

# REGIONAL DISTRICT OF NANAIMO

## Water Service Area Annual Report 2018



### Nanoose Bay Peninsula Water Service Area

June 2019

REGIONAL DISTRICT OF NANAIMO

*Water & Utility Services Department*

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## 1. Introduction

The following annual report describes the Nanoose Bay Peninsula (NBP) Water Service Area and summarizes the water quality and production data from 2018. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, Operator Certification, the Emergency Response Plan, and the Cross Connection Control Program. This report is to be submitted to Island Health by the spring of 2019.

## 2. Nanoose Bay Peninsula Water System

The Nanoose Bay Peninsula Water System was established in 2005 by amalgamating the 7 small water service areas located within the Nanoose Bay Peninsula. The previous service areas, if referred to in this report, are noted as neighbourhoods within the NBP service area. In 2018, the Nanoose Peninsula Water System was comprised of 2191 residential and 67 commercial water service customers.

The water supply originates from groundwater wells located nearby and is supplemented seasonally with water from the Englishman River. The water supply is chlorinated and stored in several reservoirs throughout Nanoose Bay. A drinking water filtration plant is located at 2480 Nanoose Road, and its purpose is to filter out iron, manganese, and ammonia from Fairwinds Wells #1, 2, and 3, and West Bay Well #3. A portable back-up generator is available in the event of a power outage. The back-up generator will run the West Bay Well #3 and the West Bay pumphouse controls. In the case of an extended power outage, drinking water will continue to be supplied but it will only be chlorinated, not filtered.

### 2.1 Groundwater Wells

Thirteen groundwater production wells are located within the Nanoose Bay Peninsula. Nanoose Wells #2, #3, and #4 are on standby for use during periods of high demand (if required). Nanoose Well #5 has not been in use since 2002, due to saltwater intrusion, and has been permanently converted to a provincial monitoring well. Nanoose Well #6 hasn't been used since 2010 due to operational challenges with chlorination. Nanoose Well #7 was drilled in 2008 but has not yet been approved for community drinking 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	(Not in use)
Nanoose #7	60.6 m	Yes	(Not in use)
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
Parker Road	91.4 m	Yes	Treated

## 2.2 Reservoirs

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

- Madrona (concrete) - 485 m<sup>3</sup> (100,000 imperial gallons) capacity
- Eagle Heights (concrete) - 341 m<sup>3</sup> (75,000 imperial gallons) capacity
- Dolphin (concrete) - 455 m<sup>3</sup> (100,000 imperial gallons) capacity
- Fairwinds Res #1 (concrete) - 701 m<sup>3</sup> (154,000 imperial gallons) capacity
- Fairwinds Res #2 (concrete) - 701 m<sup>3</sup> (154,000 imperial gallons) capacity
- Arbutus Park (lined concrete, wooden roof) - 568 m<sup>3</sup> (125,000 imp. gallons) capacity

The Beachcomber reservoir was demolished in 2015. The location of a new water storage reservoir is currently being considered.

## 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	9.7 km 2.7 km	12.2% 3.4%
<u>PVC:</u> 150mm or smaller 200mm or larger	23.2 km 33.5 km	29.1% 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)



**Beachcomber Reservoir  
Demolition 2015**

### 3. Water Sampling and Testing Program

Water sampling and testing is carried out weekly in the distribution system. Notably, the chlorine residual levels are tested weekly to ensure the absence of bacterial regrowth in the watermains. The following table includes a summary of all testing:

Timing	Location	Tests
Weekly	RDN (in-house) Laboratory	Total coliforms, E.Coli, pH, TDS, Temperature, Conductivity, Turbidity, Chlorine residual, Salinity
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)	Bureau Veritas (formerly Maxxam)	Complete potability testing of all raw well water, including T-Ammonia
Annual System Water Testing (every Spring)	Bureau Veritas (formerly Maxxam)	Complete potability testing of distribution system, including T-Ammonia
Filtration Plant Output Once per month	Bureau Veritas (formerly Maxxam)	True colour, Ammonia, Iron, Manganese, and Chloramines

### 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](http://www.rdn.bc.ca) in the REGIONAL 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.

### 5. Water Quality Inquiries and Complaints

The tap water quality has improved with the installation of the Nanoose Bay Peninsula water filtration plant. Filtered groundwater from the Fairwinds and West Bay wells is mixed with treated water from the Englishman River (seasonally, as required) and stored in the same six reservoirs throughout Nanoose Bay.

Several inquiries were received from the Nanoose Bay Peninsula Water Service Area in 2018. Iron and manganese water discoloration were intermittently apparent in the Madrona Drive area. Flushing watermains and water services cleared things up. High water bills were addressed through the RDN’s Leak Policy.

A few inquiries were received about subdividing large lots in Nanoose. No additional water supply was available from RDN water sources to facilitate subdivisions in 2018.

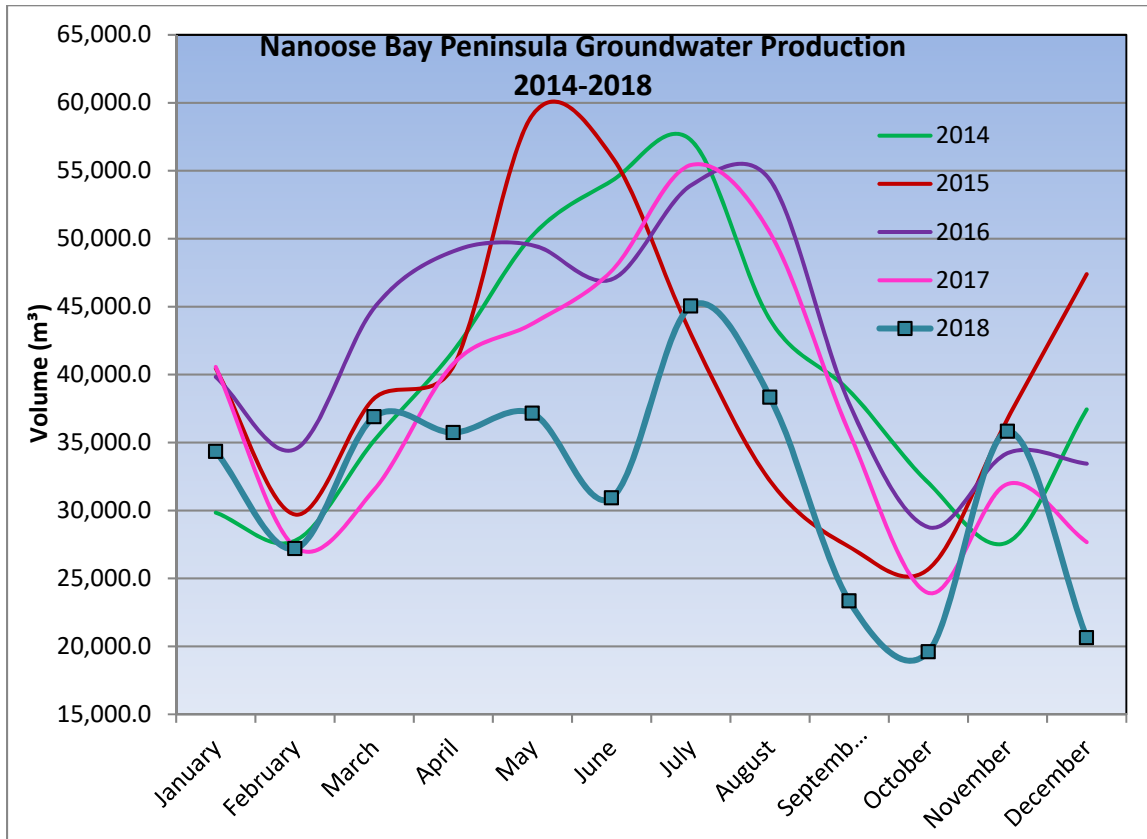
A summary of the water system incidents in 2018 is given in the table below.

Activity in 2018	Date(s)	History/Notes
Boil Water Advisories	None	None
High Turbidity Events	None	None
Equipment Malfunction	None	None
Water Main Breaks	None	Madrona Drive (Nov) Dolphin Drive (Dec)
Pump Failures	None	None

### 6. Groundwater Production and Consumption

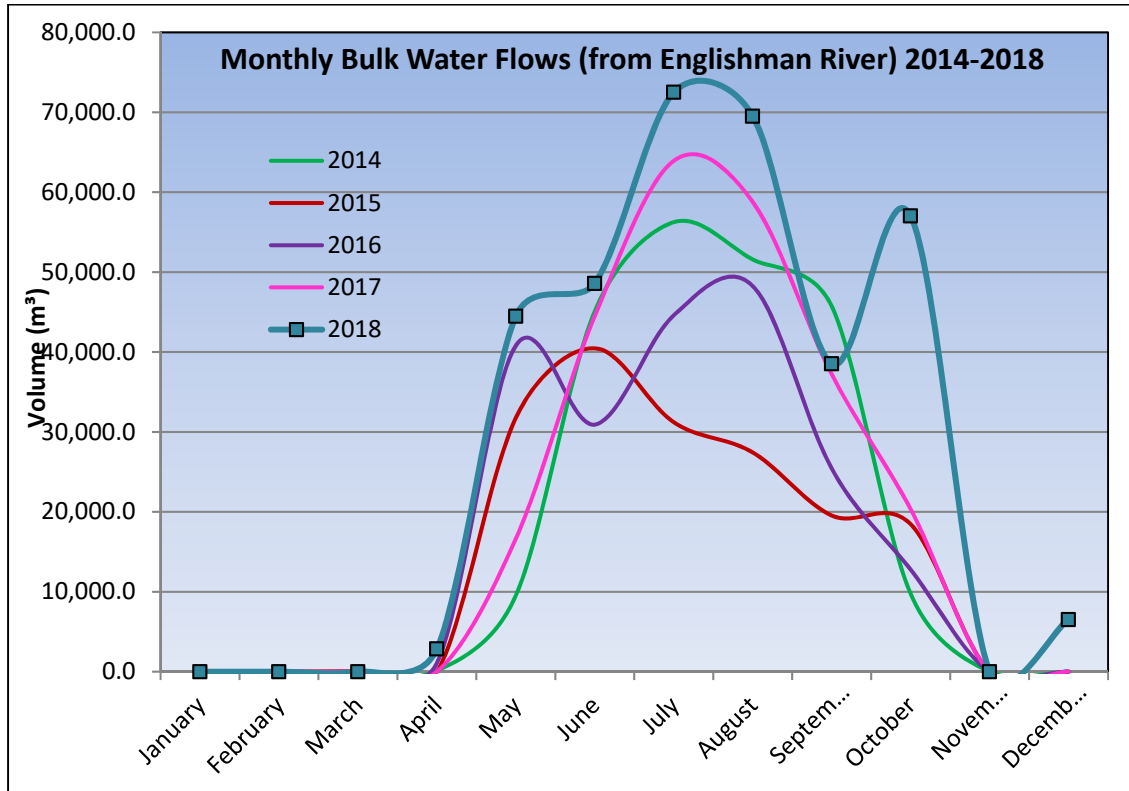
#### Groundwater Production

The monthly groundwater well production for the past 5 years is shown in the chart below. Groundwater production in 2018 was below average in comparison to previous years. Production peaked as expected in the summer months and fell significantly afterwards. Overall reduced groundwater production was due to reduced flows available from West Bay Well #3.



Surface Water Production

Bulk Water is supplied by the City of Parksville to supplement the RDN’s well water during the high seasonal water use period (May to Sept). The bulk water comes from the Englishman River and is transmitted through the Nanoose Bay Water Service Area via a 16-inch (400mm) water main located along Northwest Bay Road. A comparison of the volume of bulk water supplied to the Nanoose Bay Water Service Area for the past 5 years is shown in the chart below. Bulk Water production in 2018 appears to be above average in comparison to previous years.



Water Consumption

In the Fall/Winter of 2018, water billing records indicate that the average water usage per home in Nanoose Bay was 0.41 cubic metres per day (90.2 imperial gallons). In the summer, the average water usage was 1.26 cubic metres per day (277.2 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 290 L/day (based on 2.4 people/household). This consumption is *1% less* than the RDN system average of 294 L/day/capita in 2018.

**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. Fire hydrants are serviced once per year (either ‘A-level’ or ‘B-level’ maintenance). Water storage reservoirs are drained and cleaned once every 3-4 years, as required. Twenty-four hour on-call coverage is in place to respond to water system emergencies and alarms.



**Fairwinds Reservoir No. 1**

## 8. Operator Certification

The Regional District Water & Utility Services staff are comprised of one Manager, one Project Engineer, one Engineering Technologist, one Engineering Technician, one Chief Operator, and seven certified operators. The operators receive ongoing training and certification in:

- |                            |   |                            |
|----------------------------|---|----------------------------|
| ✓ Water Treatment          | ✓ Chlorine Handling                                       | ✓ Confined Space Awareness |
| ✓ Water Distribution       | ✓ WHMIS (Workplace Hazardous Material Information System) | ✓ Traffic Control          |
| ✓ Wastewater Collection    | ✓ TDG (Transportation of Dangerous Goods)                 | ✓ Fall Protection          |
| ✓ Cross Connection Control |   | ✓ First Aid                |
| ✓ Asbestos Awareness       |   |                            |

## 9. Water System Projects

### 9.1 2018 Completed Studies & Projects

- Corresponded with residents regarding well level and water conservation;
- Completed irrigation checks for high-water users;
- Completed Water Conservation Evaluation Report;
- Advised residents regarding water leak repairs;
- Completed Cross Connection Control Bylaw in draft format;
- Completed regular flushing, reservoir cleaning, and hydrant maintenance projects;
- Enforced outdoor sprinkling regulations;
- Updated the online GIS Water Map update for aquifer and watershed info;
- Maintained a high level of water quality;
- Continued quality control through regular testing and monitoring of water system;
- Began a Water Systems SCADA Master Plan project;
- Initiated a New Drinking Water and Watershed Protection Action Plan;
- Began a Water Systems Condition Assessment project;
- Installed Nanoose Volunteer Fire Dept Interface Water Storage Tank;
- Completed Anchor Way watermain upgrade.



## 9.2 2019 Proposed Projects & Upgrades

- Continue watermain flushing program and hydrant maintenance/upgrades;
- Adopt a Cross Connection Control Bylaw;
- Implement a Water Systems SCADA Master Plan;
- Review well protection plans;
- Complete a Water Systems Condition Assessment project;
- Begin DWWP Water Conservation Plan development;
- Implement new Drinking Water and Watershed Protection Action Plan;
- Continue to offer numerous water-saving incentives via rebates;
- Develop Cross Connection Control educational material;
- Complete construction of the new pump station and transmission main;
- Monitor progress of ERWS treatment plant construction;
- Complete Nanoose Road wellfield upgrades and drilling of new West bay #4 well;
- Upgrade watermain in part of Dolphin Drive;
- Install new generator at the Nanoose Water Treatment Plant.



**ERWS Bulk Water  
Transmission Line  
Construction  
near Hwy 19  
(2018)**

## 10. **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, pump failure, and drought management. The ERP was reviewed and updated in 2018, 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.

A separate Emergency Response Plan has been developed exclusively for the water filtration plant at 2480 Nanoose Road. A copy of this ERP is located at the plant, at each RDN office and on the RDN website.

## 11. Cross Connection Control

In 2017, a more robust Cross Connection Control Plan was prepared that fully defines the CCC program, including standard operating procedures, plumbing code references, reporting procedures, survey schedules, backflow prevention standards, detailed installation schematics, blank test forms, testing reminders, and non-compliance letters. A minimum of two RDN Operators are certified in Backflow Assembly Testing at all times. The RDN Manager of Water Services is the designated Cross Connection Control Manager.

In 2019, a stand-alone Cross Connection Control Bylaw will be adopted that contains definitions, authorizations, applications, liability, rules, regulations, testing requirements, and reporting requirements. The bylaw will address retrofits, prohibitions, special circumstances, reclaimed water use, alternate water sources, failure to comply, inspections, testing, offences, penalties and more. A webpage will be established on the Water Services website that will educate RDN customers about cross connections and list the relevant links to current standards and resources.

## 12. Cyber Security

The RDN uses a multi-level approach to cyber-security. Corporate network security is employed via a universal threat management gateway that implements various methods of data security, which includes daily definition updates to block known cyber threats. In addition, all RDN PC's are protected with anti-virus software. RDN water systems are connected to the corporate network via IP-Sec VPN's for remote management by information technology and equipment operators. Future infrastructure upgrades will see our water systems located on segregated networks to limit the vulnerability from cybersecurity threats.

## 13. Closing

An annual report for the year 2018 will be prepared and submitted to Island Health in the Spring of 2019. Annual reports are also available on our website at [www.rdn.bc.ca](http://www.rdn.bc.ca) in the REGIONAL SERVICES section, under "Water Services" then "WaterSmart Communities".



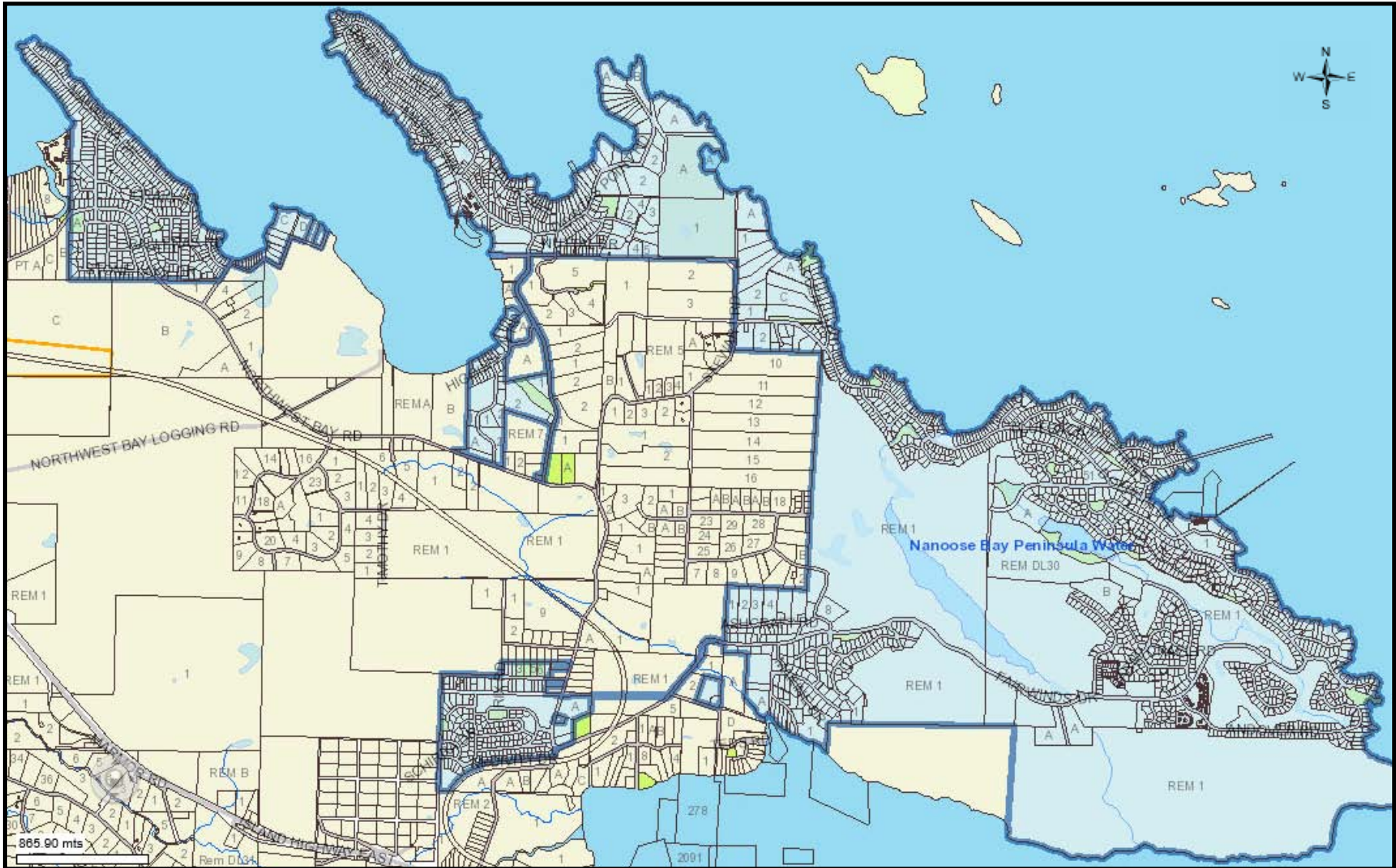
Arrowsmith Dam  
April 2014

**APPENDIX A**

**MAP OF NANOOSE BAY PENINSULA**

**WATER SERVICE AREA**

### NANOOSE BAY PENINSULA WATER SERVICE AREA



## APPENDIX B

### WATER QUALITY TESTING RESULTS

# NANOOSE BAY PENINSULA WATER SYSTEM



**Facility Location:**

2330 Garry Oaks Drive  
 Nanoose Bay

**Facility Information:**

Facility Type: 301-10000 (DWT)

**Facility Sampling History:**

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
1358 Madrona Drive, Nanoose Bay BC	19-Dec-2018	L1	L1
2359 Higginson Road	19-Dec-2018	L1	L1
3383 Redden Road	19-Dec-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	19-Dec-2018	L1	L1
Lot 51, Swallow Crescent	19-Dec-2018	L1	L1
Florence Drive & Anchor Way	19-Dec-2018	L1	L1
1566 Arbutus Drive	12-Dec-2018	L1	L1
1639 Marina Way	12-Dec-2018	L1	L1
2329 Chain Way	12-Dec-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	12-Dec-2018	L1	L1
3465 Cambridge Road	12-Dec-2018	L1	L1
3541 Shelby Lane	12-Dec-2018	L1	L1
Lot 54 Evanshire Crescent	12-Dec-2018	L1	L1
Lot 51, Swallow Crescent	12-Dec-2018	L1	L1
1270 Seadog Road	5-Dec-2018	L1	L1
1565 Stone Lake Drive	5-Dec-2018	L1	L1
2315 Ida Lane	5-Dec-2018	L1	L1
2339 Garry Oak Drive	5-Dec-2018	L1	L1
3427 Tyee Crescent	5-Dec-2018	L1	L1
3500 Fairwind Drive	5-Dec-2018	L1	L1
1996 Highland Road	5-Dec-2018	L1	L1
1639 Marina Way	28-Nov-2018	L1	L1
3465 Cambridge Road	28-Nov-2018	L1	L1
1566 Arbutus Drive	21-Nov-2018	L1	L1
3541 Shelby Lane	21-Nov-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	21-Nov-2018	L1	L1
Lot 51, Swallow Crescent	21-Nov-2018	L1	L1

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
Florence Drive & Anchor Way	21-Nov-2018	L1	L1
1565 Stone Lake Drive	13-Nov-2018	L1	L1
2315 Ida Lane	13-Nov-2018	L1	L1
2339 Garry Oak Drive	13-Nov-2018	L1	L1
2359 Higginson Road	13-Nov-2018	L1	L1
3383 Redden Road	13-Nov-2018	L1	L1
Lot 54 Evanshire Crescent	13-Nov-2018	L1	L1
1270 Seadog Road	5-Nov-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	5-Nov-2018	L1	L1
2329 Chain Way	5-Nov-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	5-Nov-2018	L1	L1
3427 Tyee Crescent	5-Nov-2018	L1	L1
3500 Fairwind Drive	5-Nov-2018	L1	L1
1996 Highland Road	5-Nov-2018	L1	L1
1639 Marina Way	24-Oct-2018	L1	L1
3465 Cambridge Road	24-Oct-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	17-Oct-2018	L1	L1
2329 Chain Way	17-Oct-2018	L1	L1
3541 Shelby Lane	17-Oct-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	17-Oct-2018	L1	L1
Lot 51, Swallow Crescent	17-Oct-2018	L1	L1
1566 Arbutus Drive	10-Oct-2018	L1	L1
2315 Ida Lane	10-Oct-2018	L1	L1
2359 Higginson Road	10-Oct-2018	L1	L1
3383 Redden Road	10-Oct-2018	L1	L1
Lot 54 Evanshire Crescent	10-Oct-2018	L1	L1
Florence Drive & Anchor Way	10-Oct-2018	L1	L1
1270 Seadog Road	3-Oct-2018	L1	L1
1565 Stone Lake Drive	3-Oct-2018	L1	L1
2339 Garry Oak Drive	3-Oct-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	3-Oct-2018	L1	L1
3427 Tyee Crescent	3-Oct-2018	L1	L1
3500 Fairwind Drive	3-Oct-2018	L1	L1
1996 Highland Road	3-Oct-2018	L1	L1
1566 Arbutus Drive	19-Sep-2018	L1	L1
3541 Shelby Lane	19-Sep-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	19-Sep-2018	L1	L1
Lot 51, Swallow Crescent	19-Sep-2018	L1	L1
Florence Drive & Anchor Way	19-Sep-2018	L1	L1

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
1565 Stone Lake Drive	12-Sep-2018	L1	L1
2339 Garry Oak Drive	12-Sep-2018	L1	L1
2359 Higginson Road	12-Sep-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	12-Sep-2018	L1	L1
3383 Redden Road	12-Sep-2018	L1	L1
Lot 54 Evanshire Crescent	12-Sep-2018	L1	L1
Lot 51, Swallow Crescent	12-Sep-2018	L1	L1
1270 Seadog Road	5-Sep-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	5-Sep-2018	L1	L1
1565 Stone Lake Drive	5-Sep-2018	L1	L1
2315 Ida Lane	5-Sep-2018	L1	L1
2329 Chain Way	5-Sep-2018	L1	L1
2339 Garry Oak Drive	5-Sep-2018	L1	L1
2359 Higginson Road	5-Sep-2018	1	L1
3427 Tyee Crescent	5-Sep-2018	L1	L1
3500 Fairwind Drive	5-Sep-2018	L1	L1
3541 Shelby Lane	5-Sep-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	5-Sep-2018	L1	L1
1996 Highland Road	5-Sep-2018	L1	L1
Lot 51, Swallow Crescent	5-Sep-2018	L1	L1
1639 Marina Way	28-Aug-2018	L1	L1
3465 Cambridge Road	28-Aug-2018	L1	L1
Lot 51, Swallow Crescent	28-Aug-2018	1	L1
1565 Stone Lake Drive	22-Aug-2018	A	
2339 Garry Oak Drive	22-Aug-2018	A	
2359 Higginson Road	22-Aug-2018	A	
3541 Shelby Lane	22-Aug-2018	A	
Parking lot @ Golf Course, 3730 Fairwinds Drive	22-Aug-2018	A	
Lot 51, Swallow Crescent	22-Aug-2018	A	
1358 Madrona Drive, Nanoose Bay BC	15-Aug-2018	L1	L1
2315 Ida Lane	15-Aug-2018	L1	L1
2329 Chain Way	15-Aug-2018	L1	L1
2359 Higginson Road	15-Aug-2018	5	L1
3383 Redden Road	15-Aug-2018	L1	L1
Lot 54 Evanshire Crescent	15-Aug-2018	L1	L1
1270 Seadog Road	8-Aug-2018	L1	L1
1566 Arbutus Drive	8-Aug-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	8-Aug-2018	L1	L1
3427 Tyee Crescent	8-Aug-2018	L1	L1



<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
3500 Fairwind Drive	8-Aug-2018	L1	L1
1996 Highland Road	8-Aug-2018	2	L1
Florence Drive & Anchor Way	8-Aug-2018	L1	L1
1639 Marina Way	25-Jul-2018	L1	L1
3465 Cambridge Road	25-Jul-2018	L1	L1
MADRONA #8 - RAW	25-Jul-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	18-Jul-2018	L1	L1
2359 Higginson Road	18-Jul-2018	L1	L1
3541 Shelby Lane	18-Jul-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	18-Jul-2018	L1	L1
Lot 51, Swallow Crescent	18-Jul-2018	L1	L1
Florence Drive & Anchor Way	18-Jul-2018	L1	L1
1566 Arbutus Drive	11-Jul-2018	L1	L1
2315 Ida Lane	11-Jul-2018	L1	L1
2339 Garry Oak Drive	11-Jul-2018	L1	L1
2359 Higginson Road	11-Jul-2018	EST 120	L1
3383 Redden Road	11-Jul-2018	L1	L1
Lot 54 Evanshire Crescent	11-Jul-2018	L1	L1
1270 Seadog Road	4-Jul-2018	L1	L1
1565 Stone Lake Drive	4-Jul-2018	L1	L1
2329 Chain Way	4-Jul-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	4-Jul-2018	L1	L1
3427 Tyee Crescent	4-Jul-2018	L1	L1
3500 Fairwind Drive	4-Jul-2018	L1	L1
1996 Highland Road	4-Jul-2018	L1	L1
1639 Marina Way	27-Jun-2018	L1	L1
3465 Cambridge Road	27-Jun-2018	L1	L1
1566 Arbutus Drive	20-Jun-2018	L1	L1
2339 Garry Oak Drive	20-Jun-2018	L1	L1
3541 Shelby Lane	20-Jun-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	20-Jun-2018	L1	L1
Lot 51, Swallow Crescent	20-Jun-2018	L1	L1
1565 Stone Lake Drive	13-Jun-2018	L1	L1
2329 Chain Way	13-Jun-2018	L1	L1
2359 Higginson Road	13-Jun-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	13-Jun-2018	L1	L1
3383 Redden Road	13-Jun-2018	L1	L1
Lot 54 Evanshire Crescent	13-Jun-2018	L1	L1
1270 Seadog Road	6-Jun-2018	L1	L1

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
1358 Madrona Drive, Nanoose Bay BC	6-Jun-2018	L1	L1
2315 Ida Lane	6-Jun-2018	L1	L1
3427 Tyee Crescent	6-Jun-2018	L1	L1
3500 Fairwind Drive	6-Jun-2018	L1	L1
1996 Highland Road	6-Jun-2018	L1	L1
Florence Drive & Anchor Way	6-Jun-2018	L1	L1
1565 Stone Lake Drive	23-May-2018	L1	L1
1639 Marina Way	23-May-2018	L1	L1
3465 Cambridge Road	23-May-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	16-May-2018	L1	L1
2339 Garry Oak Drive	16-May-2018	L1	L1
2359 Higginson Road	16-May-2018	L1	L1
3541 Shelby Lane	16-May-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	16-May-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	9-May-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	9-May-2018	L1	L1
3427 Tyee Crescent	9-May-2018	L1	L1
Lot 54 Evanshire Crescent	9-May-2018	L1	L1
1996 Highland Road	9-May-2018	L1	L1
Florence Drive & Anchor Way	9-May-2018	L1	L1
1270 Seadog Road	2-May-2018	L1	L1
1566 Arbutus Drive	2-May-2018	L1	L1
2315 Ida Lane	2-May-2018	L1	L1
2329 Chain Way	2-May-2018	L1	L1
3383 Redden Road	2-May-2018	L1	L1
3500 Fairwind Drive	2-May-2018	L1	L1
Lot 51, Swallow Crescent	2-May-2018	L1	L1
1639 Marina Way	25-Apr-2018	L1	L1
3465 Cambridge Road	25-Apr-2018	L1	L1
1566 Arbutus Drive	17-Apr-2018	L1	L1
2339 Garry Oak Drive	17-Apr-2018	L1	L1
3541 Shelby Lane	17-Apr-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	17-Apr-2018	L1	L1
Lot 51, Swallow Crescent	17-Apr-2018	L1	L1
1565 Stone Lake Drive	11-Apr-2018	L1	L1
2315 Ida Lane	11-Apr-2018	L1	L1
2359 Higginson Road	11-Apr-2018	L1	L1
3383 Redden Road	11-Apr-2018	L1	L1
Lot 54 Evanshire Crescent	11-Apr-2018	L1	L1

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
Florence Drive & Anchor Way	11-Apr-2018	L1	L1
1270 Seadog Road	4-Apr-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	4-Apr-2018	L1	L1
2329 Chain Way	4-Apr-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	4-Apr-2018	L1	L1
3427 Tyee Crescent	4-Apr-2018	L1	L1
3500 Fairwind Drive	4-Apr-2018	L1	L1
1996 Highland Road	4-Apr-2018	L1	L1
1639 Marina Way	27-Mar-2018	L1	L1
3465 Cambridge Road	27-Mar-2018	L1	L1
1565 Stone Lake Drive	21-Mar-2018	L1	L1
3541 Shelby Lane	21-Mar-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	21-Mar-2018	L1	L1
Lot 51, Swallow Crescent	21-Mar-2018	L1	L1
Florence Drive & Anchor Way	21-Mar-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	14-Mar-2018	L1	L1
2329 Chain Way	14-Mar-2018	L1	L1
2359 Higginson Road	14-Mar-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	14-Mar-2018	L1	L1
3383 Redden Road	14-Mar-2018	L1	L1
Lot 54 Evanshire Crescent	14-Mar-2018	L1	L1
1270 Seadog Road	7-Mar-2018	L1	L1
1566 Arbutus Drive	7-Mar-2018	L1	L1
2315 Ida Lane	7-Mar-2018	L1	L1
2339 Garry Oak Drive	7-Mar-2018	L1	L1
3427 Tyee Crescent	7-Mar-2018	L1	L1
3500 Fairwind Drive	7-Mar-2018	L1	L1
1996 Highland Road	7-Mar-2018	L1	L1
1639 Marina Way	28-Feb-2018	L1	L1
3465 Cambridge Road	28-Feb-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	21-Feb-2018	L1	L1
2329 Chain Way	21-Feb-2018	L1	L1
3541 Shelby Lane	21-Feb-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	21-Feb-2018	L1	L1
Lot 51, Swallow Crescent	21-Feb-2018	L1	L1
1566 Arbutus Drive	14-Feb-2018	L1	L1
2315 Ida Lane	14-Feb-2018	L1	L1
2339 Garry Oak Drive	14-Feb-2018	L1	L1
2359 Higginson Road	14-Feb-2018	L1	L1

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
3383 Redden Road	14-Feb-2018	L1	L1
Lot 54 Evanshire Crescent	14-Feb-2018	L1	L1
1270 Seadog Road	7-Feb-2018	L1	L1
1565 Stone Lake Drive	7-Feb-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	7-Feb-2018	L1	L1
3427 Tye Crescent	7-Feb-2018	L1	L1
3500 Fairwind Drive	7-Feb-2018	L1	L1
1996 Highland Road	7-Feb-2018	L1	L1
Florence Drive & Anchor Way	7-Feb-2018	L1	L1
1639 Marina Way	24-Jan-2018	L1	L1
3465 Cambridge Road	24-Jan-2018	L1	L1
1565 Stone Lake Drive	17-Jan-2018	L1	L1
3541 Shelby Lane	17-Jan-2018	L1	L1
Parking lot @ Golf Course, 3730 Fairwinds Drive	17-Jan-2018	L1	L1
Lot 51, Swallow Crescent	17-Jan-2018	L1	L1
Florence Drive & Anchor Way	17-Jan-2018	L1	L1
1358 Madrona Drive, Nanoose Bay BC	10-Jan-2018	L1	L1
2315 Ida Lane	10-Jan-2018	L1	L1
2329 Chain Way	10-Jan-2018	L1	L1
2359 Higginson Road	10-Jan-2018	L1	L1
3383 Redden Road	10-Jan-2018	L1	L1
Lot 54 Evanshire Crescent	10-Jan-2018	L1	L1
1270 Seadog Road	3-Jan-2018	L1	L1
1566 Arbutus Drive	3-Jan-2018	L1	L1
2339 Garry Oak Drive	3-Jan-2018	L1	L1
2454 Armstrong Crescent, Beside (right)	3-Jan-2018	L1	L1
3427 Tye Crescent	3-Jan-2018	L1	L1
3500 Fairwind Drive	3-Jan-2018	L1	L1
1996 Highland Road	3-Jan-2018	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

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	Units	CDWG		May 14 2014	May 20 2015°	May 11 2016°	May 10 2017	May 2 2018 <sup>M</sup>	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.1	0.044	0.036	0.093	0.06	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			150	70.4	45.8	158	146	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	14.1	5.67	3.51	12.4	8.8	
Dissolved Chloride	mg/L	250	AO	7.6	14	7.6	8.8	22	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			12	5	10	30	5	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.0072	0.012	0.1	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			366	199	122	336	373	
pH	pH	7.0:10.5	AO	7.9	7.9	7.8	8.37	8.02	
TDS	mg/L	500	AO	222	100	64	186	188	
Turbidity	NTU			<0.5	0.24	0.24	0.61	0.28	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			75	70.9	46	128	153	
Nitrate	mg/L	10	MAC	0.11	0.301	0.043	0.057	1.83	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	0.0056	0.0075	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.0036	0.00087	0.00062	0.00292	0.00184	
Total Barium	mg/L	1	MAC	0.0169	0.0103	0.0073	0.0155	0.0146	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.061	<0.050	<0.050	<0.050	<0.050	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0167	0.0146	0.018	0.00733	0.0102	
Total Iron	mg/L	0.3	AO	0.023	0.0289	0.0175	0.0092	0.0082	
Total Lead	mg/L	0.01	MAC	<0.0005	<0.0002	0.00026	<0.0002	0.00028	
Total Manganese	mg/L	0.05	AO	0.0842	0.0131	0.0166	0.0775	0.011	
Total Molybdenum	mg/L			0.00121	<0.001	<0.001	0.0011	<0.001	
Total Nickel	mg/L			<0.0010	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	0.00015	
Total Silicon	mg/L			11.8	6.39	4.41	10.9	10.1	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.122	0.0666	0.0488	0.111	0.112	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	0.00029	<0.0001	<0.0001	0.00021	0.00019	
Total Vanadium	mg/L			0.001	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0177	<0.005	<0.005	<0.005	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			39.2	20	13.4	32.7	37.3	
Total Magnesium	mg/L			13.3	5.08	3.04	11.4	14.5	
Total Potassium	mg/L			1.4	0.518	0.379	1.42	0.993	
Total Sodium	mg/L	200	AO	25.1	8.38	5.99	19.6	17.2	
Total Sulphur	mg/L				<3.0	<3.0	4.6	<3.0	

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<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.15	0.14	0.11	0.32	0.17	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	120	116	148	145	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	8	6.45	6.92	10.6	10.6	
Dissolved Chloride	mg/L	250	AO	41.7	29	26	35	37	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			6	<5	10	10	5	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.024	0.011	0.18	0.022	
<b>Physical Properties</b>									
Conductivity	µS/cm			415	350	321	416	424	
pH	pH	7.0:10.5	AO	7.6	8.11	8.05	8.25	8.09	
TDS	mg/L	500	AO	270	196	186	230	212	
Turbidity	NTU			<0.5	0.12	0.11	0.15	0.12	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	98.7	96.2	112	117	
Nitrate	mg/L	10	MAC	<0.05	<0.020	0.04	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	<0.003	<0.003	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00149	0.00113	0.00088	0.001	0.00124	
Total Barium	mg/L	1	MAC	0.00805	0.0059	0.0049	0.018	0.0074	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.074	0.055	<0.050	0.106	0.07	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0058	0.00951	0.0011	0.00121	0.00162	
Total Iron	mg/L	0.3	AO	0.037	0.0434	0.0243	0.0319	0.0171	
Total Lead	mg/L	0.01	MAC	<0.0005	0.00053	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.009	0.0149	0.0065	0.02	0.0085	
Total Molybdenum	mg/L			0.00033	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0010	0.0017	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			14.6	13.6	12.5	14	14.1	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.118	0.102	0.102	0.171	0.127	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0009	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0215	0.0059	0.0069	0.0066	0.008	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			29.7	25.6	24.2	28.6	29.3	
Total Magnesium	mg/L			10.8	8.43	8.7	9.92	10.8	
Total Potassium	mg/L			2.5	2.06	1.97	2.58	2.57	
Total Sodium	mg/L	200	AO	44.3	28.1	27.1	38.3	38.8	
Total Sulphur	mg/L				<3.0	<3.0	3.5	3.3	

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<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.16	0.036	0.03	0.2	0.098	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	49.3	48	148	129	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	7.1	4.49	3.67	9.83	7.6	
Dissolved Chloride	mg/L	250	AO	43.5	11	7.4	37	31	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			6	<5	10	10	5	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.012	0.014	0.1	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			416	143	124	413	387	
pH	pH	7.0:10.5	AO	7.6	7.69	7.75	8.27	8.12	
TDS	mg/L	500	AO	278	68	80	232	226	
Turbidity	NTU			<0.5	0.19	0.17	0.13	0.38	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	49.2	45.7	117	136	
Nitrate	mg/L	10	MAC	<0.05	0.037	0.053	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	0.0043	0.0045	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.0016	0.00039	0.0004	0.00124	0.00115	
Total Barium	mg/L	1	MAC	0.00679	0.0067	0.0054	0.0089	0.0096	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.083	<0.05	<0.050	0.076	<0.050	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0015	0.00137	0.00131	0.00119	0.00159	
Total Iron	mg/L	0.3	AO	0.072	0.0358	0.0286	0.0475	0.0322	
Total Lead	mg/L	0.01	MAC	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.017	0.0063	0.0041	0.0094	0.0086	
Total Molybdenum	mg/L			<0.00025	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0010	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			15.7	4.28	4.34	14.1	12.3	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.119	0.0605	0.0483	0.129	0.122	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0009	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0203	<0.005	<0.005	<0.005	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			30.2	14.6	12.8	29.1	32.4	
Total Magnesium	mg/L			11	3.08	3.32	10.7	13.3	
Total Potassium	mg/L			2.8	0.358	0.37	2.54	1.6	
Total Sodium	mg/L	200	AO	48.6	6.34	5.82	39	23.9	
Total Sulphur	mg/L				<3.0	<3.0	3.6	<3.0	

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<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.16	0.088	0.1	0.19	0.15	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	85.1	113	153	147	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	6.3	5.44	7.13	10.2	10.5	
Dissolved Chloride	mg/L	250	AO	47.4	20	25	39	37	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			6	5	10	10	10	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.01	0.023	0.094	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			430	246	310	431	418	
pH	pH	7.0:10.5	AO	7.6	8.02	8.03	8.3	8.11	
TDS	mg/L	500	AO	268	128	164	240	238	
Turbidity	NTU			<0.5	0.22	0.23	0.24	0.27	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	75.3	92.5	117	128	
Nitrate	mg/L	10	MAC	<0.05	0.037	0.049	<0.020	0.151	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	0.0038	<0.003	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00122	0.0008	0.0009	0.00109	0.00122	
Total Barium	mg/L	1	MAC	0.00574	0.0052	0.0062	0.0082	0.0068	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.082	<0.05	<0.050	0.074	0.058	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0041	0.00276	0.00243	0.00124	0.00136	
Total Iron	mg/L	0.3	AO	0.096	0.0722	0.0781	0.0672	0.0692	
Total Lead	mg/L	0.01	MAC	<0.0005	<0.0002	0.00023	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.017	0.0114	0.0158	0.0098	0.014	
Total Molybdenum	mg/L			0.00037	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0024	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			15.9	8.91	11.7	14.6	13.4	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.124	0.0815	0.094	0.131	0.127	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0007	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0159	<0.005	0.0076	0.0079	0.0088	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			31.2	21.3	24.5	30.5	33.2	
Total Magnesium	mg/L			10.3	5.35	7.63	9.87	10.9	
Total Potassium	mg/L			2.9	1.4	1.74	2.7	2.55	
Total Sodium	mg/L	200	AO	51.6	17.2	24.5	41.2	36.6	
Total Sulphur	mg/L				<3.0	<3.0	3.5	3.5	



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	Units	CDWG		May 14 2014	May 20 2015°	May 11 2016°	May 10 2017	May 2 2018 <sup>M</sup>	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.15	0.14	0.12	0.31	0.22	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	118	120	148	133	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	6.3	6.75	7.11	10.5	9.2	
Dissolved Chloride	mg/L	250	AO	46	32	27	35	34	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			6	<5	15	10	5	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.019	0.027	0.13	0.04	
<b>Physical Properties</b>									
Conductivity	µS/cm			426	348	329	414	408	
pH	pH	7.0:10.5	AO	7.7	8.2	8.09	8.25	8.16	
TDS	mg/L	500	AO	276	190	194	230	196	
Turbidity	NTU			<0.5	0.17	0.16	0.25	0.27	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			130	92.2	104	113	123	
Nitrate	mg/L	10	MAC	<0.05	0.024	0.047	<0.020	0.642	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	0.0034	<0.003	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00136	0.00111	0.00106	0.0011	0.0011	
Total Barium	mg/L	1	MAC	0.00503	0.0053	0.0053	0.0236	0.0105	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.089	0.056	0.053	0.101	0.073	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0179	0.00399	0.00749	0.00216	0.00349	
Total Iron	mg/L	0.3	AO	0.068	0.0709	0.0752	0.113	0.0394	
Total Lead	mg/L	0.01	MAC	<0.0005	<0.0002	0.00086	<0.0002	0.00061	
Total Manganese	mg/L	0.05	AO	0.016	0.0163	0.021	0.0224	0.0214	
Total Molybdenum	mg/L			0.00025	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0010	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			17.1	12.3	12.9	14.4	12.7	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.131	0.103	0.113	0.175	0.146	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			0.0006	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.001	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0326	<0.005	0.029	0.007	0.0208	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			31.6	23.7	25.4	28.7	30.8	
Total Magnesium	mg/L			11.6	8	9.98	10.2	11.2	
Total Potassium	mg/L			3.1	1.94	2.34	2.67	2.13	
Total Sodium	mg/L	200	AO	54	27.2	32.4	39.4	32.9	
Total Sulphur	mg/L				<3.0	3.2	3.7	3.2	

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	Units	CDWG		May 14 2014	May 20 2015°	May 11 2016°	May 10 2017	May 2 2018 <sup>M</sup>	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.15	0.14	0.12	0.32	0.18	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	116	121	147	145	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	6.4	6.35	7.35	10.4	9.4	
Dissolved Chloride	mg/L	250	AO	46.8	29	27	36	39	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			5	5	15	10	5	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.024	0.012	0.17	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			428	341	337	413	422	
pH	pH	7.0:10.5	AO	7.6	8.12	8.12	8.3	8.21	
TDS	mg/L	500	AO	284	176	204	234	256	
Turbidity	NTU			<0.5	0.21	0.18	<0.10	0.1	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	94.7	99.4	115	118	
Nitrate	mg/L	10	MAC	<0.05	0.024	0.045	<0.020	0.119	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	<0.003	0.0093	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00138	0.00112	0.00108	0.00107	0.00124	
Total Barium	mg/L	1	MAC	0.00472	0.0051	0.0051	0.0227	0.006	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.084	0.052	0.053	0.105	0.071	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.004	0.00345	0.00117	0.00107	0.0012	
Total Iron	mg/L	0.3	AO	0.073	0.0816	0.0782	0.0299	0.0241	
Total Lead	mg/L	0.01	MAC	<0.0005	0.00021	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.016	0.0192	0.0205	0.0057	0.0067	
Total Molybdenum	mg/L			0.00037	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0010	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			16.5	12.8	13.3	14	13.4	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.127	0.101	0.105	0.18	0.131	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.001	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0482	<0.005	<0.005	<0.005	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			30.5	25	24.9	29.1	29.1	
Total Magnesium	mg/L			11.2	7.86	9.08	10.3	10.9	
Total Potassium	mg/L			3.1	1.93	2.13	2.65	2.48	
Total Sodium	mg/L	200	AO	52.8	28.2	29.6	40.6	38.2	
Total Sulphur	mg/L				<3.0	<3.0	3.7	3.3	

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	Units	CDWG		May 14 2014	May 20 2015°	May 11 2016°	May 10 2017	May 2 2018 <sup>M</sup>	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.15	0.18	0.12	0.33	0.24	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	141	121	150	141	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	6.4	7.26	7.19	10.4	10.3	
Dissolved Chloride	mg/L	250	AO	48.9	36	27	36	32	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			6	<5.0	10	10	10	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.022	0.012	0.16	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			431	412	331	412	396	
pH	pH	7.0:10.5	AO	7.6	8.15	8.13	8.28	7.95	
TDS	mg/L	500	AO	284	224	188	234	176	
Turbidity	NTU			<0.5	0.15	0.17	0.17	0.13	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			130	102	98.9	112	128	
Nitrate	mg/L	10	MAC	<0.05	<0.020	0.055	<0.020	0.501	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	<0.003	<0.003	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00214	0.00128	0.0013	0.00151	0.00096	
Total Barium	mg/L	1	MAC	0.00537	0.0052	0.0048	0.022	0.0177	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.081	0.066	0.051	0.104	0.071	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0047	0.00265	0.0022	0.00358	0.0026	
Total Iron	mg/L	0.3	AO	0.082	0.0706	0.0788	0.0757	0.0268	
Total Lead	mg/L	0.01	MAC	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.021	0.0154	0.0252	0.0215	0.0055	
Total Molybdenum	mg/L			<0.00025	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0010	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			17.2	14.6	13	13.5	11.9	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.131	0.112	0.103	0.169	0.152	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0009	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0236	<0.005	<0.005	0.0105	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			31.9	26.3	25.3	28.3	31.1	
Total Magnesium	mg/L			11.5	8.86	8.64	10.1	12.3	
Total Potassium	mg/L			3.2	2.39	2.07	2.65	1.85	
Total Sodium	mg/L	200	AO	56.9	35.4	28.7	39.8	28.6	
Total Sulphur	mg/L				<3.0	<3.0	3.6	3.3	

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	Units	CDWG		May 14 2014	May 25 2015	May 11 2016	May 10 2017	May 28 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.16	0.15	0.15	0.16	0.16	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	136	156	147	144	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	6.4	7.29	8.2	9.31	11.1	
Dissolved Chloride	mg/L	250	AO	45.8	39	30	40	48	
Nitrite	mg/L	1	MAC	<0.05	<0.050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			6	<5	10	10	<5	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.062	0.023	0.2	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			424	413	403	424	450	
pH	pH	6.5:8.5	AO	7.6	8.02	8.11	8.3	8.18	
TDS	mg/L	500	AO	272	238	216	238	256	
Turbidity	NTU			<0.5	0.26	0.23	0.15	0.1	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	120	111	117	122	
Nitrate	mg/L	10	MAC	<0.05	<0.050	<0.020	<0.020	0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.025	<0.003	<0.003	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00136	0.00138	0.00112	0.0011	0.00124	
Total Barium	mg/L	1	MAC	0.00534	0.0049	0.0049	0.005	0.0045	
Total Beryllium	mg/L			<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.084	0.066	0.062	0.064	0.07	
Total Cadmium	mg/L	0.005	MAC	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0025	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0083	0.00322	0.00258	0.00279	0.00277	
Total Iron	mg/L	0.3	AO	0.103	0.16	0.107	0.0733	0.0623	
Total Lead	mg/L	0.01	MAC	0.0006	0.00197	0.00121	0.00159	0.00109	
Total Manganese	mg/L	0.05	AO	0.025	0.0413	0.0292	0.0163	0.0151	
Total Molybdenum	mg/L			0.00038	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0010	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			16.8	16.1	16.6	15.2	15.3	
Total Silver	mg/L			<0.00025	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.13	0.121	0.124	0.116	0.126	
Total Thallium	mg/L			<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0025	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0008	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0281	0.0055	<0.005	<0.005	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			31.2	29.6	27.7	29.7	30.3	
Total Magnesium	mg/L			11.4	11.1	10.3	10.3	11.2	
Total Potassium	mg/L			3.1	2.7	2.65	2.62	2.83	
Total Sodium	mg/L	200	AO	53.5	39.6	35.3	38.3	45.8	
Total Sulphur	mg/L				3.1	<3.0	3.2	<3.0	

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	Units	CDWG		November 5 2014	October 27 2015	October 26 2016	September 20 2017	November 6 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.11	0.084	0.088	0.082	0.089	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			158	143	148	139	147	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	18.6	13.3	14.2	17.5	15.8	
Dissolved Chloride	mg/L	250	AO	5.4	13	9	23	11	
Nitrite	mg/L	1	MAC	0.13	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			8	10	5	10	5	
<b>Nutrients</b>									
Total Ammonia	mg/L			0.07	0.093	0.13	0.092	0.086	
<b>Physical Properties</b>									
Conductivity	µS/cm			335	341	343	366	344	
pH	pH	7.0:10.5	AO	8	8.17	8.2	8.29	8.07	
TDS	mg/L	500	AO	236	208	196	198	180	
Turbidity	NTU			<0.5	<0.10	0.11	0.19	0.11	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			150	134	142	140	142	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.005	<0.003	<0.003	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00297	0.00281	0.003	0.00273	0.00268	
Total Barium	mg/L	1	MAC	0.0172	0.016	0.0158	0.0162	0.0171	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.047	<0.05	<0.050	<0.050	<0.050	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0018	0.00247	0.00196	0.00024	0.00271	
Total Iron	mg/L	0.3	AO	0.016	0.0088	0.011	0.0117	0.011	
Total Lead	mg/L	0.01	MAC	0.0006	<0.0002	<0.0002	<0.0002	0.00043	
Total Manganese	mg/L	0.05	AO	0.129	0.113	0.110	0.115	0.118	
Total Molybdenum	mg/L			0.00109	<0.001	0.0011	<0.001	0.0011	
Total Nickel	mg/L			0.0004	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			10.6	10.4	10.2	11.7	10.4	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.122	0.114	0.111	0.116	0.124	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0001	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	0.00026	0.00019	0.00022	0.00014	0.00018	
Total Vanadium	mg/L			0.0004	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0079	<0.005	<0.005	<0.005	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			38.3	33.7	36.6	36.1	36.9	
Total Magnesium	mg/L			13	12.1	12.3	12.1	12.1	
Total Potassium	mg/L			1.5	1.35	1.26	1.36	1.39	
Total Sodium	mg/L	200	AO	19.4	17.2	18	18.4	17.8	
Total Sulphur	mg/L				6.1	4.9	5.7	5.3	

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	Units	CDWG		November 5 2014	October 26 2015	October 26 2016	September 21 2017	November 6 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.11	0.16	0.14	0.16	0.16	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			144	146	152	158	151	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	9.4	9.38	11.8	13.3	12.9	
Dissolved Chloride	mg/L	250	AO	10.7	10	10	10	9.8	
Nitrite	mg/L	1	MAC	0.13	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			27	30	20	20	15	
<b>Nutrients</b>									
Total Ammonia	mg/L			1.28	1.3	1.4	1.3	1.3	
<b>Physical Properties</b>									
Conductivity	µS/cm			332	331	343	345	346	
pH	pH	7.0:10.5	AO	8	8.29	8.13	8.23	8.11	
TDS	mg/L	500	AO	208	208	204	196	188	
Turbidity	NTU			1.4	1	1.04	1.18	1.15	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	122	120	125	128	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.005	<0.003	<0.003	<0.003	0.0062	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00167	0.0018	0.00174	0.00156	0.00166	
Total Barium	mg/L	1	MAC	0.0106	0.0103	0.0109	0.0104	0.0102	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.064	0.061	0.059	0.070	0.063	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0007	0.00077	0.00022	<0.0002	0.00038	
Total Iron	mg/L	0.3	AO	0.656	0.647	0.632	0.659	0.649	
Total Lead	mg/L	0.01	MAC	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.275	0.265	0.275	0.278	0.282	
Total Molybdenum	mg/L			0.00028	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0003	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			15.3	17	15.5	15.9	15.3	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.105	0.0971	0.108	0.105	0.11	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			0.0012	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			0.0006	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0005	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.018	<0.005	0.025	<0.005	0.0055	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			30.8	30.4	29.5	30.1	31.3	
Total Magnesium	mg/L			11.3	11.2	11.3	12.1	12.1	
Total Potassium	mg/L			2.6	2.5	2.44	2.71	2.43	
Total Sodium	mg/L	200	AO	22.9	22.4	20.2	21.6	21.6	
Total Sulphur	mg/L				<3.0	4	5.3	4.3	

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	Units	CDWG		November 5 2014	October 26 2015	October 26 2016	September 21 2017	November 6 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.14	0.19	0.19	0.19	0.19	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			146	147	144	153	145	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	10	10.4	12.4	14.6	14.1	
Dissolved Chloride	mg/L	250	AO	13.1	14	13	13	12	
Nitrite	mg/L	1	MAC	0.11	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			24	20	20	20	20	
<b>Nutrients</b>									
Total Ammonia	mg/L			1.53	1.7	1.7	1.6	1.5	
<b>Physical Properties</b>									
Conductivity	µS/cm			341	347	349	343	341	
pH	pH	7.0:10.5	AO	7.9	8.3	8.09	8.22	8.13	
TDS	mg/L	500	AO	224	214	196	206	174	
Turbidity	NTU			1.1	0.57	0.68	0.64	0.71	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			110	105	110	112	109	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.0020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.005	<0.003	<0.003	<0.003	0.0032	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00124	0.00111	0.00121	0.00146	0.00127	
Total Barium	mg/L	1	MAC	0.00891	0.0077	0.0077	0.0073	0.0074	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.085	0.085	0.079	0.088	0.084	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0007	0.00036	0.00042	0.00115	0.00057	
Total Iron	mg/L	0.3	AO	0.581	0.558	0.576	0.513	0.56	
Total Lead	mg/L	0.01	MAC	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.319	0.281	0.282	0.292	0.295	
Total Molybdenum	mg/L			0.00015	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0002	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			16.4	17.9	15	17.9	16	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.111	0.0998	0.104	0.108	0.108	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			0.0007	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			0.0006	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0008	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0064	<0.005	<0.005	<0.005	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			28.1	26.5	27.1	27.6	26.4	
Total Magnesium	mg/L			10.2	9.54	10.3	10.4	10.5	
Total Potassium	mg/L			3.1	2.86	2.61	2.99	2.79	
Total Sodium	mg/L	200	AO	31.4	30.3	29	28.5	28.8	
Total Sulphur	mg/L				3.6	4.5	5.8	4.8	

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	Units	CDWG		November 5 2014	October 26 2015	October 26 2016	Septmeber 21 2017	November 6 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.13	0.12	0.12	0.13	0.14	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			152	147	152	164	156	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	11.3	9.08	11	13.6	11.3	
Dissolved Chloride	mg/L	250	AO	58	63	61	52	47	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			27	30	30	20	20	
<b>Nutrients</b>									
Total Ammonia	mg/L			1.78	1.6	1.9	1.8	1.7	
<b>Physical Properties</b>									
Conductivity	µS/cm			505	525	512	488	477	
pH	pH	7.0:10.5	AO	7.9	8.28	8.14	8.23	8.06	
TDS	mg/L	500	AO	280	296	284	276	252	
Turbidity	NTU			1.5	0.93	1.11	1.02	0.77	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			150	151	149	144	135	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	0.005	<0.003	<0.003	<0.003	<0.0030	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00418	0.00406	0.00395	0.00379	0.0038	
Total Barium	mg/L	1	MAC	0.0103	0.0099	0.0095	0.0099	0.0091	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.08	0.088	0.077	0.090	0.073	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	0.0009	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0015	0.00026	0.00035	<0.0002	0.00153	
Total Iron	mg/L	0.3	AO	0.566	0.572	0.561	0.556	0.513	
Total Lead	mg/L	0.01	MAC	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.253	0.243	0.231	0.230	0.225	
Total Molybdenum	mg/L			0.00027	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0007	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			15.1	17.4	14.5	16.8	14.8	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.237	0.227	0.221	0.224	0.218	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0001	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			0.0006	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0009	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0091	<0.005	<0.005	<0.005	0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			37.4	37.8	37.1	35.6	33.7	
Total Magnesium	mg/L			13.5	13.8	13.7	13.4	12.3	
Total Potassium	mg/L			3.9	3.79	3.31	3.7	3.45	
Total Sodium	mg/L	200	AO	45.4	45.7	42.2	39.5	37	
Total Sulphur	mg/L				4.1	4.1	6.6	3.8	



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	Units	CDWG		November 5 2014	October 26 2015	October 26 2016	September 21 2017	November 6 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.25	0.16	0.16	0.16	0.16	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	135	139	146	138	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	3.3	3.67	4.49	6.5	6.4	
Dissolved Chloride	mg/L	250	AO	7	7.7	7.6	7.9	8	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			21	20	20	20	15	
<b>Nutrients</b>									
Total Ammonia	mg/L			1.11	1.2	1.2	1.1	1.1	
<b>Physical Properties</b>									
Conductivity	µS/cm			293	296	303	296	300	
pH	pH	7.0:10.5	AO	7.9	8.22	8.09	8.23	8.08	
TDS	mg/L	500	AO	240	168	176	174	148	
Turbidity	NTU			0.9	0.56	1.06	1.14	0.61	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			110	105	103	109	108	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.005	<0.003	0.013	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00043	0.00038	0.00041	0.0004	0.00034	
Total Barium	mg/L	1	MAC	0.006	0.0053	0.006	0.0057	0.006	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.066	0.065	0.062	0.071	0.062	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0011	0.00051	0.0241	0.00215	<0.0005	
Total Iron	mg/L	0.3	AO	0.533	0.527	0.551	0.568	0.54	
Total Lead	mg/L	0.01	MAC	0.0003	<0.0002	0.00037	0.00032	<0.0002	
Total Manganese	mg/L	0.05	AO	0.209	0.2	0.203	0.196	0.203	
Total Molybdenum	mg/L			0.00022	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0002	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			14.2	16	14.3	16.1	14.2	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.102	0.0929	0.102	0.101	0.106	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0001	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			0.0006	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0007	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0076	<0.005	0.0134	0.0157	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			27.6	26.9	25.8	28	27.5	
Total Magnesium	mg/L			9.53	9.2	9.41	9.46	9.57	
Total Potassium	mg/L			2.4	2.35	2.26	2.36	2.28	
Total Sodium	mg/L	200	AO	20.6	20.5	18.5	18.5	18.7	
Total Sulphur	mg/L				<3.0	<3.0	<3.0	<3.0	

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	Units	CDWG		October 26 2016*	September 21 2017				
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	1.4	1.6				
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			143	155				
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	12.1	20.9				
Dissolved Chloride	mg/L	250	AO	5.1	18				
Nitrite	mg/L	1	MAC	<0.0050	<0.0050				
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			15	10				
<b>Nutrients</b>									
Total Ammonia	mg/L			0.31	0.21				
<b>Physical Properties</b>									
Conductivity	µS/cm			314	381				
pH	pH	6.5:8.5	AO	8.24	8.3				
TDS	mg/L	500	AO	182	204				
Turbidity	NTU			9.84	0.63				
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0				
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0				
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			82.7	97.6				
Nitrate	mg/L	10	MAC	<0.020	<0.020				
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001				
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	0.174	<0.003				
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005				
Total Arsenic	mg/L	0.01	MAC	0.00094	0.00096				
Total Barium	mg/L	1	MAC	0.139	0.166				
Total Beryllium	mg/L			<0.0001	<0.0001				
Total Bismuth	mg/L			<0.001	<0.001				
Total Boron	mg/L	5	MAC	0.327	0.444				
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001				
Total Chromium	mg/L	0.05	MAC	0.0015	<0.001				
Total Cobalt	mg/L			<0.0005	<0.0002				
Total Copper	mg/L	1	AO	0.00123	0.00022				
Total Iron	mg/L	0.3	AO	0.346	0.18				
Total Lead	mg/L	0.01	MAC	<0.0002	<0.0002				
Total Manganese	mg/L	0.05	AO	0.0173	0.0147				
Total Molybdenum	mg/L			0.0025	0.0022				
Total Nickel	mg/L			0.001	<0.001				
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001				
Total Silicon	mg/L			7.75	7.14				
Total Silver	mg/L			<0.00002	<0.00002				
Total Strontium	mg/L			0.465	0.546				
Total Thallium	mg/L			<0.00005	<0.00001				
Total Tin	mg/L			<0.005	<0.005				
Total Titanium	mg/L			0.007	<0.005				
Total Uranium	mg/L	0.02	MAC	<0.0001	<0.0001				
Total Vanadium	mg/L			<0.005	<0.005				
Total Zinc	mg/L	5	AO	<0.005	<0.005				
Total Zirconium	mg/L			<0.0005	<0.0001				
Total Calcium	mg/L			23.5	27.2				
Total Magnesium	mg/L			5.82	7.2				
Total Potassium	mg/L			2.23	2.61				
Total Sodium	mg/L	200	AO	33	42.6				
Total Sulphur	mg/L			4.1	7.7				

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	Units	CDWG		November 5 2014	October 27 2015	October 26 2016	September 20 2017	November 6 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.19	0.13	0.13	0.12	0.14	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			126	134	132	132	135	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	6.1	6.29	6.38	6.4	6.3	
Dissolved Chloride	mg/L	250	AO	20.9	20	20	19	22	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			9	10	15	10	10	
<b>Nutrients</b>									
Total Ammonia	mg/L			0.24	0.26	0.34	0.28	0.24	
<b>Physical Properties</b>									
Conductivity	µS/cm			325	335	334	322	327	
pH	pH	7.0:10.5	AO	8.4	8.32	8.35	8.33	8.23	
TDS	mg/L	500	AO	196	192	186	170	170	
Turbidity	NTU			<0.5	0.11	5.68	0.76	2.25	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			40	38.5	42.7	43.4	40.9	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	0.006	<0.003	0.203	0.0107	0.023	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00963	0.00886	0.00962	0.00912	0.00867	
Total Barium	mg/L	1	MAC	0.012	0.0112	0.0135	0.0111	0.0111	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.16	0.16	0.165	0.147	0.156	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0004	0.00157	0.00104	0.00041	0.0012	
Total Iron	mg/L	0.3	AO	0.009	0.0128	0.219	0.0179	0.043	
Total Lead	mg/L	0.01	MAC	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.0241	0.0191	0.0257	0.0232	0.0208	
Total Molybdenum	mg/L			0.00362	0.0031	0.0038	0.003	0.0037	
Total Nickel	mg/L			0.0004	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			7.14	7.8	7.12	8.01	7.04	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.0781	0.0681	0.0751	0.0764	0.0784	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0001	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0005	<0.005	0.0138	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	0.00006	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0004	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0076	<0.005	<0.005	<0.005	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			11.1	10.4	11.4	11.8	11.1	
Total Magnesium	mg/L			3.08	3.06	3.46	3.41	3.19	
Total Potassium	mg/L			1.8	1.71	1.57	1.61	1.61	
Total Sodium	mg/L	200	AO	64.2	61.7	59.1	53.3	55.9	
Total Sulphur	mg/L				3.2	<3.0	<3.0	<3.0	

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	Units	CDWG		November 5 2014	October 27 2015	October 26 2016	September 20 2017	November 6 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.09	0.051	0.056	0.052	0.056	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			194	187	189	194	192	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	11.8	10.8	11.6	12.9	13.3	
Dissolved Chloride	mg/L	250	AO	11	12	13	15	19	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			<5	5	<5.0	5	<5.0	
<b>Nutrients</b>									
Total Ammonia	mg/L			<0.02	0.013	0.084	<0.020	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			422	444	475	486	505	
pH	pH	7.0:10.5	AO	7.9	8.19	8.16	8.38	8.06	
TDS	mg/L	500	AO	252	246	260	270	276	
Turbidity	NTU			<0.5	<0.10	0.12	<0.10	0.12	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			210	217	232	229	243	
Nitrate	mg/L	10	MAC	3.37	4.56	5.98	7.45	8.78	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.005	<0.003	0.003	<0.003	0.0049	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00121	0.00122	0.00124	0.00115	0.00109	
Total Barium	mg/L	1	MAC	0.0114	0.0109	0.0114	0.0124	0.0129	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.017	<0.05	<0.050	<0.050	<0.050	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	0.0007	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0036	0.00464	0.00347	0.00449	0.00789	
Total Iron	mg/L	0.3	AO	0.014	0.006	0.006	<0.005	0.013	
Total Lead	mg/L	0.01	MAC	0.0003	0.00025	0.00041	0.00034	0.00071	
Total Manganese	mg/L	0.05	AO	<0.0010	0.0019	0.0013	<0.001	<0.001	
Total Molybdenum	mg/L			0.00023	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			<0.0002	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	0.0004	0.00034	0.00043	0.00042	0.00039	
Total Silicon	mg/L			9.84	10.6	10.1	11.6	10.4	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.119	0.121	0.12	0.132	0.141	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			0.0002	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	0.00013	0.00014	0.00015	0.00016	0.00015	
Total Vanadium	mg/L			0.0078	0.0076	0.0069	0.0071	0.0068	
Total Zinc	mg/L	5	AO	0.0066	<0.005	<0.005	<0.005	0.0071	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			57.4	57.6	63.7	60.9	66.9	
Total Magnesium	mg/L			15.7	17.8	17.6	18.8	18.4	
Total Potassium	mg/L			0.8	0.853	0.768	0.881	0.873	
Total Sodium	mg/L	200	AO	9.1	9.41	9.17	9.55	9.74	
Total Sulphur	mg/L				5.2	3.9	4.3	3.9	

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	Units	CDWG		November 5 2014	October 27 2015	October 26 2016	October 18 2017	Nov. 16 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.14	0.13	0.14	0.14	0.15	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			156	138	140	144	143	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	0.7	10.8	9.1	7.8	6.9	
Dissolved Chloride	mg/L	250	AO	7.1	10	11	9.7	9.8	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			47	20	15	15	10	
<b>Nutrients</b>									
Total Ammonia	mg/L			0.88	0.95	1	0.94	1	
<b>Physical Properties</b>									
Conductivity	µS/cm			315	322	325	319	310	
pH	pH	7.0:10.5	AO	7.9	8.18	8.2	8.28	8.08	
TDS	mg/L	500	AO	192	200	176	162	170	
Turbidity	NTU			3.8	0.35	0.77	0.55	0.45	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	32.4	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			140	128	133	129	135	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	0.006	0.0034	<0.003	<0.003	0.0034	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00097	0.00049	0.00043	0.00037	0.00034	
Total Barium	mg/L	1	MAC	0.0163	0.0197	0.0177	0.019	0.0178	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.051	0.056	0.058	0.053	0.068	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0015	0.0003	0.00028	<0.0002	<0.0002	
Total Iron	mg/L	0.3	AO	1.12	0.185	0.198	0.194	0.198	
Total Lead	mg/L	0.01	MAC	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	
Total Manganese	mg/L	0.05	AO	0.275	0.145	0.109	0.114	0.115	
Total Molybdenum	mg/L			0.00023	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0019	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			13.1	11.4	10.3	11	11.1	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.116	0.142	0.137	0.139	0.141	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0001	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00001	0.00015	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0006	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0086	<0.005	<0.005	<0.005	0.0076	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			34.6	37.2	37.7	36.2	37.6	
Total Magnesium	mg/L			12.1	9.42	9.45	9.49	9.92	
Total Potassium	mg/L			2.3	2.47	2.32	2.57	2.58	
Total Sodium	mg/L	200	AO	19.7	13.7	14.5	14.3	15.3	
Total Sulphur	mg/L				5.5	3.5	<3.0	<3.0	

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	Units	CDWG		November 5 2014	October 27 2015	October 26 2016	October 18 2017	Nov. 16 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.19	0.12	0.13	0.13	0.13	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			140	162	160	166	166	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	14	<0.50	<0.50	<1.0	<1.0	
Dissolved Chloride	mg/L	250	AO	10.4	7.2	7.7	7.8	8.4	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			9	20	30	30	15	
<b>Nutrients</b>									
Total Ammonia	mg/L			0.94	1	1.1	0.95	0.96	
<b>Physical Properties</b>									
Conductivity	µS/cm			322	325	330	332	330	
pH	pH	7.0:10.5	AO	8.1	8.16	8.14	8.26	8.14	
TDS	mg/L	500	AO	188	196	188	174	192	
Turbidity	NTU			0.6	2.8	3.75	3.15	3.81	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	12.4	4.2	4.2	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			140	128	133	130	137	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.005	<0.003	<0.003	<0.003	<0.003	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.0005	0.00122	0.00113	0.00116	0.00086	
Total Barium	mg/L	1	MAC	0.0191	0.0151	0.0149	0.0164	0.0155	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.057	0.052	0.05	0.05	0.061	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0004	0.00202	0.00115	0.002	0.00055	
Total Iron	mg/L	0.3	AO	0.198	1.07	1.13	1.14	1.19	
Total Lead	mg/L	0.01	MAC	<0.0001	<0.0002	0.00035	0.00021	<0.0002	
Total Manganese	mg/L	0.05	AO	0.125	0.263	0.249	0.261	0.266	
Total Molybdenum	mg/L			0.00053	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0006	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			10.6	13	12.6	13.5	13.5	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.147	0.106	0.107	0.112	0.113	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0001	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	0.00001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0004	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.009	0.0445	0.0182	0.0107	<0.005	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			39.1	31.7	33.2	32.5	34	
Total Magnesium	mg/L			12.1	11.7	12.1	12	12.7	
Total Potassium	mg/L			2.7	2.12	1.96	2.13	2.17	
Total Sodium	mg/L	200	AO	14.9	18.6	18.6	18.4	20.2	
Total Sulphur	mg/L				<3.0	<3.0	<3.0	<3.0	

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	Units	CDWG		November 5 2014	October 27 2015	October 26 2016	October 18 2017	Nov. 16 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.22	0.17	0.18	0.17	0.18	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			158	161	158	164	161	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	<0.5	<0.50	<0.50	<1.0	<1.0	
Dissolved Chloride	mg/L	250	AO	3.2	3.5	3.7	3.8	3.5	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			28	15	15	30	15	
<b>Nutrients</b>									
Total Ammonia	mg/L			1.05	1.2	1.2	1.1	1.1	
<b>Physical Properties</b>									
Conductivity	µS/cm			310	311	313	314	308	
pH	pH	7.0:10.5	AO	7.9	8.2	8.1	8.26	8.15	
TDS	mg/L	500	AO	196	188	190	166	154	
Turbidity	NTU			1.9	1.3	1.68	1	1.35	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	116	117	113	123	
Nitrate	mg/L	10	MAC	<0.05	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	<0.005	<0.003	<0.003	<0.003	0.0036	
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.00206	0.00216	0.00233	0.00247	0.00228	
Total Barium	mg/L	1	MAC	0.00847	0.0082	0.0082	0.0088	0.0084	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.062	0.066	0.062	0.062	0.068	
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	
Total Copper	mg/L	1	AO	0.0029	<0.0002	0.00175	0.00086	0.00122	
Total Iron	mg/L	0.3	AO	0.567	0.601	0.599	0.619	0.663	
Total Lead	mg/L	0.01	MAC	0.0003	<0.0002	0.00022	0.00025	<0.0002	
Total Manganese	mg/L	0.05	AO	0.235	0.243	0.231	0.242	0.251	
Total Molybdenum	mg/L			0.00062	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0003	<0.001	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Silicon	mg/L			15.3	16.5	15.2	15.4	16.3	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.0991	0.0995	0.100	0.104	0.106	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			0.0005	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.0005	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Vanadium	mg/L			0.0006	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0083	<0.005	0.0084	<0.005	0.0085	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			29.2	28.2	28.5	27	29.6	
Total Magnesium	mg/L			10.9	11	11.1	11.2	11.9	
Total Potassium	mg/L			2.4	2.24	2.05	2.22	2.32	
Total Sodium	mg/L	200	AO	22	21	20.6	20.2	22	
Total Sulphur	mg/L				<3.0	<3.0	<3.0	<3.0	

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	Units	CDWG		November 5 2014	October 27 2015	October 27 2016	October 18 2017	Nov. 16 2018	
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.1	0.1	0.063	0.11	0.061	
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			168	185	172	181	175	
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	52.8	35.2	45.5	30	43.8	
Dissolved Chloride	mg/L	250	AO	9.5	9.2	8.5	8.1	9.1	
Nitrite	mg/L	1	MAC	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			17	15	10	30	10	
<b>Nutrients</b>									
Total Ammonia	mg/L			0.02	0.04	0.069	0.02	<0.020	
<b>Physical Properties</b>									
Conductivity	µS/cm			456	453	445	422	446	
pH	pH	7.0:10.5	AO	7.9	8.1	8.21	8.22	8.11	
TDS	mg/L	500	AO	280	278	258	234	258	
Turbidity	NTU			2.1	2.39	2.54	5.94	11.3	
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	
Total Coliforms	MPN/100mL	<1	MAC	27.1	<1.0	<1.0	<1.0	<1.0	
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			230	215	197	201	225	
Nitrate	mg/L	10	MAC	0.1	<0.020	<0.020	<0.020	<0.020	
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002	
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	0.03	0.0034	0.0429	0.0061	0.0183	
Total Antimony	mg/L	0.006	MAC	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	
Total Arsenic	mg/L	0.01	MAC	0.0019	0.00124	0.00079	0.00106	0.00093	
Total Barium	mg/L	1	MAC	0.0664	0.0722	0.0613	0.0637	0.0625	
Total Beryllium	mg/L			<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.0001	<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.031	0.06	<0.050	0.053	<0.050	
Total Cadmium	mg/L	0.005	MAC	0.00001	0.000019	<0.00001	0.000012	0.000029	
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.001	<0.001	<0.001	<0.001	
Total Cobalt	mg/L			0.0004	<0.0005	<0.0005	0.00034	0.00025	
Total Copper	mg/L	1	AO	0.0037	0.00852	0.00237	0.00178	0.00262	
Total Iron	mg/L	0.3	AO	0.348	0.413	0.284	0.849	1.85	
Total Lead	mg/L	0.01	MAC	0.0007	0.00128	0.00049	0.00083	0.00098	
Total Manganese	mg/L	0.05	AO	0.116	0.0931	0.094	0.0855	0.0912	
Total Molybdenum	mg/L			0.00109	<0.001	<0.001	<0.001	<0.001	
Total Nickel	mg/L			0.0009	0.0012	<0.001	<0.001	<0.001	
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	0.00054	
Total Silicon	mg/L			5.3	5.62	5.3	5.8	5.54	
Total Silver	mg/L			<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	
Total Strontium	mg/L			0.203	0.206	0.195	0.182	0.173	
Total Thallium	mg/L			<0.00001	<0.00005	<0.00005	<0.00001	<0.00001	
Total Tin	mg/L			<0.0001	<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			0.0015	<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	0.00012	0.00015	0.00011	0.0001	0.0001	
Total Vanadium	mg/L			0.0002	<0.005	<0.005	<0.005	<0.005	
Total Zinc	mg/L	5	AO	0.0625	0.121	0.037	0.2	0.24	
Total Zirconium	mg/L				<0.0005	<0.0005	<0.0001	<0.0001	
Total Calcium	mg/L			87	80.1	72.9	74.7	84.5	
Total Magnesium	mg/L			3.88	3.75	3.67	3.56	3.47	
Total Potassium	mg/L			0.9	0.859	0.791	0.782	0.63	
Total Sodium	mg/L	200	AO	9.1	10.9	7.73	10.2	8.07	
Total Sulphur	mg/L				12.1	15.2	11.2	17.3	





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	Units	CDWG		October 31 2012	November 5 2014	October 26 2015	October 26 2016	September 21 2017	November 6 2018
<b>Miscellaneous Inorganics</b>									
Fluoride	mg/L	1.5	MAC	0.21	0.18	0.16	0.16	0.16	0.16
Alkalinity (total as CaCO <sub>3</sub> )	mg/L			150	140	142	142	148	146
<b>Anions</b>									
Dissolved Sulphate	mg/L	500	AO	5.7	7.3	6.39	8.13	9.4	11.4
Dissolved Chloride	mg/L	250	AO	12.3	17.5	15	15	16	19
Nitrite	mg/L	1	MAC	<0.05	<0.05	<0.0050	<0.0050	<0.0050	<0.0050
<b>Miscellaneous</b>									
Apparent Colour	Colour Unit			23	23	20	20	20	15
<b>Nutrients</b>									
Total Ammonia	mg/L			1.18	1.32	1.4	1.5	1.3	1.4
<b>Physical Properties</b>									
Conductivity	µS/cm			339	343	336	344	342	363
pH	pH	7.0:10.5	AO	7.8	8	8.28	8.14	8	8.03
TDS	mg/L	500	AO	216	206	194	192	190	198
Turbidity	NTU			0.8	1.1	0.65	0.96	1.35	0.88
<b>Microbiological Parameters</b>									
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
<b>Calculated Parameters</b>									
Total Hardness (CaCO <sub>3</sub> )	mg/L			120	120	114	118	118	121
Nitrate	mg/L	10	MAC	<0.05	<0.05	<0.020	<0.020	<0.020	<0.020
<b>Elements</b>									
Total Mercury	mg/L	0.001	MAC	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000002
<b>Total Metals</b>									
Total Aluminum	mg/L	0.1	OG	0.078	<0.005	<0.003	<0.003	<0.003	<0.003
Total Antimony	mg/L	0.006	MAC	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005
Total Arsenic	mg/L	0.01	MAC	0.00133	0.00144	0.00134	0.00129	0.00137	0.00178
Total Barium	mg/L	1	MAC	0.00773	0.00765	0.0076	0.0076	0.0082	0.0087
Total Beryllium	mg/L			<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001
Total Bismuth	mg/L			0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001
Total Boron	mg/L	5	MAC	0.078	0.071	0.072	0.065	0.074	0.067
Total Cadmium	mg/L	0.005	MAC	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Chromium	mg/L	0.05	MAC	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001
Total Cobalt	mg/L			<0.0001	<0.0001	<0.0005	<0.0005	<0.0002	<0.0002
Total Copper	mg/L	1	AO	0.0003	0.0008	0.00041	0.00029	0.001	<0.0005
Total Iron	mg/L	0.3	AO	0.529	0.561	0.555	0.588	0.678	0.611
Total Lead	mg/L	0.01	MAC	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Total Manganese	mg/L	0.05	AO	0.294	0.247	0.232	0.23	0.238	0.252
Total Molybdenum	mg/L			0.0003	0.00023	<0.001	<0.001	<0.001	<0.001
Total Nickel	mg/L			<0.0002	0.0027	<0.001	<0.001	0.0011	<0.001
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Silicon	mg/L			16.1	14.9	17.1	13.7	15.6	14.9
Total Silver	mg/L			<0.00001	<0.00005	<0.00002	<0.00002	<0.00002	<0.00002
Total Strontium	mg/L			0.12	0.123	0.112	0.113	0.122	0.136
Total Thallium	mg/L			<0.00001	<0.00001	<0.00005	<0.00005	<0.00001	<0.00001
Total Tin	mg/L			<0.0001	0.0015	<0.005	<0.005	<0.005	<0.005
Total Titanium	mg/L			<0.0005	0.0005	<0.005	<0.005	<0.005	<0.005
Total Uranium	mg/L	0.02	MAC	<0.00001	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001
Total Vanadium	mg/L			0.0006	0.0008	<0.005	<0.005	<0.005	<0.005
Total Zinc	mg/L	5	AO	0.0022	0.006	<0.005	<0.005	<0.005	<0.005
Total Zirconium	mg/L					<0.0005	<0.0005	<0.0001	<0.0001
Total Calcium	mg/L			30	29.6	28.9	29.7	28.2	30.4
Total Magnesium	mg/L			10.7	10.5	10.1	10.7	11.4	10.9
Total Potassium	mg/L			2.7	2.8	2.5	2.36	2.78	2.68
Total Sodium	mg/L	200	AO	26.4	27.4	25.1	23.9	24	25
Total Sulphur	mg/L					3.3	<3.0	3.8	4





# Regional District of Nanaimo - Water Services Department

## Nanoose Bay Peninsula Water Analysis - 2018 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-Nov-18	1358 Madrona	0	0	0	0	13	7.37	0.47	187.4	0.19	389.0	0.02	0.009
7-Nov-18	3427 Tye	0	0	0	0	12	7.69	0.29	230.0	0.23	476.0	0.02	0.021
7-Nov-18	1270 Sea Dog	0	0	0	0	12	7.60	1.18	245.0	0.24	507.0	0.04	0.013
7-Nov-18	2454 Armstrong	0	0	0	0	13	7.68	0.44	246.0	0.25	508.0	0.07	0.008
7-Nov-18	3500 Fairwind	0	0	0	0	12	7.74	1.00	237.0	0.24	490.0	0.04	0.025
7-Nov-18	1996 Highland	0	0	0	0	13	7.73	0.41	234.0	0.23	483.0	0.02	0.024
7-Nov-18	2329 Chain	0	0	0	0	11	7.64	0.31	188.8	0.19	392.0	0.05	0.005
13-Nov-18	1565 Madrona	0	0	0	0	13	7.61	0.61	194.9	0.19	404.0		
13-Nov-18	2359 Higginson	0	0	0	0	11	7.80	0.41	175.1	0.17	364.0		
13-Nov-18	2315 Ida Lane	0	0	0	0	13	7.66	0.30	256.0	0.26	529.0		
13-Nov-18	lot 54 Evanshire	0	0	0	0	12	7.66	0.99	250.0	0.25	517.0		
13-Nov-18	3383 Redden	0	0	0	0	12	7.63	0.25	249.0	0.25	515.0		
13-Nov-18	2339 Garry Oak	0	0	0	0	11	7.61	1.75	253.0	0.25	522.0		
21-Nov-18	1566 Arbutus	0	0	0	0	11	7.65	0.81	183.6	0.18	381.0		
21-Nov-18	Lot 51 Swallow	0	0	0	0	9	7.64	0.03	233.0	0.23	481.0		
21-Nov-18	NB Elementary			0	0	10	7.67	1.60	257.0	0.26	531.0		
21-Nov-18	3730 Fairwinds	0	0	0	0	10	7.73	0.72	254.0	0.25	523.0		
21-Nov-18	3541 Shelby	0	0	0	0	10	7.74	0.91	254.0	0.25	523.0		
21-Nov-18	Florence & Anchor	0	0	0	0	10	7.70	0.37	252.0	0.25	519.0		
28-Nov-18	1358 Madrona			0	0	11	7.26	0.56	187.1	0.19	389.0		
28-Nov-18	1639 Marina	0	0	0	0	10	7.73	0.59	180.1	0.18	374.0		
28-Nov-18	2454 Armstrong			0	0	10	7.63	0.80	257.0	0.26	530.0		
28-Nov-18	3465 Cambridge	0	0	0	0	10	7.63	1.09	256.0	0.26	524.0		
28-Nov-18	2329 Chain			0	0	9	7.68	0.26	231.0	0.23	478.0		
	Average	0	0	0	0	11.2	7.6	0.67	228.8	0.2	472.9	0.04	0.015
	Maximum	0	0	0	0	13	7.8	1.75	257.0	0.26	531.0	0.07	0.025
	Minimum	0	0	0	0	9	7.26	0.03	175.1	0.17	364.0	0.02	0.005

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 - 2018 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-Oct-18	1565 Stonelake	0	0	0	0	15	7.35	0.31	112.3	0.11	235.0	0.03	0.033
3-Oct-18	3427 Tye	0	0	0	0	15	7.46	0.09	188.8	0.19	392.0	0.03	0.029
3-Oct-18	1270 Sea Dog	0	0	0	0	15	7.31	0.26	88.6	0.09	186.1	0.05	0.018
3-Oct-18	2454 Armstrong	0	0	0	0	16	7.46	0.26	132.3	0.13	277.0	0.06	0.025
3-Oct-18	3500 Fairwinds	0	0	0	0	13	7.49	0.73	186.8	0.19	387.0	0.05	0.041
3-Oct-18	1996 Highland	0	0	0	0	17	7.50	0.22	177.5	0.18	369.0	0.04	0.037
3-Oct-18	2339 Garry Oak	0	0	0	0	14	7.48	0.87	192.2	0.19	398.0	0.04	0.022
10-Oct-18	1566 Arbutus	0	0	0	0	14	7.18	0.16	79.5	0.08	167.6		
10-Oct-18	2359 Higginson	0	0	0	50	14	7.08	0.02	61.5	0.06	130.0		
10-Oct-18	2315 Ida Lane	0	0	0	1	16	7.56	0.02	81.7	0.08	172.4		
10-Oct-18	Lot 54 Evanshire	0	0	0	0	14	7.46	0.35	159.9	0.16	332.0		
10-Oct-18	3383 Redden	0	0	0	0	15	7.53	0.14	155.1	0.15	324.0		
10-Oct-18	Florence & Anchor	0	0	0	0	14	7.39	0.15	171.8	0.17	357.0		
17-Oct-18	1358 Madrona	0	0	0	0	15	7.37	0.42	91.3	0.09	191.7		
17-Oct-18	Lot 51 Swallow	0	0	0	0	13	7.46	0.01	105.5	0.10	222.0		
17-Oct-18	NB Elementary			0	0	12	7.44	0.87	120.5	0.12	252.0		
17-Oct-18	3730 Fairwinds	0	0	0	0	15	7.55	0.25	161.7	0.16	337.0		
17-Oct-18	3541 Shelby	0	0	0	0	14	7.62	0.44	166.6	0.17	347.0		
17-Oct-18	2329 Chain	0	0	0	0	12	7.53	0.01	155.0	0.15	323.0		
24-Oct-18	1565 Stonelake			0	0	13	7.51	0.29	123.4	0.12	258.0		
24-Oct-18	1639 Marina	0	0	0	0	12	7.43	0.35	73.5	0.07	155.2		
24-Oct-18	2454 Armstrong			0	0	14	7.19	0.41	151.5	0.15	315.0		
24-Oct-18	3465 Cambridge	0	0	0	0	12	7.63	0.82	199.8	0.20	415.0		
24-Oct-18	2339 Garry Oak			0	0	12	7.49	0.67	170.2	0.17	354.0		
31-Oct-18	1566 Arbutus			0	0	13	7.43	0.98	188.6	0.19	392.0		
31-Oct-18	Lot 51 Swallow			0	0	12	7.49	0.02	175.4	0.17	365.0		
31-Oct-18	2315 Ida Lane			0	0	14	7.61	0.10	204.5	0.20	424.0		
31-Oct-18	Lot 54 Evanshire			0	0	12	7.64	0.97	209.0	0.21	434.0		
31-Oct-18	Florence & Anchor			0	0	13	7.51	0.58	208.7	0.21	433.0		
	<b>Average</b>	0	0	0	1.76	13.8	7.5	0.37	148.0	0.15	308.4	0.04	0.029
	<b>Maximum</b>	0	0	0	50	17	7.64	0.98	209	0.21	434	0.06	0.041
	<b>Minimum</b>	0	0	0	0	12	7.08	0.01	61.5	0.06	130	0.03	0.018

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.

Total coliforms can be an indicator of adverse water quality if the result in the resample is positive (US Environmental Protection Agency). RDN water samples are always tested for E.coli coliform bacteria at the same time as total coliforms to rule out the presence of harmful pathogens. If background bacteria (BG), total or E.coli bacteria are detected location is resampled. If the bacteria test is overgrown (OG) location is also resampled.



# Regional District of Nanaimo - Water Services Department

## Nanoose Bay Peninsula Water Analysis - 2018 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-Sep-18	1358 Madrona	0	0	0	0	17	7.45	0.60	88.5	0.09	186.2	0.03	0.020
5-Sep-18	3427 Tye	0	0	0	0	17	7.55	0.32	144.5	0.14	301.0	0.04	0.029
5-Sep-18	1270 Sea Dog	0	0	0	0	18	7.42	0.20	81.7	0.08	172.2	0.04	0.035
5-Sep-18	2315 Ida Lane	0	0	0	0	19	7.53	0.26	127.1	0.13	266.0	0.07	0.016
5-Sep-18	3500 Fairwinds	0	0	0	0	15	7.61	0.73	144.1	0.14	301.0	0.03	0.035
5-Sep-18	1996 Highland	0	0	0	0	19	7.59	0.48	148.4	0.15	310.0	0.05	0.026
5-Sep-18	2329 Chain	0	0	0	0	15	7.54	0.36	138.2	0.14	289.0	0.02	0.022
12-Sep-18	1565 Stonelake	0	0	0	0	17	7.56	0.33	112.7	0.11	236.0		
12-Sep-18	2359 Higginson	0	0	0	0	17	7.42	0.25	67.0	0.07	141.6		
12-Sep-18	Lot 51 Swallow	0	0	0	0	17	7.52	0.02	119.4	0.12	250.0		
12-Sep-18	2454 Armstrong	0	0	0	0	17	7.50	0.12	72.6	0.07	153.1		
12-Sep-18	Lot 54 Evanshire	0	0	0	0	16	7.57	0.54	121.3	0.12	254.0		
12-Sep-18	3383 Redden	0	0	0	0	19	7.57	0.28	114.3	0.11	240.0		
12-Sep-18	2339 Garry Oak	0	0	0	0	16	7.49	0.58	123.3	0.12	258.0		
19-Sep-18	1566 Arbutus	0	0	0	0	16	7.45	0.38	91.7	0.09	192.9		
19-Sep-18	Lot 51 Swallow	0	0	0	6	16	7.58	0.01	138.6	0.14	290.0		
19-Sep-18	NB Elementary			0	0	14	7.50	0.84	138.7	0.14	290.0		
19-Sep-18	3730 Fairwinds	0	0	0	0	17	7.58	0.38	148.4	0.15	310.0		
19-Sep-18	3541 Shelby	0	0	0	0	16	7.58	0.45	145.9	0.14	305.0		
19-Sep-18	Florence & Anchor	0	0	0	0	16	7.48	0.11	133.3	0.13	279.0		
25-Sep-18	1358 Madrona			0	0	15	7.58	0.35	141.6	0.14	296.0		
25-Sep-18	1639 Marina			0	0	16	7.60	0.31	61.0	0.06	129.0		
25-Sep-18	Lot 51 Swallow			0	6	16	7.61	0.04	138.9	0.14	291.0		
25-Sep-18	2315 Ida Lane			0	16	17	7.73	0.20	158.1	0.16	330.0		
25-Sep-18	3465 Cambridge			0	0	16	7.66	0.66	167.3	0.17	348.0		
27-Sep-18	2315 Ida Lane			0	0			0.05					
	<b>Average</b>	0	0	0	1	16.6	7.5	0.34	122.7	0.12	256.8	0.04	0.026
	<b>Maximum</b>	0	0	0	16	19	7.73	0.84	167.3	0.17	348.0	0.07	0.035
	<b>Minimum</b>	0	0	0	0	14	7.42	0.01	61.0	0.06	129	0.02	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.



# Regional District of Nanaimo - Water Services Department

## Nanose Bay Peninsula Water Analysis - 2018 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)
8-Aug-18	1566 Arbutus	0	0	0	0	18	7.08	0.67	95.5	0.09	200.4	0.04	0.050
8-Aug-18	3427 Tye	0	0	0	0	19	7.21	0.31	143.1	0.14	299.0	0.05	0.016
8-Aug-18	1270 Sea Dog	0	0	0	0	19	7.07	0.40	60.9	0.06	128.8	0.06	0.015
8-Aug-18	2454 Armstrong	0	0	0	0	18	7.07	0.25	92.9	0.09	195.5	0.07	0.016
8-Aug-18	3500 Fairwinds	0	0	0	0	18	7.37	0.71	145.4	0.14	304.0	0.05	0.016
8-Aug-18	1996 Highland	0	2	0	0	19	7.39	0.65	142.8	0.14	298.0	0.07	0.038
8-Aug-18	Florence & Anchor	0	0	0	0	17	7.35	0.79	146.5	0.15	305.0	0.05	0.030
15-Aug-18	1358 Madrona	0	0	0	0	17.5	6.99	0.53	81.3	0.08	171.5		
15-Aug-18	2359 Higginson	0	5	0	55	17	6.99	0.38	65.7	0.06	139.3		
15-Aug-18	2315 Ida lane	0	0	0	0	18	7.02	0.25	69.7	0.07	147.5		
15-Aug-18	Lot 54 Evanshire	0	0	0	0	16.5	7.25	0.61	134.4	0.13	281.0		
15-Aug-18	3383 Redden	0	0	0	0	17.5	7.34	0.59	137.4	0.13	282.0		
15-Aug-18	2329 Chain	0	0	0	0	14.5	7.35	1.05	224.0	0.22	464.0		
22-Aug-18	1565 Stonelake		A*	0	0	16	7.80	1.42	177.9	0.18	371.0		
22-Aug-18	Lot 51 Swallow		A*	0	58	19	7.62	0.02	131.8	0.13	276.0		
22-Aug-18	2359 Higginson		A*	0	0	17	7.47	0.69	63.3	0.06	133.8		
22-Aug-18	NB Elementary			0	0	13	7.49	1.38	191.5	0.19	398.0		
22-Aug-18	3730 Fairwinds		A*	0	0	17	7.62	0.59	135.7	0.13	284.0		
22-Aug-18	3541 Shelby		A*	0	0	18	7.59	0.63	136.5	0.14	286.0		
22-Aug-18	2339 Garry Oak		A*	0	0	14	7.54	1.53	235.0	0.23	487.0		
28-Aug-18	1566 Arbutus			0	0	17	6.94	0.65	80.9	0.08	170.6		
28-Aug-18	1639 Marina	0	0	0	0	17	7.01	0.68	62.7	0.06	132.4		
28-Aug-18	Lot 51 Swallow	0	1	0	15	18.5	7.32	0.02	128.5	0.13	270.0		
28-Aug-18	2454 Armstrong			0	0	18	7.05	0.42	75.0	0.07	158.2		
28-Aug-18	3465 Cambridge	0	0	0	0	16	7.40	0.76	133.3	0.13	279.0		
28-Aug-18	Florence & Anchor			0	0	17	7.34	0.40	139.5	0.14	292.0		
	<b>Average</b>	0	0.50	0	4.92	17.2	7.3	0.63	124.3	0.12	259.8	0.06	0.026
	<b>Maximum</b>	0	5	0	58	19	7.80	1.53	235.0	0.23	487.0	0.07	0.050
	<b>Minimum</b>	0	0	0	0	13	6.94	0.02	60.9	0.06	128.8	0.04	0.015

Red font indicates non-compliance with Canadian Drinking Water Guidelines

A\*: Sample not tested; too long in transit

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.

Total coliforms can be an indicator of adverse water quality if the result in the resample is positive (US Environmental Protection Agency). RDN water samples are always tested for E.coli coliform bacteria at the same time as total coliforms to rule out the presence of harmful pathogens. If background bacteria (BG), total or E.coli bacteria are detected location is resampled. If the bacteria test is overgrown (OG) location is also resampled.



# Regional District of Nanaimo - Water Services Department

## Nanosee Bay Peninsula Water Analysis - 2018 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-Jul-18	1565 Stonelake	0	0	0	0	14	7.49	0.32	180.1	0.18	374.0	0.00	0.031
4-Jul-18	3427 Tye	0	0	0	0	17	7.39	0.33	139.2	0.14	289.0	0.05	0.032
4-Jul-18	1270 Sea Dog	0	0	0	0	16	7.41	0.66	140.4	0.15	300.0	0.04	0.036
4-Jul-18	2454 Armstrong	0	0	0	0	15	7.44	0.42	90.4	0.09	190.0	0.03	0.010
4-Jul-18	3500 Fairwinds	0	0	0	0	14	7.42	0.78	138.3	0.14	289.0	0.05	0.000
4-Jul-18	1996 Highland	0	0	0	0	17	7.41	0.56	141.3	0.14	296.0	0.06	0.000
4-Jul-18	2329 Chain	0	0	0	0	15	7.35	1.04	179.3	0.18	373.0	0.04	0.000
11-Jul-18	1566 Arbutus	0	0	0	0	16	6.93	0.35	78.9	0.08	166.2		
11-Jul-18	2359 Higginson	0	120	0	>100	15	6.99	0.43	62.9	0.06	132.7		
11-Jul-18	2315 Ida Lane	0	0	0	0	16	7.49	0.32	94.3	0.09	198.2		
11-Jul-18	Lot 54 Evanshire	0	0	0	0	16	7.41	0.35	135.8	0.13	284.0		
11-Jul-18	3383 Redden	0	0	0	0	17	7.48	0.69	147.9	0.15	309.0		
11-Jul-18	2339 Garry Oak	0	0	0	0	13	7.51	1.19	147.3	0.15	307.0		
12-Jul-18	2359 Higginson			0	0								
18-Jul-18	1358 Madrona	0	0	0	0	17	7.37	0.25	86.0	0.08	181.1		
18-Jul-18	2359 Higginson	0	0	0	0	16	7.21	0.29	64.8	0.06	136.9		
18-Jul-18	Lot 51 Swallow	0	0	0	0	18	7.26	0.01	133.4	0.13	278.0		
18-Jul-18	NB Elementary			0	0	15	7.22	0.93	126.0	0.12	264.0		
18-Jul-18	3730 Fairwinds	0	0	0	0	17	7.29	0.57	126.3	0.13	264.0		
18-Jul-18	3541 Shelby	0	0	0	0	16	7.32	0.59	126.1	0.12	264.0		
18-Jul-18	Florence & Anchor	0	0	0	0	17	7.26	0.51	153.4	0.15	321.0		
25-Jul-18	1565 Stonelake			0	0	17	7.21	0.73	127.1	0.13	266.0		
25-Jul-18	1639 Marina	0	0	0	0	18	7.15	0.62	60.2	0.06	127.2		
25-Jul-18	2454 Armstrong			0	0	17	7.07	0.27	76.5	0.08	161.4		
25-Jul-18	3465 Cambridge	0	0	0	0	17	7.20	0.61	127.9	0.13	267.0		
25-Jul-18	2329 Chain			0	0	15	7.29	0.91	157.7	0.16	329.0		
31-Jul-18	1565 Stonelake			0	0	18	7.01	0.54	79.9	0.08	168.5		
31-Jul-18	Lot 51 Swallow			0	0	19	7.19	0.02	139.3	0.14	291.0		
31-Jul-18	2315 Ida Lane			0	0	19	7.25	0.23	77.4	0.08	163.1		
31-Jul-18	Lot 54 Evanshire			0	0	17	7.36	0.55	131.6	0.13	275.0		
31-Jul-18	2339 Garry Oak			0	0	16	7.30	0.81	133.7	0.13	280.0		
	<b>Average</b>	0	5.7	0	0	16.3	7.29	0.53	120.1	0.12	251.5	0.04	0.016
	<b>Maximum</b>	0	120	0	0	19	7.51	1.19	180.1	0.18	374.0	0.06	0.036
	<b>Minimum</b>	0	0	0	0	13	6.93	0.01	60.2	0.06	127.2	0.00	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.

Total coliforms can be an indicator of adverse water quality if the result in the resample is positive (US Environmental Protection Agency). RDN water samples are always tested for E.coli coliform bacteria at the same time as total coliforms to rule out the presence of harmful pathogens. If background bacteria (BG), total or E.coli bacteria are detected location is resampled. If the bacteria test is overgrown (OG) location is also resampled.





# Regional District of Nanaimo - Water Services Department

## Nanoose Bay Peninsula Water Analysis - 2018 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-Jun-18	1358 Madrona	0	0	0	0	14	6.94	0.66	68.4	0.07	144.2		
6-Jun-18	3427 Tye	0	0	0	0	16	7.26	0.33	144.3	0.14	302.0		
6-Jun-18	1270 Sea Dog	0	0	0	0	15	7.10	0.70	69.0	0.07	123.6		
6-Jun-18	2315 Ida Lane	0	0	0	0	15	7.27	0.48	105.1	0.10	221.0		
6-Jun-18	3500 Fairwinds	0	0	0	0	15	7.39	0.75	144.0	0.14	300.0		
6-Jun-18	1996 Highland	0	0	0	0	16	7.30	0.56	144.6	0.14	300.3		
6-Jun-18	Florence & Anchor	0	0	0	0	15	7.25	0.61	147.8	0.15	308.0		
13-Jun-18	1565 Stonelake	0	0	0	0	14	7.33	0.09	127.4	0.13	266.0	0.03	0.028
13-Jun-18	2359 Higginson	0	0	0	1	14	7.18	0.47	54.7	0.05	115.8	0.02	0.008
13-Jun-18	2454 Armstrong	0	0	0	0	14	7.19	0.42	104.3	0.10	219.0	0.05	0.027
13-Jun-18	Lot 54 Evanshire	0	0	0	0	14	7.35	0.67	129.8	0.13	272.0	0.03	0.025
13-Jun-18	3383 Redden	0	0	0	0	16	7.35	0.58	138.7	0.14	290.0	0.04	0.009
13-Jun-18	2329 Chain	0	0	0	0	13	7.31	0.95	166.1	0.17	346.0	0.07	0.024
20-Jun-18	1566 Arbutus	0	0	0	0	15	7.35	0.35	80.3	0.08	169.7		
20-Jun-18	lot 51 Swallow	0	0	0	0	15	7.35	0.08	141.9	0.14	297.0		
20-Jun-18	NB Elementry			0	0	12	7.38	1.26	169.1	0.17	353.0		
20-Jun-18	3730 Fairwinds	0	0	0	0	15	7.52	0.75	139.2	0.15	291.0		
20-Jun-18	3541 Shelby	0	0	0	0	14	7.41	0.73	139.2	0.14	292.0		
20-Jun-18	2339 Garry Oak	0	0	0	0	13	7.42	1.27	178.1	0.18	370.0		
27-Jun-18	1358 Madrona			0	0		7.18	0.44	88.1	0.09	185.5		
27-Jun-18	1639 Marina	0	0	0	0		7.19	0.68	57.6	0.06	121.9		
27-Jun-18	2315 Ida Lane			0	0		7.28	0.23	96.5	0.10	202.8		
27-Jun-18	3465 Cambridge	0	0	0	0		7.35	0.63	140.9	0.14	294.0		
27-Jun-18	Florence & Anchor			0	0		7.30	0.38	147.5	0.15	308.0		
	<b>Average</b>	0	0	0	0.04	14.5	7.3	0.59	121.8	0.12	253.9	0.04	0.020
	<b>Maximum</b>	0	0	0	1	16	7.52	1.27	178.1	0.18	370.0	0.07	0.028
	<b>Minimum</b>	0	0	0	0	12	6.94	0.08	54.7	0.05	115.8	0.02	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.

Total coliforms can be an indicator of adverse water quality if the result in the resample is positive (US Environmental Protection Agency). RDN water samples are always tested for E.coli coliform bacteria at the same time as total coliforms to rule out the presence of harmful pathogens. If background bacteria (BG), total or E.coli bacteria are detected location is resampled. If the bacteria test is overgrown (OG) location is also resampled.



# Regional District of Nanaimo - Water Services Department

## Nanoose Bay Peninsula Water Analysis - 2018 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)
2-May-18	1566 Arbutus	0	0	0	0	11	7.19	0.70	187.6	0.19	390.0	0.02	0.029
2-May-18	Lot 51 Swallow	0	0	0	0	10	7.50	0.02	211.0	0.21	436.0	0.00	0.031
2-May-18	1270 Sea Dog	0	0	0	0	12	7.26	0.61	194.1	0.19	403.0	0.04	0.022
2-May-18	2315 Ida Lane	0	0	0	0	11	7.53	0.60	211.3	0.21	438.0	0.05	0.027
2-May-18	3500 Fairwinds	0	0	0	0	12	7.49	0.92	202.0	0.20	420.0	0.06	0.042
2-May-18	3383 Redden	0	0	0	0	13	7.56	0.74	210.0	0.21	435.0	0.02	0.017
2-May-18	2329 Chain	0	0	0	0	11	7.34	1.16	194.2	0.19	403.0	0.04	0.037
9-May-18	1358 Madrona	0	0	0	0	13	7.45	0.54	156.3	0.16	326.0		
9-May-18	3427 Tye	0	0	0	0	13	7.44	0.53	194.4	0.19	404.0		
9-May-18	2454 Armstrong	0	0	0	0	11	7.47	0.80	211.0	0.21	437.0		
9-May-18	Lot 54 Evanshire	0	0	0	0	12	7.37	0.90	202.7	0.20	421.0		
9-May-18	1996 Highland	0	0	0	0	13	7.69	0.79	210.0	0.21	434.0		
9-May-18	Florence & Anchor	0	0	0	0	12	7.49	0.62	203.0	0.20	421.0		
16-May-18	1358 Madrona	0	0	0	0		7.00	0.41	56.9	0.06	120.4		
16-May-18	2359 Higginson	0	0	0	0		6.92	0.44	56.0	0.06	118.4		
16-May-18	NB Elementary			0	0		7.20	0.85	127.5	0.13	267.0		
16-May-18	3730 Fairwinds	0	0	0	0		7.33	0.58	142.7	0.14	298.0		
16-May-18	3541 Shelby	0	0	0	0		7.26	0.56	144.0	0.14	301.0		
16-May-18	2339 Garry Oak	0	0	0	0		7.31	1.27	169.7	0.17	353.0		
23-May-18	1565 Stonelake	0	0	0	0	13	7.15	0.46	78.6	0.08	165.7		
23-May-18	1639 Marina	0	0	0	0	13	6.95	0.79	49.5	0.05	104.9		
23-May-18	2315 Ida Lane			0	0	13	7.26	0.31	93.4	0.09	196.4		
23-May-18	3465 Cambridge	0	0	0	0	13	7.33	0.75	136.4	0.14	285.0		
23-May-18	2329 Chain			0	0	13	7.25	0.96	161.3	0.16	337.0		
30-May-18	1566 Arbutus			0	0	14	6.87	0.68	74.7	0.07	157.7		
30-May-18	Lot 51 Swallow			0	0	15	7.21	0.03	129.0	0.13	270.0		
30-May-18	2454 Armstrong			0	0	13	7.04	0.50	98.6	0.10	207.1		
30-May-18	3541 Shelby			0	0	14	7.31	0.76	135.2	0.13	283.0		
30-May-18	2339 Garry Oak			0	0	14	7.25	0.95	137.0	0.14	286.0		
	<b>Average</b>	0	0	0	0	12.6	7.3	0.66	151.0	0.15	314.4	0.03	0.029
	<b>Maximum</b>	0	0	0	0	15	7.69	1.27	211.3	0.21	438.0	0.06	0.042
	<b>Minimum</b>	0	0	0	0	10	6.87	0.02	49.5	0.05	104.9	0.00	0.017

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 - 2018 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-Apr-18	1358 Madrona	0	0	0	0	10	7.23	0.50	186.2	0.19	387.0	0.01	0.066
4-Apr-18	3427 Tye	0	0	0	0	8.5	7.07	0.29	207.2	0.21	429.0	0.07	0.023
4-Apr-18	1270 Sea Dog	0	0	0	0	9	7.19	0.77	192.2	0.19	401.0	0.02	0.023
4-Apr-18	2454 Armstrong	0	0	0	0	8	7.09	1.26	213.2	0.21	442.0	0.06	0.015
4-Apr-18	3500 Fairwinds	0	0	0	0	9	7.24	0.12	205.0	0.20	424.0	0.05	0.000
4-Apr-18	1996 Highland	0	0	0	0	9.5	7.17	0.68	208.1	0.21	432.0	0.02	0.000
4-Apr-18	2329 Chain	0	0	0	0	9	7.19	0.38	207.0	0.21	428.0	0.05	0.033
11-Apr-18	1565 Stonelake	0	0	0	0	10	7.18	0.33	198.0	0.20	411.0		
11-Apr-18	2359 Higginson	0	0	0	0	9	7.01	0.78	171.3	0.17	357.0		
11-Apr-18	2315 Ida Lane	0	0	0	0	10	7.19	0.74	211.0	0.21	437.0		
11-Apr-18	Lot 54 Evanshire	0	0	0	0	10	7.27	0.82	204.5	0.20	425.0		
11-Apr-18	3383 Redden	0	0	0	0	10	7.27	0.71	204.0	0.20	420.0		
11-Apr-18	Florence & Anchor	0	0	0	0	9	7.15	0.82	210.0	0.21	435.0		
17-Apr-18	1566 Arbutus	0	0	0	0	8	7.28	0.70	176.2	0.18	367.0		
17-Apr-18	Lot 51 Swallow	0	0	0	0	8	7.07	0.09	203.0	0.20	420.0		
17-Apr-18	NB Elementary			0	0	8	6.99	1.42	210.3	0.21	436.0		
17-Apr-18	3730 Fairwinds	0	0	0	0	9	6.92	0.67	211.0	0.21	436.0		
17-Apr-18	3541 Shelby	0	0	0	0	8	7.04	0.67	207.0	0.21	428.0		
17-Apr-18	2339 Garry Oak	0	0	0	0	8	6.97	1.17	209.1	0.21	433.0		
25-Apr-18	1358 Madrona			0	0	11	7.69	0.20	188.5	0.19	391.0		
25-Apr-18	1639 Marina	0	0	0	0	10	7.40	1.09	212.9	0.21	442.0		
25-Apr-18	2454 Armstrong			0	0	10	7.37	0.99	213.0	0.21	442.0		
25-Apr-18	3465 Cambridge	0	0	0	0	11	7.46	0.85	213.3	0.21	443.0		
25-Apr-18	2329 Chain			0	0	10	7.42	0.36	211.0	0.21	436.0		
	Average	0	0	0	0	9.3	7.2	0.68	203.0	0.20	420.9	0.04	0.023
	Maximum	0	0	0	0	11	7.69	1.42	213.3	0.21	443.0	0.07	0.066
	Minimum	0	0	0	0	8	6.92	0.09	171.3	0.17	357.0	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 - 2018 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-Mar-18	1566 Arbutus	0	0	0	0	8	7.26	0.73	181.5	0.18	378.0	0.00	0.073
7-Mar-18	3427 Tye	0	0	0	0	7	7.33	0.11	209.8	0.21	436.0	0.05	0.001
7-Mar-18	1270 Sea Dog	0	0	0	0	7	7.31	0.59	188.7	0.19	392.0	0.05	0.030
7-Mar-18	2315 Ida Lane	0	0	0	0	9	7.30	0.68	210.0	0.21	436.0	0.07	0.019
7-Mar-18	3500 Fairwinds	0	0	0	0	8	7.29	0.89	210.0	0.21	433.0	0.04	0.000
7-Mar-18	1996 Highland	0	0	0	0	8	7.32	0.54	211.3	0.21	438.0	0.03	0.000
7-Mar-18	2339 Garry Oak	0	0	0	0	9	7.18	1.17	208.0	0.21	433.0	0.06	0.008
14-Mar-18	1358 Madrona	0	0	0	0	8	7.32	0.60	186.0	0.19	384.0		
14-Mar-18	2359 Higginson	0	0	0	0	7	7.54	0.60	177.7	0.18	370.0		
14-Mar-18	2454 Armstrong	0	0	0	0	7	7.38	0.73	208.0	0.21	431.0		
14-Mar-18	Lot 54 Evanshire	0	0	0	0	9	7.37	1.01	205.7	0.21	427.0		
14-Mar-18	3383 Redden	0	0	0	0	8	7.36	0.77	208.0	0.21	430.0		
14-Mar-18	2329 Chain	0	0	0	0	7	7.31	0.44	210.5	0.21	437.0		
21-Mar-18	1565 Stonelake	0	0	0	0	10	7.13	0.24	189.2	0.19	393.0		
21-Mar-18	Lot 51 Swallow	0	0	0	0	6	7.26	0.03	205.2	0.20	428.0		
21-Mar-18	NB Elementary			0	0	11	7.23	1.65	208.0	0.21	429.0		
21-Mar-18	3730 Fairwinds	0	0	0	0	10	7.27	0.79	205.7	0.21	428.0		
21-Mar-18	3541 Shelby	0	0	0	0	9	7.28	0.83	201.0	0.20	420.0		
21-Mar-18	Florence & Anchor	0	0	0	0	8	7.35	0.56	211.2	0.21	438.0		
27-Mar-18	1566 Arbutus			0	0	9	7.20	0.65	178.4	0.18	376.0		
27-Mar-18	1639 Marina	0	0	0	0	8	7.40	0.60	185.7	0.18	387.0		
27-Mar-18	2315 Ida Lane			0	0	9	7.28	0.92	212.0	0.21	438.0		
27-Mar-18	3465 Cambridge	0	0	0	0	9	7.35	0.85	202.2	0.20	430.0		
27-Mar-18	2339 Garry Oak			0	0	9	7.25	1.14	207.0	0.21	429.0		
	Average	0	0	0	0	8.3	7.3	0.71	200.9	0.20	417.5	0.04	0.019
	Maximum	0	0	0	0	11	7.54	1.65	212.0	0.21	438.0	0.07	0.073
	Minimum	0	0	0	0	6	7.13	0.03	177.7	0.18	370.0	0.00	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 - 2018 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-Feb-18	1565 Stonelake	0	0	0	0	9	7.25	0.71	232.0	0.23	480.0	0.03	0.077
7-Feb-18	3427 Tye	0	0	0	0	8	7.36	0.36	235.0	0.23	486.0	0.05	0.088
7-Feb-18	1270 Sea Dog	0	0	0	0	8	7.33	0.91	237.0	0.24	491.0	0.07	0.071
7-Feb-18	2454 Armstrong	0	0	0	0	8	7.36	0.88	232.0	0.23	480.0	0.09	0.022
7-Feb-18	3500 Fairwinds	0	0	0	0	8	7.35	1.02	234.0	0.23	484.0	0.05	0.018
7-Feb-18	1996 Highland	0	0	0	0	8	7.39	0.58	235.0	0.23	485.0	0.03	0.000
7-Feb-18	Florence & Anchor	0	0	0	0	9	7.38	0.76	233.0	0.23	482.0	0.05	0.010
14-Feb-18	1566 Arbutus	0	0	0	0	8	7.19	0.43	230.0	0.23	477.0		
14-Feb-18	2359 Higginson	0	0	0	0	8	7.25	1.13	213.8	0.21	443.0		
14-Feb-18	2315 Ida Lane	0	0	0	0	7.5	7.35	1.14	222.0	0.22	460.0		
14-Feb-18	Lot 54 Evanshire	0	0	0	0	8	7.45	1.02	223.0	0.22	462.0		
14-Feb-18	3383 Redden	0	0	0	0	7.5	7.50	0.86	225.0	0.22	467.0		
14-Feb-18	2339 Garry Oak	0	0	0	0	7	7.39	1.33	216.7	0.22	449.0		
21-Feb-18	1358 Madrona	0	0	0	0	8	7.17	0.68	199.6	0.20	415.0		
21-Feb-18	Lot 51 Swallow	0	0	0	0	7	7.17	0.01	221.0	0.22	458.0		
21-Feb-18	NB Elementary			0	0	10	7.23	2.18	214.4	0.21	444.0		
21-Feb-18	3730 Fairwinds	0	0	0	0	8	7.35	0.77	211.0	0.21	439.0		
21-Feb-18	3541 Shelby	0	0	0	0	8	7.39	0.84	208.7	0.21	433.0		
21-Feb-18	2329 Chain	0	0	0	0	7	7.31	0.77	212.0	0.21	439.0		
28-Feb-18	1565 Stonelake			0	0	9	7.20	0.96	197.2	0.20	408.0		
28-Feb-18	1639 Marina	0	0	0	0	8	7.31	0.65	192.7	0.19	401.0		
28-Feb-18	2454 Armstrong			0	0	7	7.17	0.74	208.0	0.21	428.0		
28-Feb-18	3465 Cambridge	0	0	0	0	8	7.29	0.89	207.3	0.21	430.0		
28-Feb-18	Florence & Anchor			0	0	6	7.21	0.43	218.0	0.22	442.0		
	<b>Average</b>	0	0	0	0	7.9	7.3	0.84	219.1	0.22	453.5	0.05	0.041
	<b>Maximum</b>	0	0	0	0	10	7.5	2.18	237.0	0.24	491.0	0.09	0.088
	<b>Minimum</b>	0	0	0	0	6	7.17	0.01	192.7	0.19	401.0	0.03	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 - 2018 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-Jan-18	1566 Arbutus	0	0	0	0	8	7.33	0.35	226.0	0.23	467.0	0.02	0.000
3-Jan-18	3427 Tye	0	0	0	0	6	7.36	0.19	226.0	0.23	469.0	0.04	0.022
3-Jan-18	1270 Sea Dog	0	0	0	0	6	7.35	0.97	230.0	0.23	476.0	0.05	0.007
3-Jan-18	2454 Armstrong	0	0	0	0	8	7.37	0.85	231.0	0.23	479.0	0.07	0.019
3-Jan-18	3500 Fairwinds	0	0	0	0	8	7.50	0.93	230.0	0.23	475.0	0.06	0.010
3-Jan-18	1996 Highland	0	0	0	0	8	7.36	0.37	229.0	0.23	474.0	0.03	0.016
3-Jan-18	2339 Garry Oak	0	0	0	0	8	7.40	1.36	229.0	0.23	475.0	0.07	0.015
10-Jan-18	1358 Madrona	0	0	0	0	8	7.29	0.55	230.0	0.23	477.0		
10-Jan-18	2359 Higginson	0	0	0	0	8	7.27	1.07	224.0	0.22	457.0		
10-Jan-18	2315 Ida Lane	0	0	0	0	9	7.42	0.89	227.0	0.23	469.0		
10-Jan-18	Lot 54 Evanshire	0	0	0	0	8	7.38	0.97	224.0	0.22	463.0		
10-Jan-18	3383 Redden	0	0	0	0	7	7.39	0.80	224.0	0.22	464.0		
10-Jan-18	2329 Chain	0	0	0	0	7	7.38	0.44	224.0	0.22	463.0		
17-Jan-18	1565 Stonelake	0	0	0	0	10	7.31	0.72	224.0	0.22	464.0		
17-Jan-18	Lot 51 Swallow	0	0	0	0	7	7.34	0.02	226.0	0.22	467.0		
17-Jan-18	NB Elementary			0	0	11	7.30	1.63	225.0	0.22	466.0		
17-Jan-18	3730 Fairwinds	0	0	0	0	8	7.38	0.91	226.0	0.23	470.0		
17-Jan-18	3541 Shelby	0	0	0	0	8	7.42	0.94	226.0	0.23	469.0		
17-Jan-18	Florence & Anchor	0	0	0	0	7	7.36	0.48	226.0	0.23	468.0		
24-Jan-18	1566 Arbutus			0	0	10	7.04	0.48	227.0	0.23	469.0		
24-Jan-18	1639 Marina Way	0	0	0	0	9	7.23	1.04	231.0	0.23	477.0		
24-Jan-18	2454 Armstrong			0	0	8	7.38	0.69	231.0	0.23	479.0		
24-Jan-18	3465 Cambridge	0	0	0	0	9	7.27	0.71	229.0	0.23	474.0		
24-Jan-18	2339 Garry Oak			0	0	9	7.21	1.34	232.0	0.23	481.0		
31-Jan-18	1358 Madrona			0	0	8	7.41	0.38	232.0	0.23	479.0		
31-Jan-18	2359 Higginson			0	0	8	6.80	0.63	228.0	0.23	230.0		
31-Jan-18	2315 Ida Lane			0	0	8	7.06	0.68	226.0	0.23	469.0		
31-Jan-18	3383 Redden			0	0	8	7.16	0.68	229.0	0.23	473.0		
31-Jan-18	2329 Chain			0	0	8	7.32	0.41	226.0	0.23	463.0		
	<b>Average</b>	0	0	0	0	8	7.3	0.78	227.5	0.23	462.3	0.05	0.013
	<b>Maximum</b>	0	0	0	0	11	7.5	1.63	232.0	0.23	481.0	0.07	0.022
	<b>Minimum</b>	0	0	0	0	6	6.80	0.02	224.0	0.22	230.0	0.02	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.

## Madrona Well #8 - Raw Well Water

Nitrates (mg/L)											CDWG = 10mg/L	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
January									4.11	4.63	6.79	7.63
April									4.70	4.92	8.06	7.64
July									6.11	7.60	9.40	
October	1.40	1.30	0.10	1.80	2.19	2.78	3.37	4.56	5.98	6.83	8.78	

actual value is <0.10

Total Ammonia (mg/L)												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
January										0.014	0.02	<0.015
April										0.027	0.02	<0.015
July										0.020	0.02	
October			0.01	0.01	0.01	0.02	0.02	0.013	0.084	0.02	0.02	

Actual value <0.01

Actual value <0.02

Actual value <0.02

Total Organic Nitrogen (mg/L)												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
January										0.10	0.20	<0.2
April										0.10	0.35	<0.2
July										0.20	0.20	
October										0.20	0.20	

Actual value is <0.10

Actual value is <0.20

Total Coliforms (MPN/100ml)											CDWG = <1 MPN	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
January												0
April												0
July												0
October							0	0	0	0	0	0

E-Coli (MPN/100ml)											CDWG = <1 MPN	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
January												0
April												0
July												0
October							0	0	0	0	0	0



# Regional District of Nanaimo - Water Services Department

## Water Treatment Plant Water Analysis

2018 Annual Values

Month	Influent (Raw) Water			Chemicals Added			Effluent (Treated) Water						Treated Water Analysis from third party laboratories						
	Total Iron (mg/L)	Manganese (mg/L)	Ammonia (mg/L)	Free Chlorine Residual (mg/L)	Total Chlorine Residual (mg/L)	Chlorine Does Rate (mg/L)	Turbidity NTU	pH	Free Chlorine Residual (mg/L)	Total Chlorine Residual (mg/L)	Total Iron (mg/L)	Manganese (mg/L)	Ammonia (mg/L)	Total Chloramine (mg/L)	Total Iron (mg/L)	Manganese (mg/L)	Ammonia (mg/L)	Free Chlorine Residual (mg/L)	Total Chlorine Residual (mg/L)
January	0.57	0.25	1.31	2.25	5.43	15.50	0.047	7.53	1.45	1.99	0.040	0.015	0.000	0.20	0.03	0.006	0.000	1.10	1.60
February	0.58	0.24	1.21	2.47	5.76	15.53	0.096	7.54	1.53	1.86	0.068	0.016	0.000	0.10	0.04	0.007	0.031	1.30	1.80
March	0.56	0.26	1.23	2.45	6.73	14.09	0.080	7.50	1.53	2.05	0.050	0.018	0.000	0.30	0.08	0.017	0.000	1.30	1.70
April	0.58	0.25	1.26	2.36	5.59	15.51	0.071	7.534	1.486	1.93	0.054	0.016	0.000	0.15	0.04	0.007	0.016	1.20	1.70
May	0.54	0.27	1.37	3.00	5.20	13.86	0.753	7.54	1.58	1.87	0.055	0.021	0.000	0.10	0.06	0.015	0.000	1.20	1.50
June	0.55	0.24	1.36	3.18	6.93	14.13	0.188	7.47	1.63	1.99	0.085	0.028	0.000	0.40	0.08	0.021	0.043	1.00	1.30
July	0.53	0.25	1.45	2.68	5.74	13.65	0.148	7.52	1.55	1.85	0.064	0.018	0.000	0.20	0.09	0.025	0.021	1.60	2.20
August	0.55	0.25	1.44	2.82	5.48	13.50	0.092	7.59	1.65	1.89	0.068	0.025	0.000	0.10	0.05	0.005	0.000	1.00	1.30
September	0.62	0.29	1.37	2.72	5.50	13.72	0.100	7.63	1.66	2.38	0.050	0.021	0.000	0.10	0.04	0.009	0.000	1.40	1.80
October	0.54	0.27	1.43	2.77	6.16	14.60	0.066	7.65	1.78	2.42	0.038	0.029	0.000	0.10	0.01	0.005	0.000	1.50	1.90
November	0.63	0.28	1.34	2.65	5.58	14.46	0.079	7.66	1.71	2.43	0.030	0.023	0.000	0.10	0.00	0.003	0.083	1.50	1.80
December	0.60	0.28	1.43	2.47	5.67	14.27	0.041	7.68	1.81	3.27	0.018	0.012	0.000	0.10	0.01	0.004	0.000	1.20	1.30
<b>Average</b>	<b>0.57</b>	<b>0.262</b>	<b>1.348</b>	<b>2.65</b>	<b>5.81</b>	<b>14.40</b>	<b>0.147</b>	<b>7.570</b>	<b>1.612</b>	<b>2.16</b>	<b>0.052</b>	<b>0.020</b>	<b>0.000</b>	<b>0.16</b>	<b>0.04</b>	<b>0.010</b>	<b>0.016</b>	<b>1.28</b>	<b>1.66</b>

Iron Removal %	Mang Removal %	Ammonia % Removal
97.06	99.476	100.00