
Filtration Plant**
**Filtration chambers
shown**

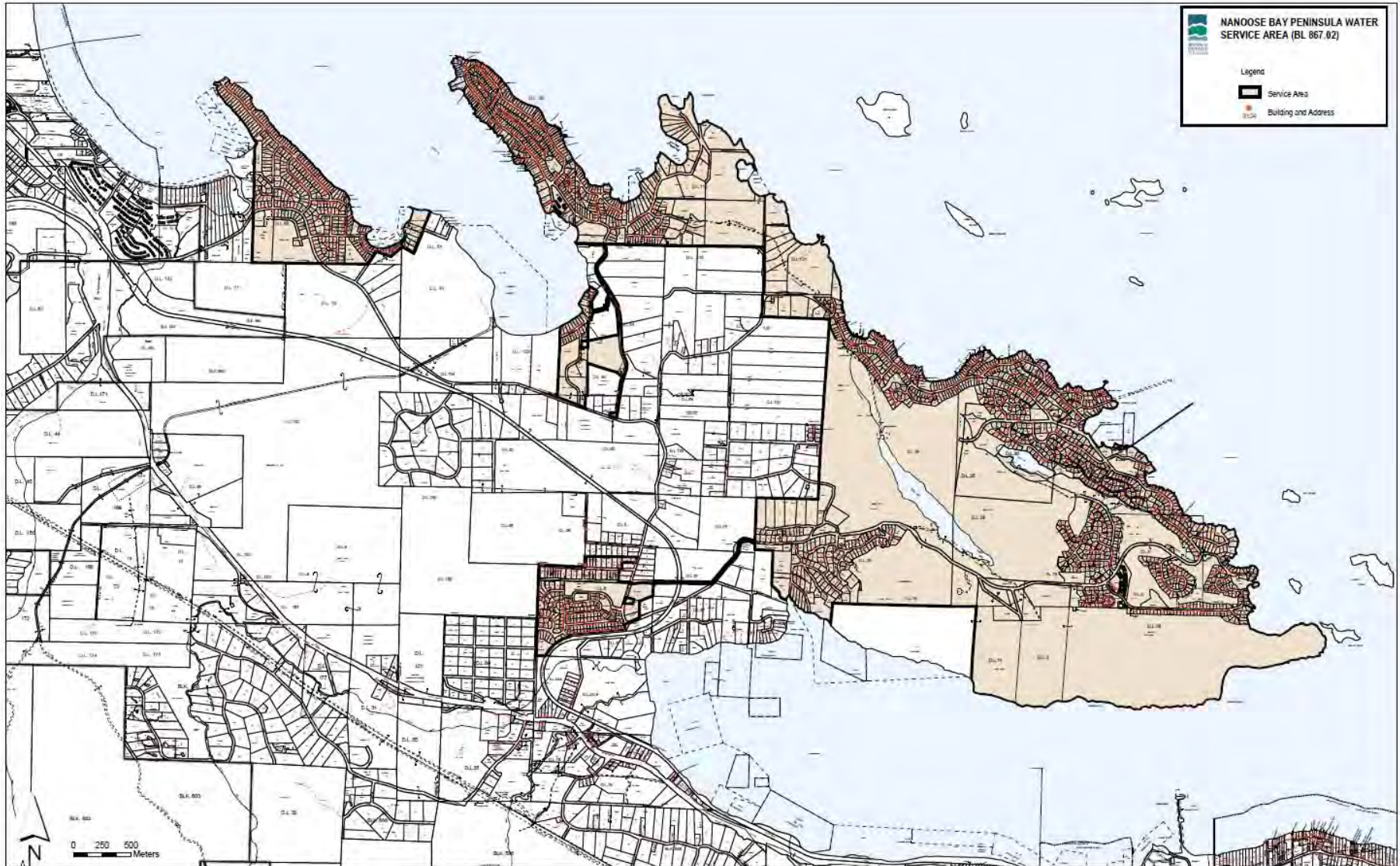


APPENDIX A

MAP OF NANOOSE BAY PENINSULA

WATER SERVICE AREA

NANOOSE BAY PENINSULA WATER SERVICE AREA



APPENDIX B

WATER QUALITY TESTING RESULTS



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
4-Dec-13	1565 Stonelake	0	0	0	0	10	7.19	0.63	200.4	0.20	416.0	0.01	0.012
4-Dec-13	3427 Tye	0	0	0	0	7	7.18	0.52	224.0	0.22	462.0	0.12	0.026
4-Dec-13	1270 Sea Dog	0	0	0	0	8	7.19	0.65	224.0	0.22	464.0	0.48	0.045
4-Dec-13	2315 Ida Lane	0	0	0	0	10	7.24	0.01	220.0	0.22	456.0	0.12	0.014
4-Dec-13	3500 Fairwinds	0	0	0	0	8	7.56	0.70	222.0	0.22	460.0	0.05	0.012
4-Dec-13	1996 Highland	0	0	0	0	9	7.53	0.51	224.0	0.22	463.0	0.04	0.000
4-Dec-13	2329 Chain Way	0	0	0	0	10	7.53	1.29	224.0	0.22	464.0	0.05	0.000
11-Dec-13	1358 Madrona	0	0	0	0	9	7.20	0.60	204.0	0.20	423.0		
11-Dec-13	1639 Marina	0	0	0	0	7	7.20	1.05	225.0	0.22	466.0		
11-Dec-13	2359 Higginson	0	0	0	0	8	7.20	0.95	225.0	0.22	467.0		
11-Dec-13	2454 Armstrong	0	0	0	0	9	7.29	1.00	227.0	0.23	469.0		
11-Dec-13	Lot 54 Evanshire	0	0	0	0	8	7.37	0.86	226.0	0.23	468.0		
11-Dec-13	3383 Redden	0	0	0	0	7	7.39	0.62	225.0	0.22	466.0		
11-Dec-13	2339 Garry Oak	0	0	0	0	8	7.40	0.90	225.0	0.22	465.0		
18-Dec-13	1566 Arbutus	0	0	0	0	8	6.92	1.04	197.5	0.20	410.0		
18-Dec-13	1961 Harlequin	0	0	0	0	6	6.94	0.66	226.0	0.22	468.0		
18-Dec-13	NB Elementary			0	0	9	6.98	1.17	226.0	0.23	470.0		
18-Dec-13	3465 Cambridge	0	0	0	0	7	7.05	0.87	227.0	0.23	470.0		
18-Dec-13	3730 Fairwinds	0	0	0	0	6	7.10	0.55	227.0	0.23	469.0		
18-Dec-13	3541 Shelby	0	0	0	0	6	7.33	0.78	226.0	0.23	467.0		
18-Dec-13	2940 Fairwinds	0	0	0	0	7	7.29	1.12	224.0	0.22	458.0		
30-Dec-13	1565 Stonelake			0	0	9	6.82	0.54	195.1	0.19	405.0		
30-Dec-13	1270 Sea Dog			0	0	8	6.87	1.00	226.0	0.23	468.0		
30-Dec-13	2454 Armstrong			0	0	8	6.69	1.00	216.4	0.21	450.0		
30-Dec-13	3500 Fairwinds			0	0	7	6.94	0.80	224.0	0.22	463.0		
30-Dec-13	2329 Chain Way			0	0	7	6.97	0.43	224.0	0.22	462.0		
	Average	0	0	0	0	7.9	7.2	0.78	220.6	0.2	456.5	0.12	0.016
	Maximum	0	0	0	0	10	7.56	1.29	227	0.23	470	0.48	0.045
	Minimum	0	0	0	0	6	6.69	0.01	195.1	0.19	405	0.01	0.000

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
6-Nov-13	1566 Arbutus	0	0	0	0	11	7.12	0.79	212.0	0.21	438.0		
6-Nov-13	3427 Tyee	0	0	0	0	10	7.32	0.36	216.8	0.22	449.0		
6-Nov-13	1270 Sea Dog	0	0	0	0	10	7.31	1.23	227.0	0.23	470.0		
6-Nov-13	2454 Armstrong	0	0	0	0	12	7.35	0.73	229.0	0.23	475.0		
6-Nov-13	3500 Fairwinds	0	0	0	0	10	7.41	1.38	227.0	0.23	471.0		
6-Nov-13	1996 Highland	0	0	0	0	12	7.48	0.78	226.0	0.23	470.0		
6-Nov-13	2940 Fairwinds	0	0	0	0	7	7.47	1.25	229.0	0.23	475.0		
13-Nov-13	1565 Stonelake	0	0	0	0	11	7.04	0.98	202.0	0.20	419.0	0.01	0.023
13-Nov-13	2359 Higginson	0	0	0	0	10	7.16	1.16	228.0	0.23	472.0	0.05	0.044
13-Nov-13	2315 Ida Lane	0	0	0	0	12	7.19	0.02	225.0	0.22	467.0	0.1	0.042
13-Nov-13	Lot 54 Evanshire	0	0	0	0	10	7.54	1.01	228.0	0.23	473.0	0.09	0.038
13-Nov-13	3383 Redden	0	0	0	0	11	7.55	0.75	228.0	0.23	471.0	0.05	0.016
13-Nov-13	2329 Chain	0	0	0	0	9	7.50	0.37	225.0	0.22	465.0	0.06	0.025
20-Nov-13	1358 Madrona	0	0	0	0	11	7.07	0.83	210.0	0.21	436.0		
20-Nov-13	1639 Marina	0	0	0	0	9.5	7.13	1.16	223.0	0.22	462.0		
20-Nov-13	NB Elementary			0	0	10	7.15	1.90	225.0	0.22	466.0		
20-Nov-13	3730 Fairwinds	0	0	0	0	11	7.09	0.92	226.0	0.22	469.0		
20-Nov-13	3541 Shelby	0	0	0	0	11	7.17	0.93	226.0	0.23	468.0		
20-Nov-13	2339 Garry Oak	0	0	0	0	10	7.19	1.27	226.0	0.22	468.0		
27-Nov-13	1566 Arbutus			0	0	9	7.11	0.40	195.3	0.19	405.0		
27-Nov-13	1961 Harlequin	0	0	0	0	8	7.08	0.57	224.0	0.22	464.0		
27-Nov-13	2454 Armstrong			0	0	10	7.11	0.37	223.0	0.22	461.0		
27-Nov-13	3465 Cambridge	0	0	0	0	9	7.16	0.74	224.0	0.22	464.0		
27-Nov-13	2940 Fairwinds			0	0	9	7.21	0.64	224.0	0.22	463.0		
Average		0	0	0	0	10.1	7.2	0.86	222.0	0.2	460.0	0.06	0.031
Maximum		0	0	0	0	12	7.55	1.9	229	0.23	475	0.1	0.044
Minimum		0	0	0	0	7	7.04	0.02	195.3	0.19	405	0.01	0.016

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.

Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
1-Oct-13	1565 Stonelake	0	0	0	0	16	7.17	0.83	160.0	0.16	334.0		
1-Oct-13	3427 Tye	0	0	0	0	15	7.18	0.75	140.5	0.14	294.0		
1-Oct-13	1270 Sea Dog	0	0	0	0	15	7.14	1.16	138.6	0.14	290.0		
1-Oct-13	2315 Ida Lane	0	0	0	0	17	6.69	0.20	193.4	0.19	402.0		
1-Oct-13	3500 Fairwinds	0	0	0	0	14	7.06	0.96	212.9	0.21	442.0		
1-Oct-13	1996 Highland	0	0	0	0	16	7.20	0.68	206.4	0.21	428.0		
1-Oct-13	2329 Chain Way	0	0	0	0	14	7.15	0.30	192.0	0.19	399.0		
8-Oct-13	1566 Arbutus	0	0	0	0	14	6.83	0.35	198.8	0.20	415.0	0.04	0.001
8-Oct-13	2359 Higginson	0	0	0	0	15	6.79	0.50	218.9	0.22	452.0	0.07	0.006
8-Oct-13	2454 Armstrong	0	0	0	0	15	7.08	0.62	228.0	0.23	473.0	0.10	0.008
8-Oct-13	Lot 54 Evanshire	0	0	0	0	14	7.19	1.02	224.0	0.22	463.0	0.09	0.014
8-Oct-13	3383 Redden	0	0	0	0	15	7.20	0.63	223.0	0.22	462.0	0.10	0.012
8-Oct-13	2940 Fairwinds	0	0	0	0	12	6.95	0.28	211.3	0.21	438.0	0.06	0.012
16-Oct-13	1358 Madrona	0	0	0	0	14	7.04	0.42	219.0	0.22	458.0		
16-Oct-13	1639 Marina	0	0	0	0	11	7.08	1.60	229.0	0.23	474.0		
16-Oct-13	NB Elementary			0	0	10	7.13	1.78	228.0	0.23	472.0		
16-Oct-13	3730 Fairwinds	0	0	0	0	14	7.19	0.87	226.0	0.23	468.0		
16-Oct-13	3541 Shelby	0	0	0	0	12	7.25	1.22	228.0	0.23	472.0		
16-Oct-13	2339 Garry Oak	0	0	0	0	11	7.27	1.71	229.0	0.23	475.0		
22-Oct-13	1565 Stonelake			0	0	13	6.82	1.09	205.0	0.20	427.0		
22-Oct-13	1961 Harlequin	0	0	0	0	12	6.90	0.77	220.0	0.22	456.0		
22-Oct-13	2315 Ida Lane			0	0	14	7.00	0.29	231.0	0.23	478.0		
22-Oct-13	3465 Cambridge	0	0	0	0	11	7.12	1.19	226.0	0.23	468.0		
22-Oct-13	2329 Chain Way			0	0	10	7.20	0.30	215.4	0.22	447.0		
29-Oct-13	1358 Madrona			0	0	14	7.25	0.68	206.0	0.21	428.0		
29-Oct-13	2359 Higginson			0	0	14	7.12	0.88	222.0	0.22	460.0		
29-Oct-13	2454 Armstrong			0	0	14	7.04	0.22	216.0	0.22	460.0		
29-Oct-13	3383 Redden			0	0	14	7.35	0.69	220.0	0.22	458.0		
29-Oct-13	2339 Garry Oak			0	0	12	6.88	1.64	220.0	0.22	456.0		
	Average	0	0	0	0	13.5	7.1	0.81	209.9	0.2	436.2	0.08	0.009
	Maximum	0	0	0	0	17	7.35	1.78	231	0.23	478	0.10	0.014
	Minimum	0	0	0	0	10	6.69	0.2	138.6	0.14	290	0.04	0.001

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L

Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
4-Sep-13	1358 Madrona	0	0	0	0	17	7.14	0.48	122.6	0.12	257.0	0.02	0.029
4-Sep-13	3427 Tyee	0	0	0	0	18	7.29	0.41	69.0	0.07	145.6	0.06	0.031
4-Sep-13	1270 Sea Dog	0	0	0	0	17	7.29	0.82	68.8	0.07	145.1	0.04	0.016
4-Sep-13	2454 Armstrong	0	0	0	0	18	7.24	0.08	108.0	0.11	226.0	0.05	0.011
4-Sep-13	3500 Fairwinds	0	0	0	0	14	7.24	0.40	116.8	0.12	245.0	0.05	0.038
4-Sep-13	1996 Highland	0	0	0	0	14	7.24	0.45	153.7	0.15	321.0	0.08	0.040
4-Sep-13	2339 Garry Oak	0	0	0	0	14	7.20	0.68	135.9	0.13	284.0	0.07	0.020
10-Sep-13	1565 Stonelake	0	0	0	0	16	6.80	0.54	100.7	0.10	211.4		
10-Sep-13	2359 Higginson	0	0	0	0	17	6.84	0.11	70.0	0.07	147.7		
10-Sep-13	2315 Ida Lane	0	0	0	0	17	6.86	0.11	145.0	0.14	303.0		
10-Sep-13	Lot 54 Evanshire	0	0	0	0	14	6.96	0.98	188.8	0.19	392.0		
10-Sep-13	3383 Redden	0	0	0	0	18	7.05	0.77	184.4	0.18	383.0		
10-Sep-13	2329 Chain Way	0	0	0	0	12	7.07	1.58	217.0	0.22	449.0		
17-Sep-13	1566 Arbutus	0	0	0	0	16	6.93	0.90	164.4	0.16	342.0		
17-Sep-13	1639 Marina	0	0	0	0	16	7.00	1.34	142.2	0.14	297.0		
17-Sep-13	NB Elementary			0	0	12	7.12	1.56	222.0	0.22	459.0		
17-Sep-13	3730 Fairwinds	0	0	0	0	18	7.37	0.68	183.0	0.18	380.0		
17-Sep-13	3541 Shelby	0	0	0	0	16	7.40	0.91	182.9	0.18	380.0		
17-Sep-13	2940 Fairwinds	0	0	0	0	16	7.42	0.67	145.0	0.14	303.0		
24-Sep-13	1358 Madrona			0	0	16	7.02	0.49	121.8	0.12	255.0		
24-Sep-13	1961 Harlequin	0	0	0	0	16	7.04	0.59	88.0	0.09	185.4		
24-Sep-13	2454 Armstrong			0	0	16	7.00	0.11	151.9	0.15	317.0		
24-Sep-13	3465 Cambridge	0	0	0	0	14	7.02	0.65	163.5	0.16	341.0		
24-Sep-13	2339 Garry Oak			0	0	25	7.10	0.67	162.6	0.16	339.0		
	Average	0	0	0	0	16.1	7.1	0.67	142.0	0.1	296.2	0.05	0.026
	Maximum	0	0	0	0	25	7.42	1.58	222	0.22	459	0.08	0.040
	Minimum	0	0	0	0	12	6.8	0.08	68.8	0.07	145.1	0.02	0.011

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
7-Aug-13	1566 Arbutus	0	0	0	0	18	6.74	0.48	72.4	0.07	152.8	0.04	0.018
7-Aug-13	3427 tyee cr	0	0	0	0	20	6.71	0.97	62.2	0.06	131.4	0.08	0.013
7-Aug-13	1270 Seadog	0	0	0	0	18	6.71	1.16	62.6	0.06	132.9	0.04	0.025
7-Aug-13	2315 Ida Lane	0	0	0	0	19	6.79	0.56	183.6	0.18	381.0	0.12	0.023
7-Aug-13	3500 Fairwinds	0	0	0	0	15	6.96	1.12	183.9	0.18	382.0	0.07	0.042
7-Aug-13	1996 Highland	0	0	0	0	20	7.04	1.04	197.2	0.20	409.0	0.49	0.147
7-Aug-13	2940 Fairwinds	0	0	0	0	14	7.10	1.32	222.0	0.22	460.0	0.09	0.008
13-Aug-13	1358 Madrona	0	0	0	0	17	7.12	0.75	79.9	0.08	168.2		
13-Aug-13	2359 Higginson	0	0	0	0	17	7.19	0.23	56.7	0.06	120.0		
13-Aug-13	2454 Armstrong	0	0	0	0	17	7.08	0.28	116.6	0.12	244.0		
13-Aug-13	lot 54 Evanshire	0	0	0	0	16	7.15	0.98	185.6	0.18	386.0		
13-Aug-13	3383 Redden Rd	0	0	0	0	17	7.20	0.80	182.6	0.18	380.0		
13-Aug-13	2339 Garry Oak Dr	0	0	0	0	15	7.23	0.97	146.5	0.15	306.0		
21-Aug-13	1565 Stonelake Dr	0	0	0	0	17	6.97	1.15	104.7	0.10	219.8		
21-Aug-13	1639 Marina Way	0	0	0	0	17	6.60	1.30	60.3	0.06	127.5		
21-Aug-13	NB Elementary			0	0	11	7.25	1.67	220.0	0.22	455.0		
21-Aug-13	3730 Fairwinds	0	0	0	0	14	7.44	1.20	178.6	0.18	372.0		
21-Aug-13	3541 Shelby	0	0	0	0	14	7.48	1.16	178.0	0.18	370.0		
21-Aug-13	2329 chain way	0	0	0	0	15	7.07	0.80	179.6	0.18	374.0		
28-Aug-13	1566 Arbutus			0	0	17	6.95	0.64	22.2	0.02	50.1		
28-Aug-13	1961 Harlequin	0	0	0	0	17	7.10	0.58	63.5	0.06	134.2		
28-Aug-13	2315 Ida Lane			0	0	11	6.69	0.07	130.1	0.13	272.0		
28-Aug-13	3465 Cambridge	0	0	0	0	14	7.03	0.89	179.6	0.18	373.0		
28-Aug-13	2940 Fairwinds			0	0	14	7.05	1.78	199.1	0.20	413.0		
	Average	0	0	0	0	7.0	7.0	0.91	136.1	0.1	283.9	0.13	0.039428571
	Maximum	0	0	0	0	20	7.48	1.78	222	0.22	460	0.49	0.147
	Minimum	0	0	0	0	11	6.6	0.07	22.2	0.02	50.1	0.04	0.008

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
3-Jul-13	1565 Stonelake	0	0	0	0	14	7.01	2.17	122.8	0.12	258.0	0.03	0.000
3-Jul-13	3427 Tyee	0	0	0	0	16	7.11	0.01	58.6	0.06	124.1	0.05	0.011
3-Jul-13	1270 Sea Dog	0	0	0	0	16	7.08	0.35	54.9	0.05	116.2	0.08	0.048
3-Jul-13	2315 Ida Lane	0	0	0	0	15	7.07	0.55	180.6	0.18	375.0	0.06	0.007
3-Jul-13	3500 Fairwinds	0	0	0	0	12	7.12	1.03	198.2	0.20	412.0	0.08	0.005
3-Jul-13	1996 Highland	0	0	0	0	16	7.34	0.75	201.0	0.20	417.0	0.10	0.019
3-Jul-13	2329 Chain Way	0	0	0	0	12	7.34	1.68	223.0	0.22	462.0	0.12	0.032
9-Jul-13	1566 Arbutus	0	0	0	0	16	7.24	0.36	68.7	0.07	145.3		
9-Jul-13	2359 Higginson	0	0	0	0	14	7.22	0.02	55.5	0.05	117.2		
9-Jul-13	2454 Armstrong	0	0	0	0	15	7.19	0.58	196.7	0.20	408.0		
9-Jul-13	Lot 54 Evanshire	0	0	0	0	13	7.57	0.92	201.0	0.20	417.0		
9-Jul-13	3383 Redden	0	0	0	0	17	7.55	0.82	195.1	0.19	405.0		
9-Jul-13	2940 Fairwinds	0	0	0	0	14	7.57	0.99	152.1	0.15	317.0		
16-Jul-13	1358 Madrona	0	0	0	0	16	7.27	0.14	69.7	0.07	147.1		
16-Jul-13	1639 Marina Way	0	0	0	0	17	7.32	0.81	59.7	0.06	126.4		
16-Jul-13	NB Elementary			0	0	10	7.35	1.65	216.5	0.22	449.0		
16-Jul-13	3730 Fairwinds	0	0	0	0	18	7.41	0.74	194.8	0.19	405.0		
16-Jul-13	3541 Shelby	0	0	0	0	18	7.38	0.90	198.0	0.20	411.0		
16-Jul-13	2339 Garry Oak	0	0	0	0	13	7.40	1.26	190.1	0.19	394.0		
23-Jul-13	1565 Stonelake			0	0	16	7.28	0.14	80.8	0.08	170.1		
23-Jul-13	1961 Harlequin	0	0	0	0	18	7.28	0.34	61.8	0.06	130.6		
23-Jul-13	2454 Armstrong			0	0	15	7.37	0.97	196.8	0.20	409.0		
23-Jul-13	3465 Cambridge	0	0	0	0	15	7.43	1.21	194.0	0.19	402.0		
23-Jul-13	2329 Chain Way			0	0	15	7.40	0.59	188.0	0.19	391.0		
	Average	0	0	0	0	15.0	7.3	0.79	148.3	0.1	308.7	0.07	0.017
	Maximum	0	0	0	0	18	7.57	2.17	223	0.22	462	0.12	0.048
	Minimum	0	0	0	0	10	7.01	0.01	54.9	0.05	116.2	0.03	0

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
4-Jun-13	1358 Madrona	0	0	0	0	12	7.01	0.13	97.7	0.10	205.7	0.02	0.000
4-Jun-13	3427 Tyee	0	0	0	0	13	7.01	0.03	68.2	0.07	143.9	0.04	0.004
4-Jun-13	1270 Sea Dog	0	0	0	0	13	7.00	0.05	64.3	0.06	136.0	0.04	0.017
4-Jun-13	2454 Armstrong	0	0	0	0	12	7.06	0.15	172.1	0.17	358.0	0.12	0.026
4-Jun-13	3500 Fairwinds	0	0	0	0	12	7.27	0.90	204.3	0.20	426.0	0.08	0.014
4-Jun-13	1996 Highland	0	0	0	0	15	7.48	0.87	212.0	0.21	439.0	0.36	0.202
4-Jun-13	2339 Garry Oak	0	0	0	0	11	7.46	0.85	204.2	0.20	424.0	0.11	0.042
11-Jun-13	1565 Stonelake	0	0	0	0	14	7.47	2.09	150.4	0.15	314.0		
11-Jun-13	2359 Higginson	0	0	0	0	14	7.23	0.18	53.9	0.05	114.1		
11-Jun-13	2315 Ida Lane	0	0	0	0	15	7.49	0.57	162.4	0.18	379.0		
11-Jun-13	Lot 54 Evanshire	0	0	0	0	15	7.26	1.05	197.1	0.20	409.0		
11-Jun-13	3383 Redden	0	0	0	0	15	7.03	0.89	164.9	0.18	384.0		
11-Jun-13	2329 Chain Way	0	0	0	0	14	7.31	0.60	197.9	0.20	411.0		
18-Jun-13	1566 Arbutus	0	0	0	0	15	7.69	0.52	76.8	0.06	162.0		
18-Jun-13	1639 Marina	0	0	0	0	15	7.67	0.61	60.1	0.06	127.0		
18-Jun-13	NB Elementary			0	0	14	7.57	1.50	217.0	0.22	450.0		
18-Jun-13	3730 Fairwinds	0	0	0	0	16	7.33	0.65	157.0	0.16	327.0		
18-Jun-13	3541 Shelby	0	0	0	0	16	7.15	0.74	164.0	0.16	343.0		
18-Jun-13	2940 Fairwinds	0	0	0	0	15	7.53	1.47	197.4	0.20	410.0		
25-Jun-13	1358 Madrona			0	0	14	8.03	0.34	105.1	0.10	221.0		
25-Jun-13	1961 Harlequin	0	0	0	0	15	7.99	0.11	63.3	0.06	133.8		
25-Jun-13	2454 Armstrong			0	0	14	7.69	0.15	142.5	0.14	298.0		
25-Jun-13	3465 Cambridge	A	A	0	0	13	7.71	0.92	186.5	0.19	388.0		
25-Jun-13	2339 Garry Oak			0	0	12	7.72	1.39	203.5	0.20	422.0		
	Average	0	0	0	0	13.9	7.4	0.70	146.8	0.1	309.4	0.11	0.043571429
	Maximum	0	0	0	0	16	8.03	2.09	217	0.22	450	0.36	0.202
	Minimum	0	0	0	0	11	7	0.03	53.9	0.05	114.1	0.02	0

Red font indicates non-compliance with Canadian Drinking Water Guidelines

A-Transport time was too long to laboratory.

Aesthetic Objective for Iron is ≤0.3 mg/L

Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
7-May-13	1566 Arbutus	0	0			11	7.54	0.83	166.3	0.16	349.0	0.01	0.070
7-May-13	3427 Tyee	0	0			13	7.68	0.96	216.0	0.21	447.0	0.10	0.018
7-May-13	1270 Sea Dog	0	0			12	7.67	1.28	215.6	0.21	447.0	0.13	0.014
7-May-13	2315 Ida Lane	0	0			12	7.76	0.51	216.0	0.21	447.0	0.13	0.013
7-May-13	3500 Fairwinds	0	0			12	7.83	1.48	217.9	0.22	451.0	0.18	0.045
7-May-13	1996 Highland	0	0			13	7.79	1.02	216.0	0.21	448.0	0.30	0.069
7-May-13	2940 Fairwinds	0	0			14	7.75	1.01	216.8	0.22	450.0	0.13	0.026
15-May-13	1358 Madrona	0	0			12	7.85	1.00	163.2	0.16	341.0		
15-May-13	2359 Higginson	0	0			12	7.74	0.33	119.2	0.12	250.0		
15-May-13	2454 Armstrong	0	0			11	7.73	0.45	191.6	0.19	398.0		
15-May-13	Lot 54 Evanshire	0	0			12	7.73	1.11	212.9	0.21	441.0		
15-May-13	3383 Redden	0	0			15	7.74	0.93	212.0	0.21	440.0		
15-May-13	2339 Garry Oak	0	0			11	7.70	1.81	217.7	0.22	451.0		
21-May-13	1565 Stonelake	0	0			13	7.39	0.89	126.8	0.13	266.0		
21-May-13	1639 Marina	0	0			13	7.52	0.95	65.5	0.06	132.1		
21-May-13	NB Elementary					11	7.23	2.50	218.0	0.22	452.0		
21-May-13	3730 Fairwinds	0	0			15	7.49	1.07	217.1	0.22	450.0		
21-May-13	3541 Shelby	0	0			14	7.45	1.29	215.9	0.21	447.0		
21-May-13	2329 Chain Way	0	0			12	7.36	0.56	212.0	0.21	440.0		
28-May-13	1566 Arbutus			0	0	12	6.93	0.18	86.0	0.09	181.3		
28-May-13	1961 Harlequin	0	0	0	0	13	6.98	0.25	76.0	0.08	160.2		
28-May-13	2315 Ida Lane			0	0	12	7.13	0.98	203.4	0.20	422.0		
28-May-13	3465 Cambridge	0	0	0	0	12	7.33	1.41	210.0	0.21	436.0		
28-May-13	2940 Fairwinds			0	0	12	7.38	1.53	214.9	0.21	445.0		
	Average	0	0	0	0	12.5	7.5	1.01	184.5	0.2	383.0	0.14	0.036428571
	Maximum	0	0	0	0	15	7.85	2.5	218	0.22	452	0.3	0.07
	Minimum	0	0	0	0	11	6.93	0.18	65.5	0.06	132.1	0.01	0.013

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
3-Apr-13	1358 Madrona	0	0	0	0	10	7.67	0.28	178.4	0.18	372.0	0.01	0.071
3-Apr-13	3427 Tyee	0	0	0	0	10	7.73	0.42	214.0	0.21	443.0	0.10	0.038
3-Apr-13	1270 Sea Dog	0	0	0	0	10	7.76	0.32	202.7	0.20	421.0	0.18	0.039
3-Apr-13	2454 Armstrong	0	0	0	0	9	7.61	0.05	204.0	0.20	421.0	0.24	0.088
3-Apr-13	3500 Fairwinds	0	0	0	0	11	7.72	1.29	215.7	0.21	447.0	0.14	0.040
3-Apr-13	1996 Highland	0	0	0	0	11	7.80	0.99	217.0	0.22	449.0	0.05	0.034
3-Apr-13	2329 Chain	0	0	0	0	10	7.84	0.65	217.5	0.22	451.0	0.09	0.036
10-Apr-13	1565 Stonelake	0	0	0	0	9	7.29	0.35	180.2	0.18	375.0		
10-Apr-13	2359 Higginson	0	0	0	0	9	7.36	1.29	217.0	0.22	448.0		
10-Apr-13	2315 Ida Lane	0	0	0	0	10	7.46	0.20	219.7	0.22	456.0		
10-Apr-13	Lot 54 Evanshire	0	0	0	0	10	7.57	1.24	218.0	0.22	451.0		
10-Apr-13	3383 Redden	0	0	0	0	11	7.63	1.12	216.3	0.22	448.0		
10-Apr-13	2339 Garry Oak	0	0	0	0	10	7.63	1.34	217.0	0.22	449.0		
17-Apr-13	1566 Arbutus	0	0	0	0	10	7.52	0.34	170.0	0.17	354.0		
17-Apr-13	1639 Marina	0	0	0	0	9	7.52	1.51	215.3	0.21	446.0		
17-Apr-13	NB Elementary			0	0	10	7.59	3.60	218.0	0.22	452.0		
17-Apr-13	3730 Fairwinds	0	0	0	0	11	7.64	1.02	216.9	0.22	450.0		
17-Apr-13	3541 Shelby	0	0	0	0	11	7.65	1.13	217.0	0.22	447.0		
17-Apr-13	2940 Fairwinds	0	0	0	0	11	7.62	0.53	216.7	0.22	449.0		
23-Apr-13	1358 Madrona			0	0	11	7.64	0.33	178.0	0.18	370.0		
23-Apr-13	1961 Harlequin	0	0	0	0	11	7.39	0.61	220.0	0.22	546.0		
23-Apr-13	2454 Armstrong			0	0	11	7.27	0.48	218.0	0.22	453.0		
23-Apr-13	3465 Cambridge	0	0	0	0	12	7.78	1.50	215.0	0.20	445.0		
23-Apr-13	2329 Chain Way			0	0	11	7.44	0.89	218.0	0.22	451.0		
Average		0	0	0	0	10.3	7.6	0.90	209.2	0.2	437.3	0.12	0.049
Maximum		0	0	0	0	12	7.84	3.6	220	0.22	546	0.24	0.088
Minimum		0	0	0	0	9	7.27	0.05	170	0.17	354	0.01	0.034

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
5-Mar-13	1566 Arbutus	0	0	0	0	8	7.31	0.84	173.7	0.17	361.0	0.01	0.070
5-Mar-13	3427 Tyee	0	0	0	0	6	7.39	0.03	208.2	0.21	432.0	0.05	0.003
5-Mar-13	1270 Sea Dog	0	0	0	0	8	7.48	1.35	219.0	0.22	453.0	0.22	0.027
5-Mar-13	2315 Ida Lane	0	0	0	0	8	7.51	0.03	211.3	0.21	438.0	0.13	0.042
5-Mar-13	3500 Fairwinds	0	0	0	0	8	7.67	0.67	218.0	0.22	452.0	0.08	0.010
5-Mar-13	1996 Highland	0	0	0	0	8	7.74	0.36	220.0	0.22	457.0	0.04	0.000
5-Mar-13	2940 Fairwinds	0	0	0	0	8	7.78	1.52	219.0	0.22	453.0	0.07	0.000
12-Mar-13	1358 Madrona	0	0	0	0	8	7.52	0.64	179.4	0.18	373.0		
12-Mar-13	2359 Higginson	0	0	0	0	7	7.60	0.38	168.5	0.17	351.0		
12-Mar-13	2454 Armstrong	0	0	0	0	7	7.88	0.04	213.0	0.21	441.0		
12-Mar-13	Lot 54 Evanshire	0	0	0	0	7	7.88	1.28	221.0	0.22	458.0		
12-Mar-13	3383 Redden	0	0	0	0	7	7.90	1.38	223.0	0.22	462.0		
12-Mar-13	2329 Chain Way	0	0	0	0	7	7.92	1.24	222.0	0.22	460.0		
20-Mar-13	1565 Stonelake	0	0	0	0	9	7.26	0.81	180.7	0.18	375.0		
20-Mar-13	1639 Marina	0	0	0	0	8	7.55	0.81	216.3	0.21	448.0		
20-Mar-13	2315 Ida Lane			0	0	8	7.64	0.18	215.0	0.21	446.0		
20-Mar-13	3730 Fairwinds	0	0	0	0	8	7.94	0.98	222.0	0.22	460.0		
20-Mar-13	3541 Shelby	0	0	0	0	8	7.97	1.22	222.0	0.22	458.0		
20-Mar-13	2339 Garry Oak	0	0	0	0	8	8.12	1.24	223.0	0.22	463.0		
26-Mar-13	1566 Arbutus			0	0	10	7.50	0.73	173.1	0.17	360.0		
26-Mar-13	1961 Harlequin	0	0	0	0	9	7.53	0.34	201.0	0.20	416.0		
26-Mar-13	NB Elementary			0	0	11	7.89	1.59	216.0	0.22	447.0		
26-Mar-13	3465 Cambridge	0	0	0	0	10	7.92	1.09	216.0	0.21	447.0		
26-Mar-13	2940 Fairwinds			0	0	9	7.82	1.16	215.0	0.21	446.0		
	Average	0	0	0	0	8.1	7.7	0.83	208.2	0.2	431.5	0.09	0.022
	Maximum	0	0	0	0	11	8.12	1.59	223	0.22	463	0.22	0.070
	Minimum	0	0	0	0	6	7.26	0.03	168.5	0.17	351	0.01	0.000

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
5-Feb-13	1566 Arbutus	0	0	0	0	8	7.25	1.06	177.6	0.18	370.0	0.00	0.225
5-Feb-13	1270 Sea Dog	0	0	0	0	7	7.48	0.81	211.0	0.21	435.0	0.10	0.053
5-Feb-13	3427 Tyee Cr	0	0	0	0	7	7.53	0.03	198.3	0.20	412.0	0.08	0.046
5-Feb-13	2454 Armstrong	0	0	0	0	7	7.64	0.02	215.0	0.21	441.0	0.10	0.084
5-Feb-13	3500 Fairwinds	0	0	0	0	8	7.72	1.36	219.8	0.22	456.0	0.06	0.035
5-Feb-13	1996 Highland	0	0	0	0	8	8.05	1.00	230.0	0.23	476.0	0.05	0.022
5-Feb-13	2339 Garry Oak	0	0	0	0	8	8.03	0.81	214.7	0.21	445.0	0.09	0.031
13-Feb-13	1358 Madrona	0	0	0	0	8	7.12	0.68	175.0	0.17	364.0		
13-Feb-13	2359 Higginson	0	0	0	0	7	7.18	0.53	164.9	0.16	344.0		
13-Feb-13	2315 Ida Lane	0	0	0	0	8	7.41	0.03	209.0	0.21	433.0		
13-Feb-13	Lot 54 Evanshire	0	0	0	0	8	7.54	0.84	216.9	0.22	448.0		
13-Feb-13	3383 Redden	0	0	0	0	7	7.58	0.64	218.0	0.22	452.0		
13-Feb-13	2940 Fairwinds	0	0	0	0	11	7.61	0.98	216.2	0.22	449.0		
20-Feb-13	1565 Stonelake	0	0	0	0	8	7.67	1.56	180.6	0.18	376.0		
20-Feb-13	1639 Marina	0	0	0	0	6	7.79	0.80	209.3	0.21	434.0		
20-Feb-13	2454 Armstrong			0	0	8	7.83	1.19	216.0	0.22	447.0		
20-Feb-13	3730 Fairwinds	0	0	0	0	7	7.92	0.57	220.0	0.22	456.0		
20-Feb-13	3541 Shelby	0	0	0	0	6	8.01	0.73	220.0	0.22	454.0		
20-Feb-13	2329 Chain	0	0	0	0	6	8.00	0.36	220.0	0.22	457.0		
26-Feb-13	1358 Madrona			0	0	8	7.53	0.95	181.2	0.18	377.0		
26-Feb-13	1961 Harlequin	0	0	0	0	6	7.62	0.48	208.9	0.21	433.0		
26-Feb-13	2454 Armstrong			0	0	7	7.74	0.03	213.0	0.21	442.0		
26-Feb-13	3465 Cambridge	0	0	0	0	7	7.91	1.35	223.0	0.22	463.0		
26-Feb-13	2339 Garry Oak			0	0	8	7.90	1.29	219.0	0.22	455.0		
	Average	0	0	0	0	7.5	7.7	0.75	207.4	0.2	430.0	0.07	0.071
	Maximum	0	0	0	0	11	8.05	1.56	230	0.23	476	0.1	0.225
	Minimum	0	0	0	0	6	7.12	0.02	164.9	0.16	344	0	0.022

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Regional District of Nanaimo - Water Services Department

Nanoose Bay Peninsula Water Analysis - 2013 Monthly Report



Date	Sample Location (Address)	Health Department		In-House									
		E. coli *	Total Coliform *	E.coli *	Total Coliform *	Temp. (°C)	pH	Free Chlorine Residual (mg/L)	Total Dissolved Solids (mg/L)	Salinity (%)	Conductivity (µS/cm)	Total Iron (mg/L)	Manganese (mg/L)
9-Jan-13	1566 Arbutus	0	0	0	0	8	7.02	0.62	185.2	0.18	384.0		
9-Jan-12	1270 Sea Dog	0	0	0	0	7	7.79	1.02	212.8	0.21	441.0		
9-Jan-13	2315 Ida Lane	0	0	0	0	9	7.91	0.09	216.0	0.22	449.0		
9-Jan-13	3383 Redden			0	0	7	8.05	1.46	227.0	0.23	469.0		
9-Jan-13	2329 Chain Way	0	0	0	0	7	8.16	0.40	224.0	0.22	464.0		
15-Jan-13	1358 Madrona	0	0	0	0	7	7.18	0.63	183.0	0.18	381.0	0.00	0.073
15-Jan-13	3427 Tyee	0	0	0	0	6	7.30	0.06	209.0	0.21	426.0	0.09	0.072
15-Jan-13	2359 Higginson	0	0	0	0	7	7.62	0.05	182.0	0.18	378.0	0.03	0.054
15-Jan-13	2454 Armstrong	0	0	0	0	7	7.81	0.03	223.0	0.22	461.0	0.13	0.074
15-Jan-13	3500 Fairwinds	0	0	0	0	7	7.95	1.29	226.0	0.23	469.0	0.09	0.033
15-Jan-13	Lot 54 Evanshire	0	0	0	0	7	8.01	1.32	227.0	0.23	470.0	0.28	0.085
15-Jan-13	2339 Garry Oak	0	0	0	0	8	8.00	0.15	226.0	0.22	468.0	0.14	0.049
23-Jan-13	1565 Stonelake	0	0	0	0	9	7.52	0.88	180.8	0.18	375.0		
23-Jan-13	1639 Marina	0	0	0	0	7	8.11	0.43	214.3	0.21	444.0		
23-Jan-13	NB Elementary			0	0	9	8.16	0.05	214.0	0.21	443.0		
23-Jan-13	3465 Cambridge	0	0	0	0	7	8.18	0.81	224.0	0.22	464.0		
23-Jan-13	1996 Highland	0	0	0	0	7	8.27	0.46	228.0	0.23	471.0		
23-Jan-13	2940 Fairwinds	0	0	0	0	9	8.25	0.06	216.5	0.22	449.0		
29-Jan-13	1566 Arbutus			0	0	8	7.81	1.05	179.9	0.18	374.0		
29-Jan-13	1961 Harlequin	0	0	0	0	6	7.93	0.06	210.0	0.21	435.0		
29-Jan-13	2315 Ida Lane			0	0	8	8.04	0.04	215.4	0.22	447.0		
29-Jan-13	3730 Fairwinds	0	0	0	0	7	8.14	0.19	221.0	0.22	455.0		
29-Jan-13	3541 Shelby	0	0	0	0	7	8.16	0.75	221.0	0.22	459.0		
29-Jan-13	2329 Chain Way			0	0	7	8.21	0.14	223.0	0.22	462.0		
	Average	0	0	0	0	7.4	7.9	0.50	212.0	0.2	439.1	0.11	0.063
	Maximum	0	0	0	0	9	8.27	1.46	228	0.23	471	0.28	0.085
	Minimum	0	0	0	0	6	7.02	0.03	179.9	0.18	374	0	0.033

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Aesthetic Objective for Iron is ≤0.3 mg/L Aesthetic Objective for Manganese is ≤0.05mg/L

*Coliforms are measured in colony forming units (CFU) per 100 millilitres of water (CFU/100mL)

Yellow Column Coliform tests are completed by Health Department

Blue column tests are completed by RDN

Comments:

Iron and manganese are found naturally in drinking water. Levels found in these samples are not a health concern.



Fairwinds Well Water Analysis Results
Well #1: 2275 Tippet Road
 Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration AO= Asthetic Objective

OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			16-Oct	22-Oct	26-Oct	19-Oct	24-Oct	23-Oct	23-Oct	21-Oct	19-Oct	14-Nov	31-Oct	23-Oct				
	Units	CDWG		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
Total Ammonia (N)	mg/L											1.00	1.43	1.46	1.24				
Color-Apparent	CU			16	14	9	17	5	14	24	28	22	22	30	27				
Conductivity	uS/cm			311	326	319	327	326	331	329	329	339	328	330	334				
TDS	mg/L	≤500	AO	187	187	180	334	210	207	218	216	172	174	228	190				
Hardness (CaCO ₃)	mg/L	80-100	AO	109.1	117	120	120	110	120	130	120	120	120	120	130				
pH	pH units	6.5-8.5	AO	7.78	7.8	7.8	8	7.9	8.08	7.94	7.8	7.8	7.9	7.8	7.8				
Turbidity	NTU's	5	AO	0.83	2.06	1.6	1.5	1.3	1	1.2	1.3	1.2	1.4	1.5	1.6				
Alkalinity	mg/L			151	150	150	150	150	150	150	150	150	140	150	150				
Chloride	mg/L	≤250	AO	10.62	12.6	10.6	10.4	9.7	10.6	11.6	10.4	9.3	10.9	10.9	10.5				
Fluoride	mg/L	1.5	MAC	0.17	<0.6	<1.0	<1.0	<1.0	<1.0	1	<1	<1.0	0.18	0.19	0.16				
Sulfate	mg/L	500	AO	1.72	3.7	3	3.8	4.8	4.6	4.8	6.2	6	6.8	7.8	9.1				
Sulphide	mg/L	0.05	AO											0.039					
Nitrate (N)	mg/L	10	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.07	<0.005				
T-Antimony	mg/L	0.006	MAC	0.0004	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0001	<0.0002				
T-Arsenic	mg/L	0.010	MAC	0.0031	0.0014	0.0019	0.0018	0.0016	0.0018	0.0017	0.0017	0.0018	0.0019	0.00196	0.0019				
T- Barium	mg/L	1.0	MAC	0.011	0.01	0.012	0.011	0.009	0.01	0.009	0.01	0.01	0.011	0.0105	0.01				
T-Beryllium	mg/L												<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L												<0.001	<0.0001	<0.001				
T-Boron	mg/L	5.0	MAC	0.166	0.067	0.069	0.066	0.06	0.071	0.062	0.061	0.06	0.068	0.068	0.064				
T-Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001				
T-Calcium	mg/L			26.4	28.1	29.1	30.4	28.1	29.6	30.6	28.2	30.8	29.7	30.8	30.4				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0004	<0.0004	0.0012	<0.0004	<0.0005	<0.0004				
T-Cobalt	mg/L												0.00002	<0.0001	0.00004				
T-Copper	mg/L	≤1.0	AO	0.003	0.004	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.019	<0.001	0.0009	<0.001				
T-Iron	mg/L	≤0.3	AO	0.6	0.7	0.7	0.7	0.6	0.7	0.61	0.606	0.655	0.633	0.683	0.688				
T-Lead	mg/L	0.010	MAC	0.001	0.0005	0.0003	0.0003	<0.0001	<0.0001	0.0001	<0.0001	0.0015	<0.0001	0.0003	0.0001				
T-Lithium	mg/L											<0.001	<0.001	<0.001	<0.001				
T-Magnesium	mg/L			10.5	11.4	11.5	11	10.4	11	11.8	11.1	11.5	11.3	11.5	12.3				
T-Manganese	mg/L	≤0.05	AO	0.255	0.251	0.268	0.273	0.254	0.273	0.263	0.274	0.291	0.267	0.282	0.3				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.00001	<0.00001	<0.0001	<0.00001				
T-Molybdenum	mg/L												0.0003	0.00041	0.0003				
T-Nickel	mg/L										<0.001	<0.001	<0.001	<0.0002	<0.001				
T-Phosphorus	mg/L										0.915	0.992	0.897						
T-Potassium	mg/L			2.3	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.3	2.5	2.5	2.65				
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0006	<0.0006	<0.0006	0.0029	<0.0001	<0.0006				
T-Silicon	mg/L												14	16.3	15.1				
T-Silver	mg/L										<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				
T-Sodium	mg/L	≤200	AO	60.6	22	21.7	22.8	21.4	22.2	23.1	21.2	22.5	21.5	22.9	24.1				
T-Strontium	mg/L												0.094	0.107	0.106				
T-Thallium	mg/L												<0.00001	<0.00001	<0.00001				
T-Tin	mg/L												<0.0001	<0.0001	<0.0001				
T-Titanium	mg/L												<0.001	<0.0005	<0.0010				
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.00001	<0.0004				
T-Vanadium	mg/L												0.0006	0.0004	0.0004				
T-Zinc	mg/L	≤5.0	AO	0.209	0.078	0.052	0.044	0.007	0.022	0.012	0.004	0.018	0.003	0.005	0.016				
Total Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0				
E.coli	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				



Fairwinds Well Water Analysis Results

Well #2: 2395 Nanoose Road

Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines

MAC=Maximum Acceptable Concentration

AO= Aesthetic Objective

OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			16-Oct	22-Oct	26-Oct	19-Oct	24-Oct	23-Oct	23-Oct	21-Oct	19-Oct	14-Nov	31-Oct	23-Oct				
	Units	CDWG		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
Total Ammonia (N)	mg/L											1	2	1.47	1.56				
Color-Apparent	CU			45	<5	13	18	<5	18	25	84	25	30	28	22				
Conductivity	uS/cm			371	382	343	350	457	365	359	390	343	324	353	346				
TDS	mg/L	≤500	AO	207	220	210	190	290	247	224	246	180	165	228	202				
Hardness (CaCO ₃)	mg/L	80-100	AO	98	96	110	110	100	110	110	100	110	99	110	110				
pH	pH units	6.5-8.5	AO	7.57	7.63	7.7	7.9	7.8	8.06	7.97	7.6	7.8	7.9	7.8	7.9				
Turbidity	NTU's	5	AO	0.42	0.92	1.2	1.2	1.1	1	1	1.9	1.4	2.0	1	0.8				
Alkalinity	mg/L			151	160	160	160	160	150	150	140	140	140	150	150				
Chloride	mg/L	≤250	AO	34.06	25.9	13.7	12.8	42.4	13.7	15.5	27.4	9.2	9.8	14.4	14.7				
Fluoride	mg/L	1.5	MAC	0.19	<0.6	<1.0	<1.0	<1.0	<1.0	1	<1.0	<1.0	0.19	0.24	0.19				
Sulfate	mg/L	500	AO	2.49	4.8	5.2	5.2	6.4	6.4	7.9	11.4	9.1	8.7	8.5	9.3				
Sulphide	mg/L	0.05	AO												0.03				
Nitrate (N)	mg/L	10	MAC	0.03	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.095	<0.005				
T-Antimony	mg/L	0.006	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001				
T-Arsenic	mg/L	0.010	MAC	0.0016	0.0025	0.0017	0.0015	0.0015	0.001	0.0012	0.0016	0.0013	0.0019	0.00143	0.0012				
T-Barium	mg/L	1.0	MAC	0.009	0.009	0.009	0.009	0.007	0.009	0.008	0.013	0.008	0.01	0.00851	0.008				
T-Beryllium	mg/L												<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L												<0.001	0.0001	<0.001				
T-Boron	mg/L	5.0	MAC	0.063	0.08	0.095	0.091	0.092	0.098	0.096	0.073	0.077	0.084	0.088	0.088				
T-Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001				
T-Calcium	mg/L			23.9	23.4	26.4	27.3	25.5	26.5	27.8	24.5	26.6	24.5	27.5	26.6				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0004	<0.0004	0.001	0.0006	<0.0005	<0.0004				
T-Cobalt	mg/L												0.00002	<0.0001	0.00004				
T-Copper	mg/L	≤1.0	AO	0.004	0.002	<0.001	0.003	0.001	<0.001	<0.001	0.01	<0.001	0.001	0.0013	<0.001				
T-Iron	mg/L	≤0.3	AO	0.7	1.1	0.7	0.7	0.4	0.6	0.56	0.992	0.846	0.96	0.633	0.575				
T-Lead	mg/L	0.010	MAC	0.0003	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0006	0.0002	<0.0001	0.0001	<0.0001				
T-Lithium	mg/L										<0.001	<0.001	<0.01	0.0008	<0.001				
T-Magnesium	mg/L			9.3	9.2	10.2	9.8	9.4	9.7	10.7	9.57	9.78	9.19	10.1	10.8				
T-Manganese	mg/L	≤0.05	AO	0.318	0.319	0.325	0.319	0.178	0.317	0.317	0.47	0.335	0.294	0.318	0.326				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.00001	<0.00001	<0.0001	<0.00001				
T-Molybdenum	mg/L												<0.0001	0.00019	0.0001				
T-Nickel	mg/L										<0.001	<0.001	<0.001	<0.0002	<0.001				
T-Phosphorus	mg/L											1.24	1.16						
T-Potassium	mg/L			2.7	2.7	2.8	2.9	3	2.9	3	3	2.6	3.1	3	3.07				
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0006	<0.0006	<0.0006	0.0032	<0.0001	<0.0006				
T-Silicon	mg/L												14.8	17.1	16.2				
T-Silver	mg/L										<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				
T-Sodium	mg/L	≤200	AO	42.4	43.4	31.7	32.6	57.6	32	33.2	41.9	29.8	28.2	31.4	33.2				
T-Strontium	mg/L												0.1	0.114	0.11				
T-Thallium	mg/L												<0.00001	<0.00001	<0.00001				
T-Tin	mg/L												<0.0001	<0.0001	<0.0001				
T-Titanium	mg/L												<0.001	<0.0005	<0.0010				
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.00001	<0.0004				
T-Vanadium	mg/L												0.0008	0.0007	0.0007				
T-Zinc	mg/L	≤5.0	AO	0.06	0.049	0.006	0.013	0.003	0.006	0.005	0.081	0.007	0.028	0.0031	0.002				
Total Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1.0								
E.coli	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0				



Fairwinds Well Water Analysis Results
Well #3: 2301 Nanoose Road
 Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration AO= Aesthetic Objective
 OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			26-Oct	19-Oct	24-Oct	23-Oct	23-Oct	21-Oct	19-Oct	14-Nov	31-Oct	23-Oct						
	Units	CDWG		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013						
Total Ammonia (N)	mg/L									1.1	1.98	1.56	1.75						
Color-Apparent	CU			12	12	12	18	24	39	21	26	28	25						
Conductivity	uS/cm			504	516	494	524	525	554	521	478	511	533						
TDS	mg/L	≤500	AO	270	560	270	267	334	326	274	262	320	292						
Hardness (CaCO ₃)	mg/L	80-100	AO	110	130	120	130	150	140	150	140	150	160						
pH	pH units	6.5-8.5	AO	7.80	8.00	7.80	8.05	8.05	7.80	7.80	7.9	7.8	7.8						
Turbidity	NTU's	5	AO	0.5	0.6	0.6	1.1	2.5	3.6	1.5	2.8	1.3	1.2						
Alkalinity	mg/L			150	150	150	140	150	140	160	160	160	160						
Chloride	mg/L	≤250	AO	66.4	70.6	61.3	66.9	68.6	77.6	53.2	4.2	50	67						
Fluoride	mg/L	1.5	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.05	0.14	0.12						
Sulfate	mg/L	500	AO	<2.0	<2.0	3.2	4.4	6.2	5.7	15.2	1.5	13.1	8.8						
Sulphide	mg/L	0.05	AO									0.063							
Nitrate (N)	mg/L	10	MAC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.05	<0.05	<0.05						
Nitrite (N)	mg/L	1	MAC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05						
T-Aluminum	mg/L	0.100	OG	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.099	<0.005						
T-Antimony	mg/L	0.006	MAC	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002						
T-Arsenic	mg/L	0.010	MAC	0.0049	0.0046	0.0043	0.0046	0.0044	0.0054	0.0045	0.0057	0.00515	0.0043						
T-Barium	mg/L	1.0	MAC	0.008	0.009	0.008	0.010	0.008	0.009	0.009	0.009	0.00972	0.01						
T-Beryllium	mg/L										<0.00004	<0.00005	<0.00004						
T-Bismuth	mg/L										<0.001	<0.0001	<0.001						
T-Boron	mg/L	5.0	MAC	0.111	0.103	0.095	0.100	0.094	0.086	0.078	0.084	0.091	0.086						
T-Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00002	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001						
T-Calcium	mg/L			27.3	32.4	31.1	33.7	36.6	34.3	37.1	34.2	37.4	38.8						
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.001	0.0006	0.0006	<0.0004	0.0009	0.0007	<0.0005	<0.0004						
T-Cobalt	mg/L										0.00005	<0.0001	0.00005						
T-Copper	mg/L	≤1.0	AO	0.002	0.003	0.006	0.001	0.032	0.002	0.001	0.001	0.0012	0.001						
T-Iron	mg/L	≤0.3	AO	0.400	0.400	0.400	0.500	0.490	0.672	0.508	0.566	0.516	0.578						
T-Lead	mg/L	0.010	MAC	0.0011	0.0013	0.0004	0.0002	0.0126	0.0007	0.0008	<0.0001	<0.0001	0.0003						
T-Lithium	mg/L								<0.001	<0.001	<0.001	0.0008	<0.001						
T-Magnesium	mg/L			10.0	11.2	11.0	12.0	13.6	12.8	13.1	12.3	13.3	15.4						
T-Manganese	mg/L	≤0.05	AO	0.162	0.196	0.190	0.213	0.223	0.234	0.237	0.21	0.234	0.274						
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0001	<0.0001	<0.0001	<0.0100	<0.0100	<0.00001	<0.00001	<0.0001	<0.00001						
T-Molybdenum	mg/L										0.0001	0.00027	0.0002						
T-Nickel	mg/L								<0.001	<0.001	<0.001	<0.0002	<0.001						
T-Phosphorus	mg/L								1.19	0.932	0.852								
T-Potassium	mg/L			3.4	3.7	3.7	3.7	3.7	3.7	3.2	3.4	3.6	4.11						
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	<0.0004	<0.0002	<0.0006	<0.0006	<0.0006	0.0034	<0.0001	<0.0006						
T-Silicon	mg/L										13.6	15.8	15.3						
T-Silver	mg/L								<0.00001	<0.00001	<0.00001	<0.00001	<0.00001						
T-Sodium	mg/L	≤200	AO	52.2	53.0	47.4	46.9	49.0	50.8	47.3	42.1	47.6	50.2						
T-Strontium	mg/L										0.218	0.242	0.242						
T-Thallium	mg/L										<0.00001	<0.00001	<0.00001						
T-Tin	mg/L										<0.0001	<0.0001	<0.0001						
T-Titanium	mg/L										<0.001	<0.0005	<0.0010						
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.001	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.00001	<0.0004						
T-Vanadium	mg/L										0.0013	0.0008	0.0008						
T-Zinc	mg/L	≤5.0	AO	0.017	0.010	0.009	0.016	0.052	0.166	0.033	0.059	0.0217	<0.001						
Total Coliform	cfu/100ml	<1	MAC	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0						
Fecal Coliform	cfu/100ml	<1	MAC	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0						
E.coli	cfu/100ml	<1	MAC	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0						



West Bay Well Water Analysis Results
Well # 3: 2473 Nanoose Road
 Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration AO= Asthetic Objective
 OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			16-Oct	22-Oct	26-Oct	19-Oct	24-Oct	23-Oct	23-Oct	21-Oct	19-Oct	14-Nov	31-Oct	23-Oct				
	Units	CDWG		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
Total Ammonia (N)	mg/L											0.8	1.23	1	1.1				
Color-Apparent	CU			18	13	11	14	8	14	35	36	15	20	25	21				
Conductivity	uS/cm			310	308	304	301	296	301	301	314	301	291	299	296				
TDS	mg/L	≤500	AO	160	187	160	184	150	200	198	204	152	163	192	168				
Hardness (CaCO ₃)	mg/L	80-100	AO	106	109	73	110	100	110	110	100	110	110	110	110				
pH	pH units	6.5-8.5	AO	7.72	7.61	7.8	8	7.9	8.12	8.06	7.8	7.9	8.0	7.8	7.9				
Turbidity	NTU's	5	AO	0.76	0.76	1.1	0.7	0.6	0.6	1.8	0.5	0.6	0.8	1.2	0.8				
Alkalinity	mg/L			144	160	150	150	150	140	140	140	140	140	140	140				
Chloride	mg/L	≤250	AO	6.76	6.7	8.1	6.5	7	7.4	8.2	12.7	6.6	0.7	7	7.1				
Fluoride	mg/L	1.5	MAC	0.17	<0.6	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<0.05	0.19	0.16				
Sulfate	mg/L	500	AO	0.28	2.1	<2	<2	<2.0	<2.0	<2.0	<2.0	3.1	<0.5	2.3	2.7				
Sulphide	mg/L	0.05	AO											0.024					
Nitrate (N)	mg/L	10	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.073	<0.005		
T-Antimony	mg/L	0.006	MAC	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002				
T-Arsenic	mg/L	0.010	MAC	0.0004	0.0004	0.0003	0.0004	0.0003	0.0003	0.0004	0.0006	0.0005	0.0004	0.00044	0.0004				
T-Barium	mg/L	1.0	MAC	0.006	0.006	0.005	0.006	0.006	0.006	0.006	0.005	0.005	0.006	0.00588	0.006				
T-Beryllium	mg/L												<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L												<0.001	<0.0001	<0.001				
T-Boron	mg/L	5.0	MAC	0.049	0.064	0.059	0.071	0.066	0.073	0.067	0.064	0.061	0.07	0.069	0.067				
T-Cadmium	mg/L	0.005	MAC	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001	0.00012	0.00002	<0.00001	<0.00001	<0.00001	0.00001	<0.00001				
T-Calcium	mg/L			26.1	27.2	18.6	27.7	25.8	27.2	28.4	25.6	28	27.6	28.2	27.8				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	0.0008	0.0005	<0.0005	<0.0004				
T-Cobalt	mg/L												0.00003	<0.0001	0.00004				
T-Copper	mg/L	≤1.0	AO	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.008	0.001	<0.001	0.0003	0.001				
T-Iron	mg/L	≤0.3	AO	0.6	0.5	0.4	0.5	0.5	0.5	0.61	0.49	0.309	0.528	0.572	0.573				
T-Lead	mg/L	0.010	MAC	0.0002	0.0002	0.0004	0.0002	0.0001	<0.0001	0.0014	<0.0001	0.0002	<0.0001	<0.0001	<0.0001				
T-Lithium	mg/L											<0.001	<0.001	<0.0007	<0.001				
T-Magnesium	mg/L			9.9	10.1	6.5	9.4	9	9.4	10.3	9.44	9.74	9.83	9.91	10.6				
T-Manganese	mg/L	≤0.05	AO	0.201	0.19	0.132	0.202	0.188	0.203	0.199	0.206	0.218	0.205	0.212	0.228				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<.01	<0.01	<0.00001	<0.00001	<0.0001	0.00002				
T-Molybdenum	mg/L												0.0002	0.00032	0.0002				
T-Nickel	mg/L										<0.001	<0.001	<0.001	<0.0002	<0.001				
T-Phosphorus	mg/L										0.765	0.782	0.758						
T-Potassium	mg/L			2.2	2.5	1.6	2.4	2.3	2.4	2.4	2.4	2	2.5	2.4	2.6				
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	0.0002	<0.0006	<0.0006	<0.0006	0.004	<0.0001	<0.0006				
T-Silicon	mg/L												13.7	15.5	14.6				
T-Silver	mg/L										<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				
T-Sodium	mg/L	≤200	AO	19.6	20.1	14.2	21.6	20	20.8	22	25.5	21.8	20.4	21.3	21.8				
T-Strontium	mg/L												0.097	0.105	0.101				
T-Thallium	mg/L												<0.00001	<0.00001	<0.00001				
T-Tin	mg/L												<0.0001	<0.0001	<0.0001				
T-Titanium	mg/L												<0.001	<0.0005	<0.0010				
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.00001	<0.0004				
T-Vanadium	mg/L												0.0007	0.0006	0.0006				
T-Zinc	mg/L	≤5.0	AO	0.008	0.009	0.001	0.004	0.006	0.007	0.114	0.011	0.062	0.004	0.0048	0.002				
Total Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1.0								
E.coli	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0				



Madrona Well Water Analysis Results
Well # 4: Northwest Bay Logging Road
 Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration AO= Asthetic Objective
 OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			16-Oct	22-Oct	24-Nov	19-Oct	24-Oct	23-Oct	23-Oct	21-Oct	26-Oct	17-Oct	30-Oct				
	Units	CDWG		2002	2003	2004	2005	2006	2007	2008	2009	2011	2012	2013				
Total Ammonia (N)	mg/L											0.18	0.19	0.23				
Color-Apparent	CU			8	13	6	5	<5	8	7	12	7	8	15				
Conductivity	uS/cm			275	363	357	340	311	339	338	336	335	336	333				
TDS	mg/L	≤500	AO	127	207	220	280	200	207	228	190	224	204	190				
Hardness (CaCO ₃)	mg/L	80-100	AO	37.2	30	28	25	27	30	33	31	28	39	41				
pH	pH units	6.5-8.5	AO	8.50	8.48	8.7	8.50	8.4	8.34	8.64	8.6	8.6	8.5	8.6				
Turbidity	NTU's	5	AO	0.10	0.41	<0.5	<0.5	0.6	<0.5	<0.5	0.8	<0.5	<0.5	0.9				
Alkalinity	mg/L			126	160	140	140	130	130	130	130	130	130	130				
Chloride	mg/L	≤250	AO	15.35	22.6	23.9	20.5	17.1	19.1	21.3	20.1	20.2	21.8	20.4				
Fluoride	mg/L	1.5	MAC	0.13	<0.6	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	0.1	0.17	0.14				
Sulfate	mg/L	500	AO	1.90	1.70	<2	4.80	3.6	4.5	5	5.1	5.7	6.3	6.2				
Nitrate (N)	mg/L	10	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	0.024	<0.005	0.017	<0.005	0.027	0.007	<0.005	<0.005	<0.005	0.007	0.135				
T-Antimony	mg/L	0.006	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002				
T-Arsenic	mg/L	0.010	MAC	0.0103	0.0106	0.0113	0.0099	0.0089	0.0088	0.0089	0.0084	0.0092	0.0101	0.009				
T-Barium	mg/L	1.0	MAC	0.010	0.011	0.011	0.010	0.009	0.01	0.009	0.01	0.01	0.0119	0.012				
T-Beryllium	mg/L											<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L											<0.001	<0.0001	<0.0010				
T-Boron	mg/L	5.0	MAC	0.119	0.185	0.212	0.192	0.16	0.18	0.171	0.162	0.164	0.167	0.16				
T-Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001				
T-Calcium	mg/L			10.3	8.1	<0.2	6.6	7.5	7.9	8.61	8.07	7.26	10.4	10.7				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0004	<0.0004	<0.0004	<0.0005	<0.0004				
T-Cobalt	mg/L											0.00002	<0.0001	0.0001				
T-Copper	mg/L	≤1.0	AO	0.002	0.002	0.004	<0.001	<0.002	<0.001	<0.001	0.002	0.001	0.0005	0.002				
T-Iron	mg/L	≤0.3	AO	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.02	<0.010	0.027	0.009	0.16				
T-Lead	mg/L	0.010	MAC	0.0002	0.0004	0.0016	0.0002	<0.0002	<0.0001	0.0002	0.0001	0.0003	0.0001	0.0002				
T-Lithium	mg/L											<0.001	<0.001	0.0008				
T-Magnesium	mg/L			2.8	2.3	2.4	2	2.1	2.4	2.77	2.53	2.38	3.1	3.34				
T-Manganese	mg/L	≤0.05	AO	0.030	0.015	0.018	0.012	0.02	0.013	0.0138	0.0139	0.009	0.0198	0.0215				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.00001	<0.0001	<0.00001				
T-Molybdenum	mg/L											0.0036	0.00402	0.0033				
T-Nickel	mg/L										<0.001	<0.001	<0.0002	<0.001				
T-Phosphorus	mg/L										0.31	0.038						
T-Potassium	mg/L			1.5	1.4	1.6	1.4	1.5	1.6	1.6	1.7	0.9	1.8	1.89				
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	0.0009	<0.0002	<0.0004	0.0002	<0.0006	<0.0006	<0.0006	<0.0001	<0.0006				
T-Silicon	mg/L											<0.05	7.63	7.23				
T-Silver	mg/L										<0.00001	<0.00001	<0.00001	<0.00001				
T-Sodium	mg/L	≤200	AO	48.8	63.1	70.9	68.5	57.1	62.4	63	63.4	44.1	66.8	67.2				
T-Strontium	mg/L											0.068	0.0775	0.079				
T-Thallium	mg/L											<0.00001	<0.00001	<0.00001				
T-Tin	mg/L											<0.0001	0.0004	0.0001				
T-Titanium	mg/L											0.007	0.0006	0.0105				
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0004	<0.0004	<0.0004	0.00008	<0.0004				
T-Vanadium	mg/L											0.0003	0.0003	0.0006				
T-Zinc	mg/L	≤5.0	AO	0.014	0.003	0.034	0.014	0.028	0.006	0.01	0.005	0.007	0.004	0.005				
Total Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	12.4	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1							
E.coli	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0				

Nanose Well Water Analysis Results

Well # 2: 1987 Claudet Road

Canadian Drinking Water Guidelines Package

CDWG=Canadian Drinking Water Guidelines

MAC=Maximum Acceptable Concentration

AO= Aesthetic Objective.

OG= Operational Guidance Val

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			16-Oct	22-Oct	26-Oct	19-Oct	24-Oct	24-Oct	20-Oct	26-Oct	19-Oct	26-Oct	31-Oct	30-Oct				
	Units	CDWG		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
Total Ammonia (N)	mg/L											0.8	1.17	1.4	0.93				
Color-Apparent	CU			8	11	<5	8	5	10	10	12	8	9	50	16				
Conductivity	uS/cm			307	321	324	329	320	333	336	351	348	358	347	337				
TDS	mg/L	≤500	AO	180	167	180	182	210	240	208	224	198	260	226	192				
Hardness (CaCO ₃)	mg/L	80-100	AO	113.6	124	120	130	120	130	130	140	160	130	140	140				
pH	pH units	6.5-8.5	AO	7.95	7.86	8	8	8.1	8.16	7.92	8.1	8.1	8.1	7.8	8.1				
Turbidity	NTU's	5	AO	1.02	0.98	<0.5	<0.5	<0.5	<0.5	0.5	0.5	0.6	0.6	4.4	1.2				
Alkalinity	mg/L			138	150	140	140	140	140	150	140	150	150	150	150				
Chloride	mg/L	≤250	AO	6.32	7.2	6.9	7.5	6.7	6.5	0.7	7.4	6.4	7.4	9.8	10.7				
Fluoride	mg/L	1.5	MAC	0.16	<0.6	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.1	0.18	0.14				
Sulfate	mg/L	500	AO	21.06	16.9	20.8	21.5	16.6	18.7	19.7	24	22.5	23.4	13.2	15.7				
Sulphide	mg/L	0.05	AO											0.014					
Nitrate (N)	mg/L	10	MAC	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005				
T-Antimony	mg/L	0.006	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002				
T-Arsenic	mg/L	0.010	MAC	0.0004	0.0006	0.0006	0.0006	0.0005	0.0007	0.0006	0.0008	0.0006	0.0005	0.00155	0.0005				
T-Barium	mg/L	1.0	MAC	0.017	0.019	0.018	0.02	0.018	0.02	0.017	0.019	0.02	0.019	0.0183	0.019				
T-Beryllium	mg/L												<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L												<0.001	<0.0001	<0.0010				
T-Boron	mg/L	5.0	MAC	0.054	0.07	0.072	0.07	0.069	0.07	0.06	0.078	0.063	0.056	0.06	0.057				
T-Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001				
T-Calcium	mg/L			31.3	35	36.4	38.1	33.4	36.8	37.8	37.7	44.3	41.8	35.2	39.1				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	0.001	<0.0004	<0.0005	<0.0004				
T-Cobalt	mg/L												0.00003	<0.0001	0.00004				
T-Copper	mg/L	≤1.0	AO	<0.001	0.006	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	0.0002	0.002				
T-Iron	mg/L	≤0.3	AO	0.2	0.2	0.2	0.2	0.2	0.2	0.18	0.199	0.24	0.238	1.22	0.24				
T-Lead	mg/L	0.010	MAC	<0.001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0002	<0.0001	<0.0001	0.0016				
T-Lithium	mg/L										0.001	0.001	0.001	<0.0005	0.001				
T-Magnesium	mg/L			8.6	9.5	9.6	9.4	8.4	9.3	9.28	10.1	11.3	11	12.3	10.5				
T-Manganese	mg/L	≤0.05	AO	0.11	0.11	0.116	0.122	0.107	0.121	0.112	0.121	0.149	0.132	0.294	0.13				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.00001	<0.00001	<0.0001	<0.00001				
T-Molybdenum	mg/L												0.0004	0.00029	0.0004				
T-Nickel	mg/L											<0.001	<0.001	<0.001	<0.0002	<0.001			
T-Phosphorus	mg/L											0.452	0.542	0.443					
T-Potassium	mg/L			2.4	2.4	2.6	2.5	2.4	2.6	2.2	2.5	2.5	2.6	2.3	2.74				
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0006	<0.0006	<0.0006	<0.0001	<0.0006				
T-Silicon	mg/L												9.78	13.4	10.3				
T-Silver	mg/L											<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			
T-Sodium	mg/L	≤200	AO	17	16	17.8	17.7	16.4	17	14.7	16.3	17.8	16	18.5	17.2				
T-Strontium	mg/L												0.155	0.122	0.158				
T-Thallium	mg/L												<0.00001	<0.00001	<0.00001				
T-Tin	mg/L												<0.0001	<0.0001	0.0004				
T-Titanium	mg/L												<0.001	<0.0005	<0.0010				
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.00001	<0.0004				
T-Vanadium	mg/L												0.0003	0.0004	0.0003				
T-Zinc	mg/L	≤5.0	AO	0.046	0.009	0.02	0.001	0.002	0.018	0.01	0.014	0.003	0.006	0.0008	0.107				
Total Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				
E.coli	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				



Nanoose Well Water Analysis Results
Well # 3: 1990 Delanice Way
 Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration AO=Asthetic Objective
 OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			16-Oct	22-Oct	26-Oct	19-Oct	24-Oct	24-Oct	20-Oct	26-Oct	29-Oct	26-Oct	31-Oct	30-Oct				
	Units	CDWG		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
Total Ammonia (N)	mg/L											0.9	1.56	1.17	0.92				
Color-Apparent	CU			23	10	<5	16	<5	8	5	44	32	46	13	51				
Conductivity	uS/cm			311	336	371	359	167.9	377	90	345	342	357	357	318				
TDS	mg/L	≤500	AO	180	220	210	236	98	280	42	198	182	226	214	178				
Hardness (CaCO ₃)	mg/L	80-100	AO	115.6	123	120	120	45	110	31	130	130	84	150	130				
pH	pH units	6.5-8.5	AO	7.72	7.59	7.7	8	7.4	8.08	7.04	8	7.8	7.8	8	7.8				
Turbidity	NTU's	5	AO	1.68	2.45	<0.5	0.8	<0.5	<0.5	0.5	3.7	2.9	4.7	0.8	1				
Alkalinity	mg/L			142	150	150	150	30	140	30	140	150	150	150	150				
Chloride	mg/L	≤250	AO	2.97	6.5	29	20.6	24.7	24.3	9.9	9.8	10.5	11.1	6.9	7.5				
Fluoride	mg/L	1.5	MAC	0.42	<0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.1	0.17	0.13				
Sulfate	mg/L	500	AO	7.47	16.4	2.4	2.3	2.9	3.3	<2.0	17.7	17.7	19.4	21.7	2.3				
Sulphide	mg/L	0.05	AO											0.089					
Nitrate (N)	mg/L	10	MAC	0.09	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	0.005	<0.005	<0.005	<0.005	0.006	0.005				
T-Antimony	mg/L	0.006	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002				
T-Arsenic	mg/L	0.010	MAC	0.0015	0.0016	0.0013	0.0015	<0.0002	0.0012	<0.0002	0.0018	0.0015	0.0014	0.00059	0.0012				
T-Barium	mg/L	1.0	MAC	0.017	0.019	0.006	0.008	0.01	0.006	0.005	0.018	0.017	0.019	0.0206	0.016				
T-Beryllium	mg/L												<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L												<0.001	0.0002	<0.0010				
T-Boron	mg/L	5.0	MAC	0.05	0.072	0.082	0.083	0.018	0.079	0.009	0.077	0.057	0.057	0.066	0.048				
T-Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				
T-Calcium	mg/L			28.8	30.6	28.5	29.3	15.2	28.2	10.4	32.1	34.2	20.6	42.1	32				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	0.0004	0.0009	<0.0004	<0.0005	<0.0004				
T-Cobalt	mg/L												0.00002	<0.0001	0.00003				
T-Copper	mg/L	≤1.0	AO	0.001	<0.001	0.004	0.003	0.005	0.007	0.008	0.002	0.001	<0.001	0.0008	0.014				
T-Iron	mg/L	≤0.3	AO	1.1	1.2	<0.1	0.5	<0.1	0.2	0.03	1.07	1.13	0.659	0.26	1.13				
T-Lead	mg/L	0.010	MAC	0.0004	0.0003	0.0005	0.0006	0.0003	0.0013	0.0003	<0.0001	0.0003	0.0002	<0.0001	0.0007				
T-Lithium	mg/L										<0.001	<0.001	<0.001	0.0015	<0.001				
T-Magnesium	mg/L			10.6	11.3	10.7	10.3	1.8	10.1	1.19	11.6	11.8	7.97	11	11.9				
T-Manganese	mg/L	≤0.05	AO	0.26	0.257	0.095	0.236	<0.005	0.188	0.0009	0.273	0.291	0.18	0.144	0.269				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.00001	<0.00001	<0.0001	<0.00001				
T-Molybdenum	mg/L												0.0002	0.00044	0.0002				
T-Nickel	mg/L										<0.001	<0.001	<0.001	<0.0002	<0.001				
T-Phosphorus	mg/L										0.921	0.856	0.045						
T-Potassium	mg/L			2.2	2.3	2.6	2.6	<0.4	2.6	0.2	2.2	2.1	0.4	2.6	2.22				
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0006	<0.0006	<0.0006	<0.0001	<0.0006				
T-Silicon	mg/L												<0.05	11.4	12.2				
T-Silver	mg/L										<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				
T-Sodium	mg/L	≤200	AO	18.5	18.3	36.7	31.7	9.2	32.6	4.19	18.3	18.6	8.42	16.4	20.8				
T-Strontium	mg/L												0.114	0.165	0.111				
T-Thallium	mg/L												<0.00001	<0.00001	<0.00001				
T-Tin	mg/L												<0.0001	<0.0001	0.0003				
T-Titanium	mg/L												0.008	<0.0005	<0.0010				
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.00001	<0.0004				
T-Vanadium	mg/L												0.0004	0.0004	0.0005				
T-Zinc	mg/L	≤5.0	AO	0.008	0.002	0.009	0.009	0.006	0.008	0.011	0.034	0.01	0.004	0.0099	0.007				
Total Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1								
E.coli	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				



Nanoose Well Water Analysis Results
Well # 4: 2311 Northwest Bay Road
 Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration AO= Aesthetic Objective
 OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			16-Oct	22-Oct	26-Oct	19-Oct	24-Oct	24-Oct	20-Oct	26-Oct	19-Oct	26-Oct	31-Oct	30-Oct				
	Units	CDWG		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
Total Ammonia (N)	mg/L											0.8	1.22	1.2	1.03				
Color-Apparent	CU			28	10	11	16	7	16	10	24	19	20	26	24				
Conductivity	uS/cm			330	345	331	333	325	329	324	326	334	321	322	317				
TDS	mg/L	≤500	AO	180	193	170	240	210	173	54	208	180	214	196	184				
Hardness (CaCO ₃)	mg/L	80-100	AO	120.2	125	130	130	120	120	27	120	130	110	120	120				
pH	pH units	6.5-8.5	AO	7.36	7.55	7.8	8	7.9	8.05	6.45	8	7.9	7.9	7.8	7.8				
Turbidity	NTU's	5	AO	1.65	4.76	1.7	2.6	1.6	1.8	1.7	1.1	1.4	1.3	1.5	1.1				
Alkalinity	mg/L			196	180	180	170	170	160	170	170	170	160	170	150				
Chloride	mg/L	≤250	AO	1.77	4	3.7	3.5	3.9	3.6	8.5	4.3	3.6	3.8	3.5	3.2				
Fluoride	mg/L	1.5	MAC	0.42	<0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.2	0.21	0.19				
Sulfate	mg/L	500	AO	0.41	1.7	<2.0	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<0.2	<0.5	1.1				
Sulphide	mg/L	0.05	AO											0.006					
Nitrate (N)	mg/L	10	MAC	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	0.14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	0.019	<0.005	0.008	<0.005	0.008	0.019	0.014	<0.005	0.007	<0.005	0.004	0.005				
T-Antimony	mg/L	0.006	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002				
T-Arsenic	mg/L	0.010	MAC	0.0027	0.0025	0.0024	0.0022	0.0022	0.0024	<0.0002	0.0023	0.0022	0.0021	0.00208	0.0021				
T-Barium	mg/L	1.0	MAC	0.017	0.011	0.011	0.012	0.01	0.012	0.003	0.01	0.01	0.008	0.00847	0.008				
T-Beryllium	mg/L												<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L												<0.001	<0.0001	<0.0010				
T-Boron	mg/L	5.0	MAC	0.045	0.078	0.073	0.074	0.071	0.076	0.009	0.082	0.069	0.068	0.079	0.066				
T-Cadmium	mg/L	0.005	MAC	<0.00001	0.0003	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001				
T-Calcium	mg/L			29	30.1	31.5	31.6	29.1	29.8	8.61	28.1	32.1	24.8	29.8	29.3				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0004	<0.0004	0.001	<0.0004	<0.0005	<0.0004				
T-Cobalt	mg/L												0.00022	<0.0001	0.00004				
T-Copper	mg/L	≤1.0	AO	0.002	0.052	0.003	0.006	<0.001	0.234	0.005	0.001	0.002	<0.001	0.0008	0.001				
T-Iron	mg/L	≤0.3	AO	1.7	1	0.7	0.8	0.6	0.9	0.03	0.514	0.614	0.473	0.569	0.591				
T-Lead	mg/L	0.010	MAC	0.0005	0.0081	0.0005	0.0007	0.0002	*0.0101	0.0008	<0.0001	0.0004	<0.0001	<0.0001	0.0004				
T-Lithium	mg/L										<0.001	<0.001	<0.001	0.0006	<0.001				
T-Magnesium	mg/L			11.6	12.2	12.3	11.6	10.9	11.2	1.3	11.3	12.1	10.5	11.4	11.8				
T-Manganese	mg/L	≤0.05	AO	0.34	0.37	0.260	0.278	0.242	0.319	0.0124	0.235	0.275	0.22	0.252	0.26				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.00001	<0.00001	<0.0001	<0.00001				
T-Molybdenum	mg/L												0.0006	0.0007	0.0006				
T-Nickel	mg/L										<0.001	<0.001	<0.001	<0.0002	<0.001				
T-Phosphorus	mg/L										0.921	1.07	0.06						
T-Potassium	mg/L			2.1	2.3	2.3	2.3	2.4	2.3	0.3	2.3	2.2	1.2	2.3	2.34				
T-Selenium	mg/L	0.01	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0006	<0.0006	<0.0006	<0.0006	<0.0001	<0.0006				
T-Silicon	mg/L												<0.05	16.6	15.4				
T-Silver	mg/L										<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				
T-Sodium	mg/L	≤200	AO	21.2	15.5	23.4	24.5	22.8	23.2	3.96	22.6	25	15.8	23.5	24.3				
T-Strontium	mg/L												0.106	0.108	0.113				
T-Thallium	mg/L												<0.00001	<0.00001	<0.00001				
T-Tin	mg/L												<0.0001	<0.0001	<0.0001				
T-Titanium	mg/L												0.008	<0.0005	<0.0010				
T-Uranium	mg/L	0.02	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.00001	<0.0004				
T-Vanadium	mg/L												0.0005	0.0005	0.0005				
T-Zinc	mg/L	≤5.0	AO	0.16	0.761	0.005	0.01	0.004	0.224	0.031	0.038	0.007	0.005	0.0049	0.009				
Total Coliform	cfu/100ml	<1	MAC			<1	<1	<1	OG	<1	<1	<1.0	<1.0	<1.0	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				
E.coli	cfu/100ml	<1	MAC			<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				

Note: Total coliforms can be an indicator of adverse water quality if the result in the re-sample is confirmed positive. (United States Environmental Protection Agency (EPA), 2008) RDN Water samples are always tested for E.coli bacteria at the same time * Re-sample for Lead for 2007 - Result 0.0001 mg/l



Nanoose Well Water Analysis Results
Well # 6: 2500 Nuttal Drive
 Canadian Drinking Water Guidelines Package



CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration AO= Aesthetic Objective
 OG= Operational Guidance Value

Red font indicates non-compliance with Canadian Drinking Water Guidelines

Parameter	Water Quality Guidelines			22-Oct	26-Oct	19-Oct	24-Oct	24-Oct	20-Oct	26-Oct	19-Oct	26-Oct	31-Oct	30-Oct				
	Units	CDWG		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013				
Total Ammonia (N)	mg/L										<0.01	0.05	<0.01	0.02				
Color-Apparent	CU			<5	<5	37	10	<5	11	82	14	23	43	30				
Conductivity	uS/cm			737	467	430	506	560	436	445	478	445	441	466				
TDS	mg/L	≤500	AO	467	290	300	320	447	268	278	266	272	272	280				
Hardness (CaCO ₃)	mg/L	80-100	AO	330	220	190	260	270	190	190	230	180	210	230				
pH	pH units	6.5-8.5	AO	7.24	7.5	7.8	7.5	7.96	7.51	7.6	7.6	7.6	7.6	7.6				
Turbidity	NTU's	5	AO	1.55	2.4	26.7	2.2	1.1	2.8	19.1	2.5	4.3	4.2	0.5				
Alkalinity	mg/L			200	200	190	180	190	200	180	190	180	180	190				
Chloride	mg/L	≤250	AO	7.6	7.5	7.1	8.7	7.7	7.7	8.4	8.4	8.9	8.8	8.7				
Fluoride	mg/L	1.5	MAC	<0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.2	0.22	0.12				
Sulfate	mg/L	500	AO	189	47.6	27.8	66.5	80.4	29.1	32.3	44.3	33.5	33	42.5				
Sulphide	mg/L	0.05	AO										0.005					
Nitrate (N)	mg/L	10	MAC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
Nitrite (N)	mg/L	1	MAC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.05	<0.05				
T-Aluminum	mg/L	0.100	OG	0.115	0.008	0.945	<0.005	<0.005	<0.005	0.027	<0.005	<0.005	0.009	0.01				
T-Antimony	mg/L	0.006	MAC	0.0009	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002				
T-Arsenic	mg/L	0.010	MAC	0.0006	0.0004	0.0018	0.0004	0.0005	0.0003	0.0011	0.0006	0.0006	0.0006	0.0006				
T-Barium	mg/L	1.0	MAC	0.133	0.106	0.125	0.089	0.109	0.096	0.098	0.081	0.073	0.0827	0.074				
T-Beryllium	mg/L											<0.00004	<0.00005	<0.00004				
T-Bismuth	mg/L											<0.001	0.0001	<0.0010				
T-Boron	mg/L	5.0	MAC	0.093	0.147	0.179	0.055	0.081	0.166	0.131	0.088	0.082	0.112	0.058				
T-Cadmium	mg/L	0.005	MAC	0.0006	<0.00001	0.00011	<0.00001	0.00002	<0.00001	0.00034	0.00003	0.00004	0.00002	0.00002				
T-Calcium	mg/L			118	79.7	70.2	96	101	70	71.7	86.8	79.4	79.3	84.3				
T-Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	0.0015	<0.0005	<0.0005	<0.0004	<0.0004	0.0008	<0.0004	<0.0005	<0.0004				
T-Cobalt	mg/L											0.00026	0.0002	0.00041				
T-Copper	mg/L	≤1.0	AO	0.004	0.003	0.022	<0.001	0.01	0.022	0.02	0.004	0.002	0.0008	0.002				
T-Iron	mg/L	≤0.3	AO	0.2	0.3	3.4	0.2	0.2	0.19	1.27	0.257	0.354	0.476	0.327				
T-Lead	mg/L	0.010	MAC	0.0011	0.0016	0.024	0.0001	0.0015	0.0016	0.021	0.0008	0.0031	0.0003	0.0004				
T-Lithium	mg/L									0.006	0.005	0.004	0.005	0.004				
T-Magnesium	mg/L			8.7	4.2	3.9	4.4	4.8	3.61	3.5	0.42	3.72	3.6	4.2				
T-Manganese	mg/L	≤0.05	AO	0.054	0.076	0.078	0.102	0.108	0.0554	0.0585	0.075	0.077	0.0828	0.106				
T-Mercury	mg/L	0.001	MAC	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.00001	<0.00001	<0.0001	<0.00001				
T-Molybdenum	mg/L											0.006	0.00061	0.0007				
T-Nickel	mg/L									0.001	0.002	0.001	0.0003	0.002				
T-Phosphorus	mg/L									0.015	<0.01	0.012						
T-Potassium	mg/L			1.6	1.3	1.3	0.9	1.1	0.9	1	0.7	0.8	0.9	0.92				
T-Selenium	mg/L	0.01	MAC	0.0013	<0.0002	<0.0002	0.0004	0.0003	<0.0006	<0.0006	<0.0006	<0.0006	0.0001	<0.0006				
T-Silicon	mg/L											5.06	5.95	5.27				
T-Silver	mg/L									<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				
T-Sodium	mg/L	≤200	AO	14.6	18.9	21.9	10.4	12.1	16.9	15.7	12.9	12.6	14.5	14				
T-Strontium	mg/L											0.202	0.217	0.226				
T-Thallium	mg/L											<0.00001	<0.00001	<0.00001				
T-Tin	mg/L											<0.0001	<0.0001	0.0001				
T-Titanium	mg/L											<0.001	<0.0005	0.0015				
T-Uranium	mg/L	0.02	MAC	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	0.00008	<0.0004				
T-Vanadium	mg/L											<0.0001	<0.0001	0.0001				
T-Zinc	mg/L	≤5.0	AO	0.068	0.220	0.503	0.06	0.155	0.084	1.14	0.065	0.118	0.081	0.054				
Total Coliform	cfu/100ml	<1	MAC		*140	*>200	*20	*2	*12.4	45.3	<1.0	3.1	1	<1.0				
Fecal Coliform	cfu/100ml	<1	MAC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1				
E.coli	cfu/100ml	<1	MAC		<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0				

Note: Total coliforms can be an indicator of adverse water quality if the result in the re-sample is confirmed positive. (United States Environmental Protection Agency (EPA), 2008) RDN Water samples are always tested for E.coli bacteria at the same time
 *Resampled and had <1 for all Coliforms

NANOOSE BAY PENINSULA WATER SYSTEM



Facility Location:

2330 Garry Oaks Drive
Nanoose Bay

Facility Information:

Facility Type:DWT

Facility Sampling History:

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
1556 Arbutus Drive, Nanoose Bay BC	18-Dec-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	18-Dec-2013	L1	L1
2940 Fairwinds Drive, Nanoose Bay BC	18-Dec-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	18-Dec-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	18-Dec-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	18-Dec-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	11-Dec-2013	L1	L1
1639 Marina Way, Nanoose	11-Dec-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	11-Dec-2013	L1	L1
2359 Higginson Road	11-Dec-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	11-Dec-2013	L1	L1
3383 Redden Road, Nanoose Bay	11-Dec-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	11-Dec-2013	L1	L1
1270 Seadog, Nanoose Bay BC	4-Dec-2013	L1	L1
1565 Stone Lake Drive	4-Dec-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	4-Dec-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	4-Dec-2013	L1	L1
3427 Tye Crescent	4-Dec-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	4-Dec-2013	L1	L1
1996 Highland Road, Nanoose	4-Dec-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	27-Nov-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	27-Nov-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	20-Nov-2013	L1	L1
1639 Marina Way, Nanoose	20-Nov-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	20-Nov-2013	L1	L1

3541 Shelby Lane, Nanoose Bay BC	20-Nov-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	20-Nov-2013	L1	L1
1565 Stone Lake Drive	13-Nov-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	13-Nov-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	13-Nov-2013	L1	L1
2359 Higginson Road	13-Nov-2013	L1	L1
3383 Redden Road, Nanoose Bay	13-Nov-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	13-Nov-2013	L1	L1
1270 Seadog, Nanoose Bay BC	6-Nov-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	6-Nov-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	6-Nov-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	6-Nov-2013	L1	L1
3427 Tye Crescent	6-Nov-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	6-Nov-2013	L1	L1
1996 Highland Road, Nanoose	6-Nov-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	22-Oct-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	22-Oct-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	16-Oct-2013	L1	L1
1639 Marina Way, Nanoose	16-Oct-2013	L1	L1
Nanoose Bay , 2339 Garry Oak Drive	16-Oct-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	16-Oct-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	16-Oct-2013	L1	L1
Nanoose Place - AUDIT, tap - AUDIT	8-Oct-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	8-Oct-2013	L1	L1
2359 Higginson Road	8-Oct-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	8-Oct-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	8-Oct-2013	L1	L1
3383 Redden Road, Nanoose Bay	8-Oct-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	8-Oct-2013	L1	L1
1270 Seadog, Nanoose Bay BC	1-Oct-2013	L1	L1
1565 Stone Lake Drive	1-Oct-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	1-Oct-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	1-Oct-2013	L1	L1
3427 Tye Crescent	1-Oct-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	1-Oct-2013	L1	L1

1996 Highland Road, Nanoose	1-Oct-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	24-Sep-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	24-Sep-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	17-Sep-2013	L1	L1
1639 Marina Way, Nanoose	17-Sep-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	17-Sep-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	17-Sep-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	17-Sep-2013	L1	L1
1565 Stone Lake Drive	10-Sep-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	10-Sep-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	10-Sep-2013	L1	L1
2359 Higginson Road	10-Sep-2013	L1	L1
3383 Redden Road, Nanoose Bay	10-Sep-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	10-Sep-2013	L1	L1
1270 Seadog, Nanoose Bay BC	4-Sep-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	4-Sep-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	4-Sep-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	4-Sep-2013	L1	L1
3427 Tye Crescent	4-Sep-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	4-Sep-2013	L1	L1
1996 Highland Road, Nanoose	4-Sep-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	28-Aug-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	28-Aug-2013	L1	L1
1565 Stone Lake Drive	21-Aug-2013	L1	L1
1639 Marina Way, Nanoose	21-Aug-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	21-Aug-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	21-Aug-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	21-Aug-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	13-Aug-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	13-Aug-2013	L1	L1
2359 Higginson Road	13-Aug-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	13-Aug-2013	L1	L1
3383 Redden Road, Nanoose Bay	13-Aug-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	13-Aug-2013	L1	L1
1270 Seadog, Nanoose Bay BC	7-Aug-2013	L1	L1

1566 Arbutus Drive, Nanoose Bay BC	7-Aug-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	7-Aug-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	7-Aug-2013	L1	L1
3427 Tye Crescent	7-Aug-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	7-Aug-2013	L1	L1
1996 Highland Road, Nanoose	7-Aug-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	23-Jul-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	23-Jul-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	16-Jul-2013	L1	L1
1639 Marina Way, Nanoose	16-Jul-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	16-Jul-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	16-Jul-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	16-Jul-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	9-Jul-2013	L1	L1
2359 Higginson Road	9-Jul-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	9-Jul-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	9-Jul-2013	L1	L1
3383 Redden Road, Nanoose Bay	9-Jul-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	9-Jul-2013	L1	L1
1270 Seadog, Nanoose Bay BC	3-Jul-2013	L1	L1
1565 Stone Lake Drive	3-Jul-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	3-Jul-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	3-Jul-2013	L1	L1
3427 Tye Crescent	3-Jul-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	3-Jul-2013	L1	L1
1996 Highland Road, Nanoose	3-Jul-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	25-Jun-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	25-Jun-2013	T	
1566 Arbutus Drive, Nanoose Bay BC	18-Jun-2013	L1	L1
1639 Marina Way, Nanoose	18-Jun-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	18-Jun-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	18-Jun-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	18-Jun-2013	L1	L1
1565 Stone Lake Drive	11-Jun-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	11-Jun-2013	L1	L1

2329 Chain Way, Nanoose Bay BC	11-Jun-2013	L1	L1
2359 Higginson Road	11-Jun-2013	L1	L1
3383 Redden Road, Nanoose Bay	11-Jun-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	11-Jun-2013	L1	L1
1270 Seadog, Nanoose Bay BC	4-Jun-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	4-Jun-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	4-Jun-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	4-Jun-2013	L1	L1
3427 Tye Crescent	4-Jun-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	4-Jun-2013	L1	L1
1996 Highland Road, Nanoose	4-Jun-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	28-May-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	28-May-2013	L1	L1
1565 Stone Lake Drive	22-May-2013	L1	L1
1639 Marina Way, Nanoose	22-May-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	22-May-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	22-May-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	22-May-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	15-May-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	15-May-2013	L1	L1
2359 Higginson Road	15-May-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	15-May-2013	L1	L1
3383 Redden Road, Nanoose Bay	15-May-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	15-May-2013	L1	L1
1270 Seadog, Nanoose Bay BC	7-May-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	7-May-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	7-May-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates,	7-May-2013	L1	L1
3427 Tye Crescent	7-May-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	7-May-2013	L1	L1
1996 Highland Road, Nanoose	7-May-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	17-Apr-2013	L1	L1
1639 Marina Way, Nanoose	17-Apr-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	17-Apr-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	17-Apr-2013	L1	L1

3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	17-Apr-2013	L1	L1
1565 Stone Lake Drive	10-Apr-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	10-Apr-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	10-Apr-2013	L1	L1
2359 Higginson Road	10-Apr-2013	L1	L1
3383 Redden Road, Nanoose Bay	10-Apr-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	10-Apr-2013	L1	L1
1270 Seadog, Nanoose Bay BC	3-Apr-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	3-Apr-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	3-Apr-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	3-Apr-2013	L1	L1
3427 Tye Crescent	3-Apr-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	3-Apr-2013	L1	L1
1996 Highland Road, Nanoose	3-Apr-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	26-Mar-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	26-Mar-2013	L1	L1
1565 Stone Lake Drive	20-Mar-2013	L1	L1
1639 Marina Way, Nanoose	20-Mar-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	20-Mar-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	20-Mar-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	20-Mar-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	12-Mar-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	12-Mar-2013	L1	L1
2359 Higginson Road	12-Mar-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	12-Mar-2013	L1	L1
3383 Redden Road, Nanoose Bay	12-Mar-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	12-Mar-2013	L1	L1
1270 Seadog, Nanoose Bay BC	5-Mar-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	5-Mar-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	5-Mar-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	5-Mar-2013	L1	L1
3427 Tye Crescent	5-Mar-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	5-Mar-2013	L1	L1
1996 Highland Road, Nanoose	5-Mar-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	26-Feb-2013	L1	L1

3465 Cambridge Road, Nanoose Bay BC	26-Feb-2013	L1	L1
1565 Stone Lake Drive	20-Feb-2013	L1	L1
1639 Marina Way, Nanoose	20-Feb-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	20-Feb-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	20-Feb-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	20-Feb-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	13-Feb-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	13-Feb-2013	L1	L1
2359 Higginson Road	13-Feb-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	13-Feb-2013	L1	L1
3383 Redden Road, Nanoose Bay	13-Feb-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	13-Feb-2013	L1	L1
1270 Seadog, Nanoose Bay BC	5-Feb-2013	L1	L1
1566 Arbutus Drive, Nanoose Bay BC	5-Feb-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	5-Feb-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	5-Feb-2013	L1	L1
3427 Tye Crescent	5-Feb-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	5-Feb-2013	L1	L1
1996 Highland Road, Nanoose	5-Feb-2013	L1	L1
1961 Harlequin Crescent, Nanoose Bay BC	29-Jan-2013	L1	L1
3541 Shelby Lane, Nanoose Bay BC	29-Jan-2013	L1	L1
3730 Fairwinds Drive, Parkinglot @ Golf Course, Nanoose Bay BC	29-Jan-2013	L1	L1
1565 Stone Lake Drive	23-Jan-2013	L1	L1
1639 Marina Way, Nanoose	23-Jan-2013	L1	L1
2940 Fairwinds Drive, Arbutus Estates	23-Jan-2013	L1	L1
3465 Cambridge Road, Nanoose Bay BC	23-Jan-2013	L1	L1
1996 Highland Road, Nanoose	23-Jan-2013	L1	L1
1358 Madrona Drive, Nanoose Bay BC	15-Jan-2013	L1	L1
2339 Garry Oak Drive, Nanoose Bay	15-Jan-2013	L1	L1
2359 Higginson Road	15-Jan-2013	L1	L1
2454 Armstrong Crescent, Beside (right)	15-Jan-2013	L1	L1
3427 Tye Crescent	15-Jan-2013	L1	L1
3500 Fairwinds Drive, Nanoose Bay BC	15-Jan-2013	L1	L1
Lot 54 Evanshire Crescent, Nanoose	15-Jan-2013	L1	L1
1270 Seadog, Nanoose Bay BC	9-Jan-2013	L1	L1

1566 Arbutus Drive, Nanoose Bay BC	9-Jan-2013	L1	L1
2315 Ida Lane, Nanoose Bay BC	9-Jan-2013	L1	L1
2329 Chain Way, Nanoose Bay BC	9-Jan-2013	L1	L1
3383 Redden Road, Nanoose Bay	9-Jan-2013	L1	L1

Interpreting Sample Reports

In VIHA, the results of drinking water sampling are reported using the following coding system:

L1 Less than 1 (no detectable bacteria) - Meaning: No bacteria present

OG Overgrown - Meaning: Too many background bacteria to give an accurate count

EST Estimated Count

A Sample not tested; Too long in transit

C Sample leaked/broken in transit

D Sample not tested; No collection date given

T Sample submitted unsatisfactory. Exceeded 30 hours holding time, please resample.

NS No sample received with requisition

APPENDIX C

EMERGENCY RESPONSE PLAN

EMERGENCY RESPONSE PLAN

REGIONAL DISTRICT
OF NANAIMO

WATER SYSTEMS



Contents

Prime Responsibilities	1
Emergency Response and Recovery Actions	1
Communication Checklist	2
- RDN Priority Contacts	2
- Key Communication Options	2
Emergency Contact Numbers	3-7
Emergency Response Plans	8
- Contamination of Source (incl. Turbidity events)	8
- Loss of Source	8
- Broken Water Main	9
- Chlorination Failure	9
- Pump Failure	9
- Power Failure	10
- Backflow or Back Siphonage	10
- Bacteria Count (RDN Lab)	10
- Flood Conditions	11
Appendices	
- Boil Water Advisory Notice	13
- Boil Water Advisory Info for the General Public	14-26
- Boil Water Order Notice	27
- Unfit for Drinking Notice	28
- Service Interruption Notice	29
- Decision Tree for Responding to Turbidity Event	30
Maps-Water Service Areas	
- Nanoose Bay Peninsula	Map 1
- Madrona Pt/Wall Beach Neighbourhood	Map 2
- Fairwinds Neighbourhood	Map 3
- Arbutus Park Neighbourhood	Map 4
- West Bay Neighbourhood	Map 5
- Driftwood Neighbourhood	Map 6
- French Creek	Map 7
- Surfside	Map 8
- San Pareil	Map 9
- Englishman River	Map 10
- Melrose	Map 11
- Decourcey	Map 12
- Whiskey Creek	Map 13
- Descanso Bay Reg. Park	Map 14
- Horne Lake Reg. Park Water System	Map 15
- Rollo McClay Community Park Water System	Map 16
- Rollo McClay Community Park Water System	Map 16

Prime Responsibilities

- Provide safe drinking water.
- Provide potable water for sanitation purposes.
- Provide water for fire suppression.
- Prevent unnecessary loss of stored water.
- Restore the integrity of the entire water system as soon as possible.
- Maintain integrity and quality of supply.

Emergency Response and Recovery Actions

- Analyze the type and severity of the emergency.
- Provide emergency assistance to save lives.
- Reduce the probabilities of additional injuries or damage.
- Provide situational reporting to appropriate agencies as required.
- Perform emergency repairs based on priority demand.
- Return system to normal levels. (recovery)
- Evaluate response and preparedness plan.
- Revise plan as necessary.
- Provide maps, notices, and direction necessary for water recovery.

Communication Checklist

In an emergency it will be important to contact the key people shown below. This will help reduce confusion and assist in ensuring any important messaging is done so correctly and quickly.

IF REQUIRED, CONTACT E.M.B.C. (formerly P.E.P.) or V.I.H.A. BEFORE MAKING THE FOLLOWING CONTACTS AS PER THE EMERGENCY PLANS

RDN Priority Contacts

MANAGER OF WATER SERVICES

MIKE DONNELLY
(250) 390-6560

MGR. REGIONAL & COMMUNITY UTILITIES

RANDY ALEXANDER
(250) 390-6560

COMMUNICATIONS COORDINATOR

ADRIENNE MERCER
(250) 390-4111

EMERGENCY COORDINATOR

JANI DREW
cell (250) 713-2057

Key Communication Options

Management Support

- Contact Electoral Area Director
- Contact the local radio station and provide a brief message if public health and safety are at risk. Follow up with a press release.

Field Staff Support

- Post notices on household front doors.
- Attach warning signs to existing Water Sprinkling Regulation signs in each community.
- Put up roadside signage at the entrance to the community.

Administrative Support

- Provide information message on the RDN web site & social media.
- Review after hours office and voice mail messaging.
- Provide notification to other RDN staff.

Emergency Contact Numbers

Personnel Contacts

<i>Name</i>	<i>Position</i>	<i>Phone / Cell</i>
Dave Welz	Chief Operator	(250) 248-4914
Heather Dorken	Operator III	(250) 248-4914
Brian Hale	Operator III	(250) 248-4914
Randy Stearman	Operator II	(250) 248-4914
Brad Lancaster	Operator II	(250) 248-4914
Lyndon Jaworski	Operator II	(250) 248-4914
Kris Hagen	Operator II	(250) 248-4914
Greg Roberts	Operator I	(250) 248-4914
Mike Donnelly	Manager of Water Services	(250) 390-6560
Deb Churko	Engineering Technologist	(250) 390-6560
Jack Eubank	Bylaw Officer <i>(Emerg. Coord. Alternate- 24hrs)</i>	(250) 713-4872
Brian Brack	Bylaw Officer <i>(Emerg. Coord. Alternate- 24hrs)</i>	(250) 714-3987

Electoral Area Directors

Electoral Area	Director	Phone	E-mail Address
A	Alec McPherson	722-9472	alecmcpherson@shaw.ca
B	Howard Houle	247-8250	howardhoule@yahoo.ca
C	Maureen Young	754-5896	Maureen_young@shaw.ca
E	George Holme	468-7237	gholme@shaw.ca
F	Julian Fell	248-4296	fjfell.at.rdn@gmail.com
G	Joe Stanhope	248-6401	jstanhope@shaw.ca
H	Bill Veenhof	797-6313	bill.veenhof@shaw.ca

Government Agency Contacts

Ministry of Environment	Nanaimo	(250) 751-3100
Department of Fisheries and Oceans	Nanaimo	(250) 754-0230
Emergency Management BC (E.M.B.C.) and Dangerous Goods Spills (formerly PEP)	Victoria	1-800-663-3456
Environmental Health Office (VIHA)	Parksville	(250) 947-8222
Environmental Health Office (VIHA)	Nanaimo	(250) 755-6215
Murray Sexton, Public Health Engineer	Nanaimo	(250) 755-6293
Medical Health Officer	Nanaimo	(250) 740-6988
	or after hours	1-800-204-6166
City of Parksville	Parksville	(250) 248-5412
Chief Operator, Scott Churko		(250) 927-1856 (cell)
Town of Qualicum Beach	Qualicum Beach	(250) 752-6921
District of Lantzville	Lantzville	(250) 390-4006
Superintendent, Fred Spears		(250) 713-0980 (cell)
North Cedar Improvement District	Cedar	(250) 722-3711
Islands Trust Organization (Main office)	Gabriola Isl	(250) 247-2063
Trustee Sheila Malcolmson	Gabriola Isl	(250) 247-8078
Trustee Gisele Rudischer	Gabriola Isl	(250) 247-8795

Emergency Services

Hospital	Nanaimo	(250) 754-2141
	Parksville ph.	(250) 248-2332 (Nan hospital)
	Oceanside Ctr	(250) 951-9550
	Gabriola Clinic	(250) 247-9922
Ambulance	Nanaimo	911 or (250) 758-8181
	Parksville	911 or (250) 248-3511
Police	Nanaimo	911 or (250) 754-2345
	Parksville	911 or (250) 248-6111
	Gabriola Isl	911 or (250) 247-8333
Fire Department	Parksville	911 or (250) 248-3242
	Coombs-Hilliers	911 or (250) 752-2144
	Nanoose Bay	911 or (250) 468-7141
	Qualicum Beach	911 or (250) 752-6921
	Cedar	911 or (250) 722-3122
	Gabriola Isl	911 or (250) 247-5601

Priority Services

BC Hydro (Qualicum Beach number)	(250) 752-8012 or
BC Hydro (Power Outages & Electrical Emergencies)	1-888-769-3766
Telus	(250) 811-2323 or
Telus (Paul McGrath cell 248-0983)	(250) 741-7713 or 741-7716
FortisBC (Teresen Gas)	(250) 248-4880
Shaw Cable (Nanaimo)	(250) 754-5571
CP Rail	1-800-716-9132
French Creek Pollution Control Centre	(250) 248-5794
Chlorine Manufacturer (Brentagg)	1-800-661-1830

Community Contacts

District 69 School Board Office	(250) 248-4241
Nanoose Bay School	(250) 468-7414
Nanoose Children's Centre	(250) 468-1784
Nanoose Place	(250) 468-5339
Nanoose Post Office	(250) 468-7722
Canadian Forces Maritime Experim'l Test Range (CFMETR)	(250) 756-5021 or 468-5004
	or
	(250) 468-2260 (MP Stn-24hr)
Descanso Bay Reg Park Operator- Jim Demler	(250) 751-5887
Horne Lake Reg Park Operator- Bill Woodhouse	(250) 927-4790

Excavation Services

Shoreline Equipment (Doug Penny)	(250) 468-7759 or 755-9502
C-Lane Contracting (Gord)	(250) 927-9555
Degnen Excavators (Gabriola Isl)	(250) 247-8817

Electrical Contractors

Canem Electric	(250) 468-1887
HPS Power Ltd. (Harvey Sommerfeld)	(250) 821-0415 or 954-7463
TC Trades (Tom Frenette)	(250) 756-0077 or 668-0078
Ron Ruckman (Descanso Bay/Gabriola Isl)	(250) 247-0050

Other Services

Plumbing Services (Maci Motor – Pump Repair)	(250) 248-4423
JC Plumbing (Descanso Bay/Gabriola Isl)	(250) 247-7574 or 713-6700
EPCOR (Parksville)	(250) 951-2460
Sand and Gravel (Ozero)	(250) 752-1482
Sand and Gravel (Luissier & Sons)	(250) 468-9994
Sand and Gravel (Porter Wood)	(250) 248-3693
EMCON Road Maintenance (Gabriola Isl)	(250) 247-9420

Other Services

Pump Trucks (Action Tank Service)	(250) 248-3833
Pump Trucks and Toilet Rentals (A-1 Septic)	(250) 248-4438
Portable Washrooms (Coast Toilet Rentals)	(250) 753-7552
Bulk water supply (BC Water Service)	(250) 954-3628
Bottled water supply (Water Pure & Simple)	(250) 752-1373
Running Water Enterprises (Water Hauling Service)	(250) 947-5197
Woods Water Hauling	(250) 758-2677
Summer Rain Water Delivery (Gabriola Isl)	(250) 247-9136
Fyfe's Well and Water Services	(250) 752-4986 or 248-0830
Red Williams (Water Hauling Service)	(250) 248-5552

Suppliers

Four Star Waterworks (piping)	(250) 954-3546
Hwy Four Rentals (equipment & pumps)	(250) 248-1100
Iritex Pumps and Irrigation – (pumps)	(250) 248-7028
Windsor Plywood (miscellaneous building supplies)	(250) 752-3122
Albertsons Hardware (miscellaneous building supplies)	(250) 248-6888
Robinson Rentals	(250) 753-2465
United Rentals	(250) 758-3911

Media Services

Adrienne Mercer, RDN Communications Coordinator	1-877-607-4111 or 713-1075
Radio Station (CKWV) Nanaimo and Parksville	(250) 758-1131
TV Station (CHEK)	(250) 383-2435
Newspaper (PQ News and The Weekender)	(250) 248-4341
The Oceanside Star	(250) 954-0600
Nanaimo Daily News / Harbour City Star	(250) 729-4212
Gabriola Sounder	(250) 247-9337

Emergency Response Plans

Contamination of Source (Turbidity Events over 1 NTU, Spills, Accidents, Vandalism)

Actions:

- Notify Environmental Health Officer (VIHA) (Ph. 250-947-8222 or after-hours Medical Health Officer at 1-800-204-6166)
- Shut down pump
- Notify E.M.B.C. (Emergency Management BC) (formerly PEP)
- Notify all users if necessary under direction of Health Unit
- Contact government agencies for advice and assistance
- Contact local media for public service announcements
- Post signs and deliver notices to homes and businesses. (See attached samples)
- Arrange alternate source if necessary – i.e., bottled or bulk water
- Advise RDN supervisory personnel
- Advise local fire dept not to use fire hydrants

Contacts:

- Environmental Health Office (VIHA)
- E.M.B.C. (Emergency Management BC) (formerly PEP), RCMP
- Ministry of Environment
- All schools and community centers – see “*Priority Contacts*” List
- RCMP if there has been vandalism

Loss of Source (Loss Of Reservoir or Supply Lines)

Actions:

- Ensure pumps are shut off. (To protect pump)
- Notify all users
- Contact government agencies for advice and assistance
- Arrange alternate source – i.e., bottled water, bulk water, storage tank
- Advise RDN supervisory personnel if necessary

Contacts:

- Environmental Health Office (VIHA) and Ministry of Environment

Emergency Response Plans Cont'd

Broken Water Main

Actions:

- Shut pump off when backflow conditions have been prevented
- Call for repairs as required – i.e. excavator, backhoe
- Notify all users of interruption of service
- Advise Environmental Health Officer (VIHA)
- Arrange alternate source if necessary
- Advise RDN supervisory personnel

Contacts:

- Environmental Health Office (VIHA)

Chlorination Failure

Actions:

- Advise Environmental Health Officer (VIHA)
- Shut off well pumps. Monitor reservoir levels.
- Notify all users to boil water for two minutes or take other disinfection procedures in accordance with recommendations of local health officials
- Post signs or deliver notices if necessary. (See attached samples)
- Arrange chlorinator repairs
- Arrange for alternate disinfection if necessary
- Advise RDN supervisory personnel

Contacts:

- Environmental Health Office (VIHA)
- Chlorinator manufacturer

Pump Failure

Actions:

- Notify all users of interruption of service
- Call for repairs: pump manufacturer if necessary
- Advise Environmental Health Officer (VIHA) (if interruption is not short term)
- Arrange alternate source if necessary – bottled or bulk water, etc.
- Advise RDN supervisory personnel if necessary

Contacts:

- Environmental Health Office (VIHA)

Emergency Response Plans Cont'd

Power Failure

Actions:

- Call BC Hydro. Find out when power will be restored
- Start back-up generator or arrange to get one
- Notify all users about interruption of service if backup not capable of maintaining supply
- Post signs or deliver notices if necessary. (See attached samples)
- Advise Environmental Health Officer (VIHA)
- Arrange alternate source if necessary – bottled or bulk water, etc.
- Arrange for alternate disinfection at Descanso Bay and Horne Lake Reg Parks
- Advise RDN supervisory personnel

Contacts:

- Environmental Health Office (VIHA)

Backflow or Back Siphonage

Actions:

- Advise Medical Health Officer at Environmental Health Office (VIHA)
- Notify all users to boil water for two minutes or take other disinfection procedures in accordance with recommendations of local health officials. (See attached samples)
- Purge and disinfect lines as directed, after corrections have been made
- Post signs or deliver notices if necessary. (See attached samples)
- Advise RDN supervisory personnel

Contacts:

- Environmental Health Office (VIHA)

Bacteria Count (RDN Lab)

Actions:

- Advise Medical Health Officer Environmental Health Office (VIHA)
- Follow procedures in accordance with recommendations of local health officials
- Post signs or deliver notices if necessary. (See attached samples)
- Check if UV unit is working at Descanso Bay Reg Park, clean the UV bulb
- Arrange for alternate disinfection at Descanso Bay Reg Park if the UV unit is not working
- Advise RDN supervisory personnel

Contacts:

- Environmental Health Office (VIHA)

Emergency Response Plans Cont'd

Flood Conditions:

Actions:

- Notify Environmental Health Officer (VIHA) (Ph. 250-947-8222 or after-hours Medical Health Officer at 1-800-204-6166)
- Notify all users regarding the potential for water contamination, loss of pump, power, etc, Users should be advised to store some drinking water in advance, and to boil any suspect water for two minutes or disinfect with chlorine when flood conditions exist
- Phone government contacts
- Contact local media for public service announcement when customers can not be reached by phone
- Post signs or deliver notices if necessary. (See attached samples)
- Arrange alternate source if possible – i.e. bottled water, bulk hauler or storage tank
- Advise RDN supervisory personnel

Contacts:

- Environmental Health Office (VIHA), E.M.B.C. (Emergency Management BC) (formerly PEP), and Ministry of Environment

APPENDICES

Boil Water Advisory Notice	13
Boil Water Advisory Info for the General Public	14-26
Boil Water Order Notice	27
Unfit for Drinking Notice	28
Service Interruption Notice	29
Decision Tree for Responding to Turbidity Event	30

SAMPLE

NOTICE

Boil Water Advisory

Effective date: _____

Please note that all water used for domestic purposes (drinking, cooking, etc.) should be boiled before consumption. The boiling should be at a rolling boil and for a minimum of one minute.

RDN Water Services staff are continually monitoring the water supply system and will provide updates as they become available.

Watch for information updates at www.rdn.bc.ca (Water Services) and listen to your local radio station for more information.

This advisory will be in effect until further notice.

For further information contact the

**Regional District of Nanaimo at:
1-877-607-4111 or 1-250-390-4111
Water Services Field Office: 1-250-248-4914**

**BOIL WATER ADVISORY INFORMATION FOR THE GENERAL PUBLIC
DURING A BOIL WATER ADVISORY CAUSED BY:
INADEQUATE DISINFECTION**

This information is provided as a guide to help individuals reduce the risk of becoming ill from ingesting non-potable water. Individuals who follow these guidelines will greatly reduce their chance of becoming ill.

What is a Boil Water Advisory?

A Boil Water Advisory is a public announcement advising water system users that they should boil their tap water for drinking and other domestic purposes. It is an advisory intended to protect the Publics' health from waterborne infectious agents that could be present or are known to be present in the community's drinking water supply.

What is the difference between a Boil Water Advisory and a Boil Water Order?

A Boil Water Advisory is a notice issued to the public as a health warning. In most cases it is the water supplier who notifies the public.

A Boil Water Order is legal document issued to the water supplier by the Health Authority requiring the water supplier to notify the public of a boil water advisory.

What are the health risks during a Boil Water Advisory?

The health risks are associated with ingesting water that contains microbiological agents that can cause disease. These pathogenic (disease causing) agents could include *Giardia*, *Cryptosporidia*, *E. coli*, *Campylobacter*, *Salmonella* and *Hepatitis A*. Boiling tap water for one minute is sufficient to destroy pathogens that could be present in the water.

There are numerous factors that influence whether a person becomes ill. First, there must be pathogens present in the water you consume. Not every glass of water is likely to contain pathogens. Even if the water you consume contains pathogens, those pathogens that are present must be viable. That is, they must be in a state where they can cause an illness and they must be present in large enough numbers to cause an illness. The number of pathogens needed to cause illness depends on the type of pathogen present, a person's size, age, and immune status.

The incubation period (time for symptoms to develop) will vary depending on the type of pathogen. For example, Giardia (beaver fever) could take up to four weeks to develop symptoms whereas E. coli could take up to ten days and as little as two days. For more information on waterborne diseases go to the following BC Health File;

<http://www.bchealthguide.org/healthfiles/hfile49a.stm>

Any persons believing that they are ill should see their doctor. Patients are sometimes requested to submit samples for laboratory analysis to assist in waterborne outbreak investigations.

It is important to note that Boil Water Advisories are specific to microbiological threats. They are not appropriate to address threats from chemical contamination. Boiling chemically contaminated water will only result in the chemical becoming more concentrated or release the chemical into the air where it could be inhaled.

When there is a threat to a water supply from a chemical contaminated a more appropriate public health advisory of "Do Not Drink the Water" would be issued.

What am I trying to kill when I'm boiling the water?

Boiling water is recommended to kill pathogenic microbes that may be present in contaminated water. Bacteria such as *E. coli* and *Salmonella* are killed rapidly at temperatures over 60°C and a temperature of 72.4°C for 1 minute is needed to inactivate cryptosporidium. *Hepatitis A* and *Norovirus* are rapidly inactivated at temperatures above 65°C.

Based on the above information there is no need to boil water for prolonged periods of time. Although heating water to boiling is not needed it is the only end point easily recognized by the public without the use of thermometers. It is therefore recommended that the public bring the water to a roiling boil for one minute to ensure that all pathogens have been inactivated.

One minute should be added to the above boiling times if the water is cloudy or highly colored to ensure proper mixing and that all pathogens have been exposed to the high temperature. When boiling water at altitudes above 2000m (6,500 ft), water should be boiled for 2 minutes.

How can the water become contaminated?

The water can become contaminated in a variety of ways. Some of these include:

- Heavy rainfall can wash contaminants into the water source
- Accidental spills in the water supply
- Breakdown of the disinfection process
- Break in water supply mains
- Vandalism
- Connections within the water system between potable and non-potable piping.

Is it necessary to boil all the water in the home during a boil water advisory?

No, it is not necessary to boil all your water. Water used for bathing, showering, laundry, toilet flushing and mopping of floors does not need to be boiled. During bathing, young children should be cautioned against swallowing the bath water or alternatively young children could be sponge bathed.

All other water should be boiled. Simply put, any water that has a chance of being ingested should be boiled. This would include water used for drinking, beverage concentrates, ice cubes, washing fruits and vegetables, or brushing teeth.

Severely immune-compromised individuals should always boil their tap water for the purposes above. See the link to BC Health Files number 56, December 2003.

<http://www.bchealthguide.org/healthfiles/hfile56.stm>.

Infant formulas should always be prepared by using boiled tap water or bottled water that is boiled. See the link to BC Health Files number 69b, May 2006.

<http://www.bchealthguide.org/healthfiles/hfile69b.stm>.

Drinking water for pets including dogs, cats, birds and reptiles should also be boiled.

How should tap water be boiled properly?

Tap water should be boiled for at least one minute. Use any clean pot or kettle. Kettles that have automatic shut offs are acceptable.

How should tap water be boiled properly? (*continued*)

Health Canada suggests that microwave ovens can also be used using microwave-safe containers but cautions against forming superheated water (water heated above its boiling point without the formation of steam). When using microwaves, Health Canada suggests inserting a glass rod, wooden or plastic spoon in the container to prevent forming superheated water.

After boiling, let the water cool by leaving it on the counter or in the refrigerator in covered containers. Once the water is boiled, it can be stored in food grade containers at room temperature or in the refrigerator.

Shaking the water in the container or pouring the water between two containers and/or adding a pinch of salt can bring back flavor after boiling.

Are there alternatives to boiling water?

Yes, there are. Although there are alternatives, not all of them will be feasible or practical in all situations. In part, it will depend on how much water you need and what you need it for. Safe alternatives to boiling water include:

- Using commercially prepared bottled water
- Obtaining water from an approved source that is not on a boil water advisory, or
- Using bleach to disinfect small quantities of tap water. See the following chart or website for a guide to using bleach.

<http://www.bchealthguide.org/healthfiles/hfile49b.stm>

Disinfection using unscented household bleach (5% chlorine) works best with warm water. Add bleach to the water, shake or stir for thorough mixing and then let it stand for at least 30 minutes before drinking.

Gallons of water to disinfect (equivalent shown in brackets)	Amount of Household bleach (5%) to add*
1 gal. (4.5 litres)	2 drops (0.18 mL)
2 ½ gal. (10 litres)	5 drops (0.4 mL)
5 gal. (23 litres)	11 drops (0.9 mL)
10 gal. (45 litres)	22 drops (1.8 mL)
22 gal. (100 litres)	¾ teaspoon (4 mL)
45 gal. (205 litres)	1 ½ teaspoons (8 mL)
50 gal. (230 litres)	1 ¾ teaspoons (9 mL)
100 gal. (450 litres)	3 ½ teaspoons (18 mL)
220 gal. (1000 litres)	8 teaspoons (40 mL)
500 gal. (2200 litres)	6 tablespoons (90 mL)
1000 gal. (4550 litres)	6 ½ ounces or 12 tablespoons (180 mL)

A slight chlorine odour should still be noticeable at the end of the 30-minute waiting period if you have added enough bleach. If not, repeat the dosage and allow the water to stand an additional 15 minutes. If the water has too strong a chlorine taste, allow the water to stand exposed to the air for a few hours or pour it from one clean container to another several times.

The disinfection action of bleach depends as much on the waiting time after mixing as to the amount used. The longer the water is left to stand after adding bleach, the more effective the disinfection process will be.

NOTE: Bleach does not work well in killing off *Cryptosporidium* parasites.

The amount of bleach needed to kill *Cryptosporidium* makes the water almost impossible to drink. If *Cryptosporidium* is in the water, boiling is the best way to ensure that the water is safe to drink.

I have my own water treatment device do I still need to boil my water?

If the device is designed to improve taste or reduce odour such as an activated carbon filter the answer is **YES** you should still boil your water.

If the device is designed to improve the chemical quality of the water such as reducing the iron content then the answer is **YES** you should still boil your water.

If the device is designed to improve water that is already potable the answer again is **YES** you should still boil your water.

There are numerous filters on the market designed to remove microorganisms and particulates. Most of these filters are not capable of removing viruses. Therefore, you should boil your water if you have a unit that cannot remove viruses.

If the device is designed to disinfect (destroy pathogens) water such as in an ultraviolet light (UV) disinfection unit you **might not** need to boil your water. There are numerous ultraviolet units; some are designed to disinfect raw water and some are designed to disinfect water that has already been disinfected at a central facility. For example, if the unit is classified by the National Sanitation Foundation (NSF) as meeting NSF Standard 55 Class A, it is designed to disinfect raw water. However, if the water within the distribution system is too turbid or cloudy, even a UV unit meeting NSF Standard 55 Class A may not work properly and you should still boil your water.

Reverse osmosis (RO) units are designed to filter water at the molecular level and should provide water that is free of pathogens. Thus, you **do not** have to boil your water if you have a reverse osmosis water treatment device.

There are many types of units on the market each designed to address specific water quality issues. It is recommended that you check with the unit's manufacturer to know exactly what your unit can do.

Can I purchase water from vending machines?

It depends on how the water is treated. Local vending machines that use local water would only be acceptable if the vending machine can kill pathogens that might be present in the water. Check with the store or manufacturer to see if the unit is capable of providing water that is safe to drink.

Warning signs should be posted on vending units that are not capable of providing safe water. Alternatively, the machine should be turned off.

Are there any people or groups of people at higher risk?

Yes. These people include any individual whose immune system is not fully developed or whose immune system is under stress such as infants, the elderly, immune compromised individuals and individuals already suffering from an illness. For more information go to the following BC Ministry of Health websites:

BC Health File: weakened immune systems

<http://www.bchealthguide.org/healthfiles/hfile56.stm>.

BC Health File: preparing infant formula

<http://www.bchealthguide.org/healthfiles/hfile69b.stm>.

Boil water or provide an alternative safe supply of water that is used for:

- Drinking purposes- This includes all beverage concentrates such as fruit juice and iced tea
- Food preparation- This includes washing of fruits and vegetables
- Food contact surfaces

**Boil water or provide an alternative safe supply of water that is used for:
(continued)**

Food contact surfaces are all those surfaces that food comes into contact with during the food preparation process. These surfaces include counter tops, cutting boards and chopping blocks. Food contact surfaces should be washed with clean water and then sanitized using an acceptable sanitizing agent. Sanitizing agents for food contact surfaces include bleach (12-15 mL of 5% bleach per litre of water), iodophors, quaternary ammonia compounds or hydrogen peroxide (3% solution).

- Oral hygiene (brushing teeth)
- Infant formula; see BC Health File; preparing infant formula at <http://www.bchealthguide.org/healthfiles/hfile69b.stm>.
- Ice making

It is important to note that freezing does not destroy most pathogens. Bacteria and viruses can survive in frozen products for long periods of time. Discard any ice made from contaminated or potentially contaminated water.

Hand washing

Using warm water and soap should be sufficient. Applying a hand sanitizer after washing with tap water would add an extra barrier of protection.

Dishwashing by hand

Dishes washed by hand should be sanitized for two minutes in a separate sink using a bleach solution (2 mL of bleach per litre of water) after the dishes have been washed and rinsed. The dishes should then be left to **air dry** prior to being used. Attempting to wash and sanitize dishes in the same sink at the same time is not recommended because soap, grease and food particles interfere with the sanitizing process.

Mechanical dishwashers

Most residential home-style dishwashers do not provide a high enough temperature to kill all pathogens. Dishwashing units that reach 82 degrees Celsius (180 Fahrenheit) for twelve seconds (or an equivalent time-temperature relationship) during the final rinse cycle will destroy pathogens.

To optimize the disinfection process while using a residential dishwasher you should consider:

1. Using the highest temperature setting possible.
2. Running dishes through the dishwasher twice.
3. Sanitizing dishes afterwards in a sink containing a weak bleach solution (see dishes washed by hand above).
4. Letting the dishes air dry prior to use

Fruit and vegetable washing

Thoroughly wash all produce with potable water especially those that are going to be eaten raw. This is a common sense practice that should be applied even when there is no public boil water advisory.

Coffee Machines

Coffee machines usually produce water around 70 to 80 degrees Celsius, which is sufficient to destroy pathogens. However, a sufficient amount of time is needed to ensure that all harmful organisms are destroyed. Therefore, let the coffee stand for at least five minutes before drinking.

Home canning

To be safe, postpone home canning until the boil water advisory has been rescinded.

Beer and wine making

To be safe, postpone beer and wine making until the boil water advisory has been rescinded.

When will the Boil Water Advisory be rescinded?

Only when the water supplier can provide potable water will the Health Authority rescind the Boil Water Advisory. Once or more of the following usually achieves confirmation that the water is once again safe to drink.

These include:

- Identifying and fixing the source or sources of the problem,
- Implementing procedures to eliminate or reduce the chance for reoccurrence
- Performing water quality tests
- Flushing and disinfecting distribution lines and water storage facilities

Precautions to consider when the Boil Water Advisory is lifted

- Flush all water-using fixtures for 1 minute
- Run cold-water faucets and drinking fountains for 1 minute before using water
- Drain and flush all ice-making machines in your refrigerator
- Run water softeners through a regeneration cycle
- Drain and refill hot water heaters set below 45 deg C (normal setting is 60 deg C)
- Change any pre-treatment filters (under sink style and refrigerator water filters, carbon block, activated carbon, sediment filters, etc.)

Can I speak to a person in Public Health if I have a question about the Boil water Advisory?

Yes you can. For further information contact Environmental Health Officers at the following locations:

- Victoria
- Nanaimo
- Courtenay
- VIHA 6475 Metral Drive, Nanaimo, BC 250-755-6215
- VIHA 249 West Hirst Avenue, Parksville BC 250-947-8222

After hours Medical Health Officer on call is 1-800-204-6166.

Additional information can be found at the following BC, Canadian and US websites. These are:

BC Health File; how to disinfect drinking water

<http://www.bchealthguide.org/healthfiles/hfile49b.stm>

BC Health File; weekend immune systems and water-borne infections

<http://www.bchealthguide.org/healthfiles/hfile56.stm>

BC Health File; waterborne disease in BC

<http://www.bchealthguide.org/healthfiles/hfile49a.stm>

BC Health File; cryptosporidiosis

<http://www.bchealthguide.org/healthfiles/hfile48.stm>

BC Health File; giardiasis

<http://www.bchealthguide.org/healthfiles/hfile10.stm>

BC Health File; safely preparing and storing baby formula

<http://www.bchealthguide.org/healthfiles/hfile69b.stm>

US EPA how to boil water and use bleach

<http://www.epa.gov/ogwdw000/faq/emerg.html>

US Centre for Disease Control; preventing cryptosporidiosis infection

<http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/default.htm>

US Centre for Disease Control; Giardia fact sheet

http://www.cdc.gov/ncidod/dpd/parasites/giardiasis/factsht_giardiasis.htm#prevention

US Centre for Disease Control; Preventing Cryptosporidium; a guide to water filters & bottled water

http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_crypto_prevent_water.htm

Information sources for developing this package includes

- BC Ministry of Health
- Health Canada
- Alberta Environmental Health
- Washington State Department of Health
- BC Centre for Disease Control
- US EPA (Environmental Protection Agency)
- US Center for Disease Control
- NSF (National Sanitation Foundation)
- DWO (Drinking Water Officer's) Guide

SAMPLE

NOTICE

Boil Water Order

Effective date: _____

Please note that all water used for domestic purposes (drinking, cooking, etc.) should be boiled before consumption. The boiling should be at a rolling boil and for a minimum of two minutes.

RDN Water Services staff are continually monitoring the water supply system and will provide updates as they become available.

Watch for information updates at www.rdn.bc.ca (Water Services) and listen to your local radio station for more information.

This order will be in effect until further notice.

For further information contact the

**Regional District of Nanaimo at:
1-877-607-4111 or 1-250-390-4111
Water Services Field Office: 1-250-248-4914**

SAMPLE

WARNING

**This Water is
Considered
Unfit for Drinking
or Domestic Use**

Effective date: _____

For further information contact the

Regional District of Nanaimo at:

1-877-607-4111 or 1-250-390-4111

Water Services Field Office: 1-250-248-4914

SAMPLE

NOTICE

Water Supply Service Interruption

Effective date: _____

Please be advised that your water service may be interrupted or off for periods during the day.

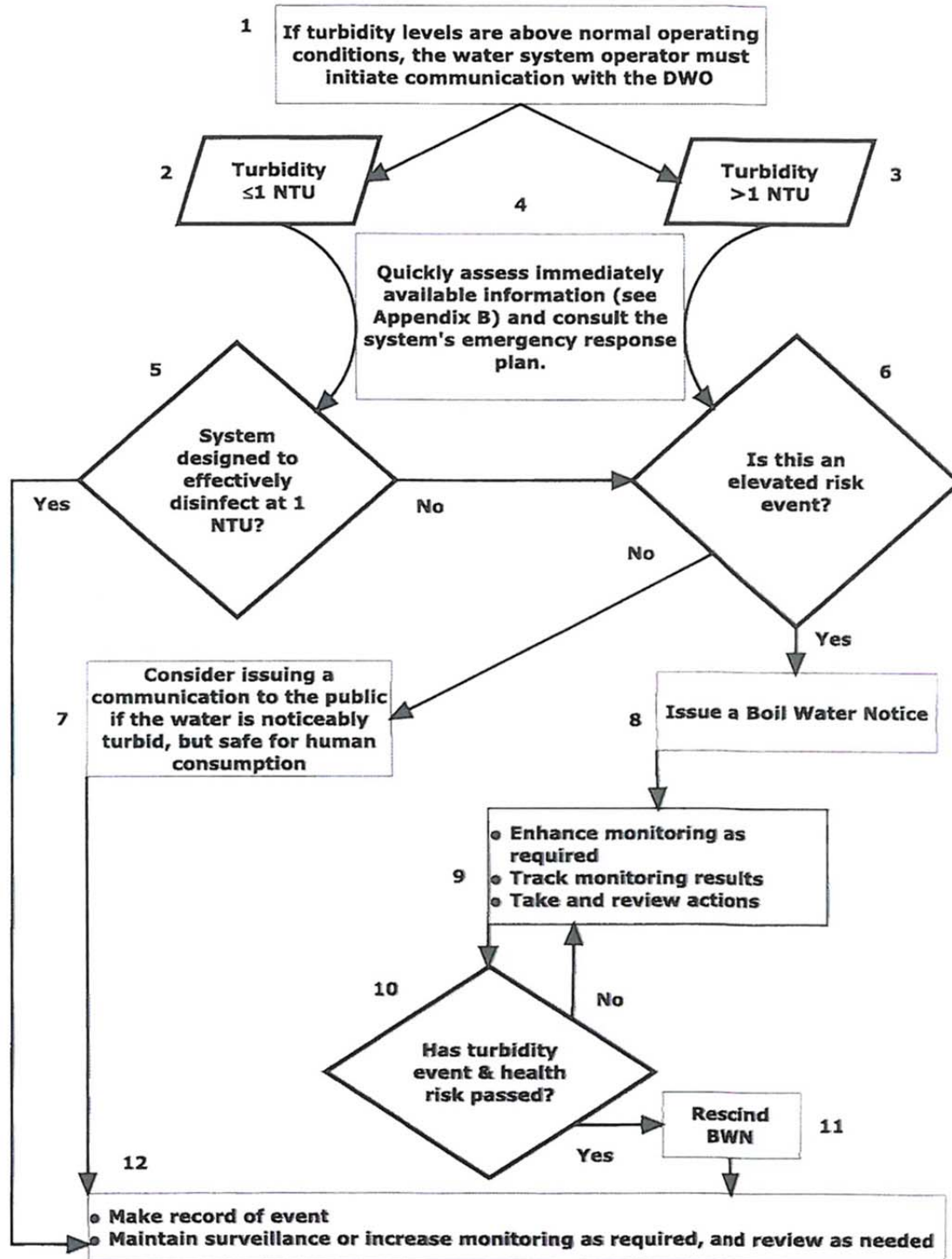
When service is resumed, the water may be discoloured. This is due to disturbed deposits in the pipes and is not harmful.

This advisory will be in effect until further notice.

For further information contact the

**Regional District of Nanaimo at:
1-877-607-4111 or 1-250-390-4111
Water Services Field Office: 1-250-248-4914**

Decision Tree for Responding to a Turbidity Event in Unfiltered Drinking Water



MAPS

Water Service Areas

Nanoose Bay Peninsula Water Service Area	Map 1
Madrona Pt/Wall Beach Neighbourhood	Map 2
Fairwinds Neighbourhood	Map 3
Arbutus Park Neighbourhood	Map 4
West Bay Neighbourhood	Map 5
Driftwood Neighbourhood	Map 6
French Creek Water Service Area	Map 7
Surfside Water Service Area	Map 8
San Pareil Water Service Area	Map 9
Englishman River Water Service Area	Map 10
Melrose Water Service Area	Map 11
Decourcey Water Service Area	Map 12
Whiskey Creek Water Service Area	Map 13
Descanso Bay Reg. Park Water System	Map 14
Horne Lake Reg. Park Water System	Map 15
Rollo McClay Community Park Water System	Map 16