

Regional District of Nanaimo

WEST BAY

**Water Local Service Area
Annual Report**

2007



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Appendix A - Map of West Bay Water Local Service Area

Appendix B - Water Quality Testing Results

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1. Introduction

The following annual report describes the West Bay Water Local Service Area and summarizes the water quality and production data from 2007. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, the Emergency Response Plan, and the Cross Connection Control Program.

This report is to be submitted to the Vancouver Island Health Authority by the Spring of 2008.

2. West Bay Water System

The West Bay Water Service Area was established in 1980 and comprises the Red Gap Shopping Centre and surrounding residential area on the Nanoose Peninsula. The water source for the West Bay Water Service Area comes from a series of groundwater wells located nearby. The water source is chlorinated and stored in two reservoirs. A map of the West Bay Water System is provided in Appendix A for reference.

2.1 Groundwater Wells

One groundwater production well is present at 2475 Nanoose Road (behind the Firehall) in Nanoose Bay. An abandoned groundwater production well is present in the parking lot of the Firehall at 2471 Nanoose Road. West Bay Well #1 has not been used for several years due to low production. The well was closed permanently in 2007 by Fyfe's Well & Water Services. The entire length of the hole was filled with bentonite clay, as per the BC Groundwater Protection Regulation. A well closure report was forwarded to the Ministry of Environment and the Vancouver Island Health Authority in 2007.

Well / Name	Well Depth	Wellhead Protection	Treated/Untreated with Chlorine
West Bay #1 (Closed)	61.0 m	n/a	n/a
West Bay #3	75.6 m	Yes	Treated

2.2 Reservoirs

No reservoirs are present in the West Bay Water System. The groundwater from West Bay Well #3 is pumped to the Fairwinds reservoirs, and drinking water supply (mixed with Fairwinds well water) is fed back to the West Bay area through a dedicated watermain.

2.3 Distribution System

The water distribution system in West Bay is comprised of 100mm and 150mm asbestos-concrete watermains, and 150mm PVC watermains. Fire hydrants are located throughout the system.

3. Water Sampling and Testing Program

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

Timing	Location	Tests
Weekly	RDN (in-house) Laboratory	Total coliforms, E.Coli Temperature, pH, Conductivity Chlorine residual, Salinity Total Dissolved Solids Iron, Manganese
Weekly (Health Dept. Requirement)	North Island Labs	Total, Fecal coliforms
Annual Source Water Testing	North Island Labs	Complete potability testing of each well
Annual System Water Testing	North Island Labs	Complete potability testing of distribution system

4. Water Quality - Source Water and Distribution System

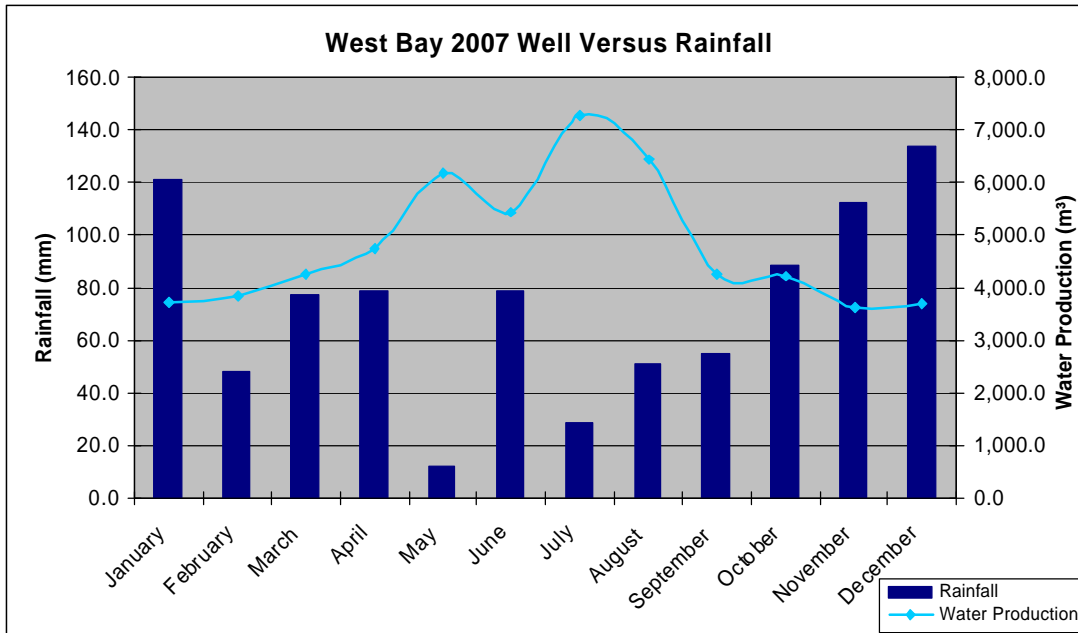
Up-to-date water quality reports and lab data are posted monthly on the RDN website at www.rdn.bc.ca in the WaterSmart section, under “Communities”. Tables of water quality testing results for both the source water and distribution system are provided at the end of this report under Appendix B.

5. Water Quality Inquiries and Complaints

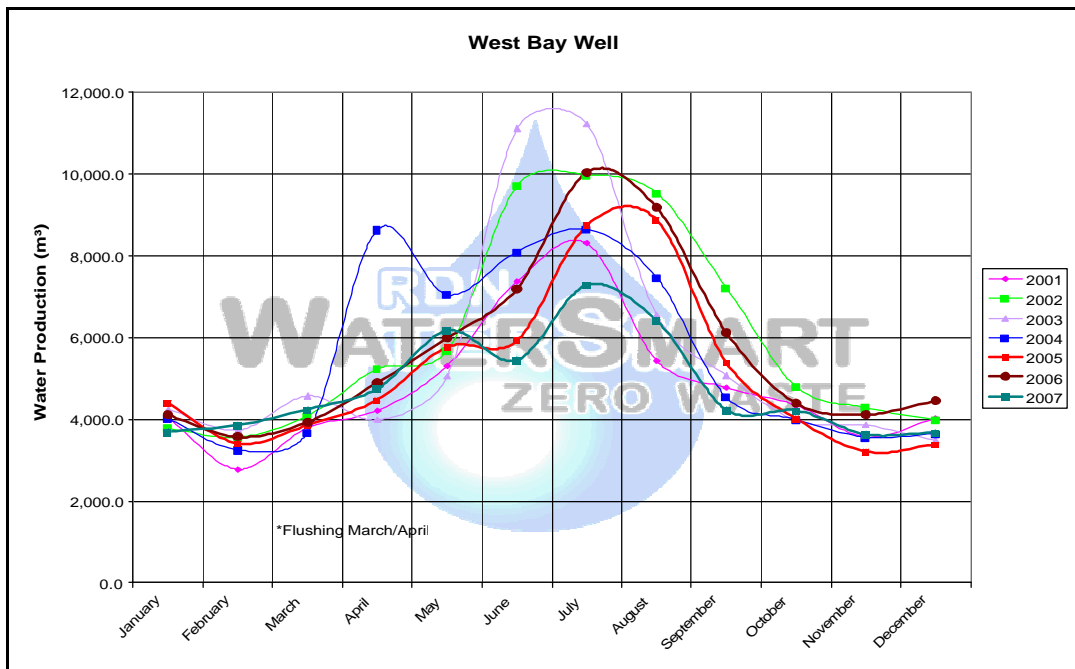
Very few complaints were received from the West Bay water service area, and were typically related to iron and manganese discolouration in the water.

6. Groundwater Production and Consumption

The 2007 monthly groundwater production for West Bay is shown in the chart below. Groundwater production has been charted against rainfall data from the City of Parksville website to show how rainfall affects the amount of groundwater pumped.



The monthly groundwater production for the West Bay area for the past 7 years is shown in the chart below. Groundwater production in 2007 was typically lower than previous years.



Consumption

There are 180 service connections in West Bay. In the Fall/Winter of 2007, the average usage per home in the West Bay area was 0.52 cubic metres per day (114 imperial gallons). In the summer, the average water usage was 1.2 cubic metres per day (262 imperial gallons).

7. Maintenance Program

Regular maintenance and inspections are completed around the well site to reduce or eliminate the risk of contamination and system failure. Watermains are flushed twice annually; in the Spring and Fall.

8. Water System Projects

8.1 2007 Completed Studies & Projects

- A Drinking Water - Watershed Protection Action Plan was completed.
- An Innovative Water Use and Re-Use Study was completed.
- A Water Use Bylaw - Best Practices Review was completed.
- A Nanoose Bay Peninsula Water Sourcing Study was completed.
- A formalized Cross Connection Control Program was initiated.
- A comprehensive water conservation program ([WaterSmart](#)) was carried out from May to October.
- The RDN [WaterSmart](#) website was updated and improved.
- The Emergency Response Plan was reviewed and updated.
- A SCADA (Supervisory Control and Data Acquisition) Study was initiated.
- A pilot treatment plant for iron & manganese removal from drinking water was set-up and run for a two-week trial.
- Watermain flushing was completed in the Spring and Fall.

8.2 2008 Proposed Projects & Upgrades

- Radio Meter Pilot Study (for water meters)
- Well exploration program
- Upgrades to flush-outs
- New signage for all Utilities facilities
- Re-keying all locked facilities
- Implement innovative use and re-use technology
- Stand-alone water testing stations to be installed
- Promote Cross Connection Control awareness and facility audits

8.3 2008 Proposed Studies

- Complete SCADA study and integrate into 2009 budget
- Rainwater management strategy
- Sodium hypochlorite vs. on-site chlorine generation
- Comprehensive capital plan development

9. Emergency Response Plan

The Emergency Response Plan (ERP) was reviewed and updated in 2007. A copy of the ERP is attached in Appendix C.

10. Cross Connection Control

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

A consultant who specializes in municipal Cross Connection Control was hired to enhance the RDN Cross Connection Control Program in 2007/2008. The program in 2008 will include:

- A review and comparison of successful cross-connection control programs implemented by other small water systems nearby,
- A survey of existing or potential cross-connection risks for each category of RDN customer (i.e., residential, commercial, industrial, institutional, etc.),
- An audit of RDN-owned facilities in each water service area,
- The preparation of a draft bylaw to allow enforcement of the Cross Connection Control Program,
- The set up of a customer database with a maintenance history of testable backflow prevention assemblies at each facility, and
- Staff training and certification in Backflow Assembly Testing (BCWWA certified).

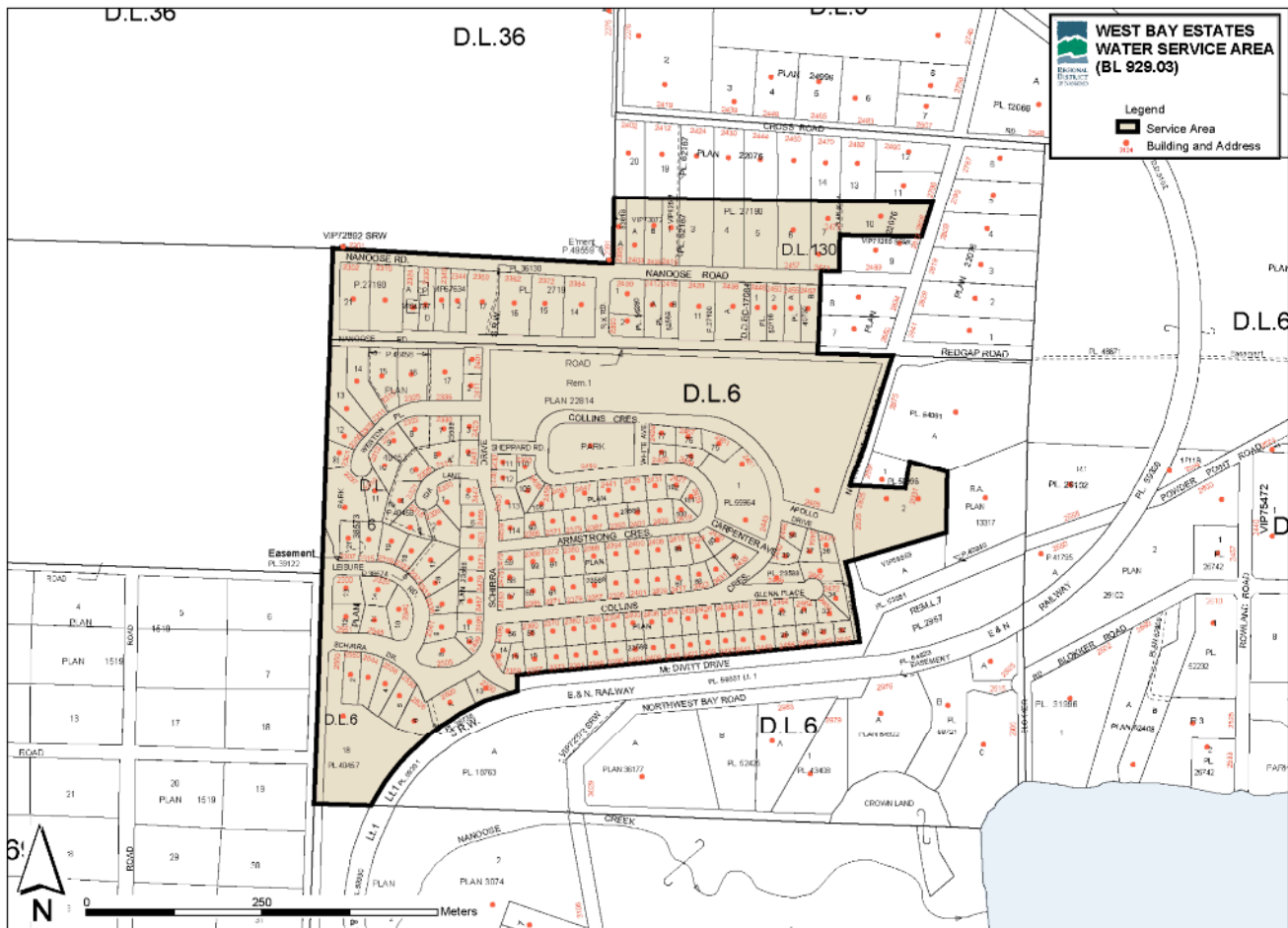
11. Closing

An annual report for the year 2008 will be prepared and submitted to the Vancouver Island Health Authority in the Spring of 2009. Annual reports are also available on our website at www.rdn.bc.ca in the WaterSmart section, under “Communities”.

APPENIDX A

**MAP OF WEST BAY
WATER LOCAL SERVICE AREA**

WEST BAY WATER LOCAL SERVICE AREA



APPENDIX B

WATER QUALITY TESTING RESULTS

APPENDIX C

EMERGENCY RESPONSE PLAN