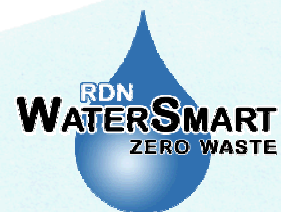


**Regional District of Nanaimo**

**WEST BAY**

**Water Local Service Area  
Annual Report**

**2006**



## Table of Contents

|     |   |   |
|-----|---|---|
| 1.  | Introduction.....   | 1 |
| 2.  | West Bay Water System .....                               | 1 |
| 2.1 | Groundwater Wells .....                                   | 1 |
| 2.2 | Reservoirs.....   | 1 |
| 2.3 | Distribution System.....                                  | 1 |
| 3.  | Water Sampling and Testing Program.....                   | 2 |
| 4.  | Water Quality - Source Water and Distribution System..... | 2 |
| 5.  | Water Quality Inquiries and Complaints .....              | 2 |
| 6.  | Groundwater Production and Average Consumption.....       | 3 |
| 7.  | Maintenance Program.....                                  | 3 |
| 8.  | Water System Projects.....                                | 4 |
| 8.1 | 2006 Completed Projects .....                             | 4 |
| 8.2 | 2007 Proposed Projects & Upgrades .....                   | 4 |
| 8.3 | 2007 Proposed Studies.....                                | 4 |
| 9.  | Emergency Response Plan.....                              | 4 |
| 10. | Cross Connection Control.....                             | 4 |
| 11. | Closing.....  | 5 |

Appendix A - Map of West Bay Water Local Service Area

Appendix B - Water Quality Testing Results

Appendix C - Emergency Response Plan

## 1. Introduction

The following annual report describes the West Bay Water Local Service Area and summarizes the water quality and production data from 2006. 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 2007.

## 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 2006 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 will be forwarded to the Ministry of Environment and the Vancouver Island Health Authority shortly.

| 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)<br>Laboratory | Total, Fecal coliforms<br>Temperature, pH, Conductivity<br>Chlorine residual, Salinity<br>Total Dissolved Solids<br>Iron, Manganese |
| Weekly<br>(Health Dept.<br>Requirement) | North Island Labs            | Total, Fecal coliforms  |
| Annual Source<br>Water Testing          | North Island Labs            | Complete potability testing<br>of each well   |
| Annual System<br>Water Testing          | North Island Labs            | Complete potability testing<br>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 ([www.rdn.bc.ca/WaterSmart](http://www.rdn.bc.ca/WaterSmart)). 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

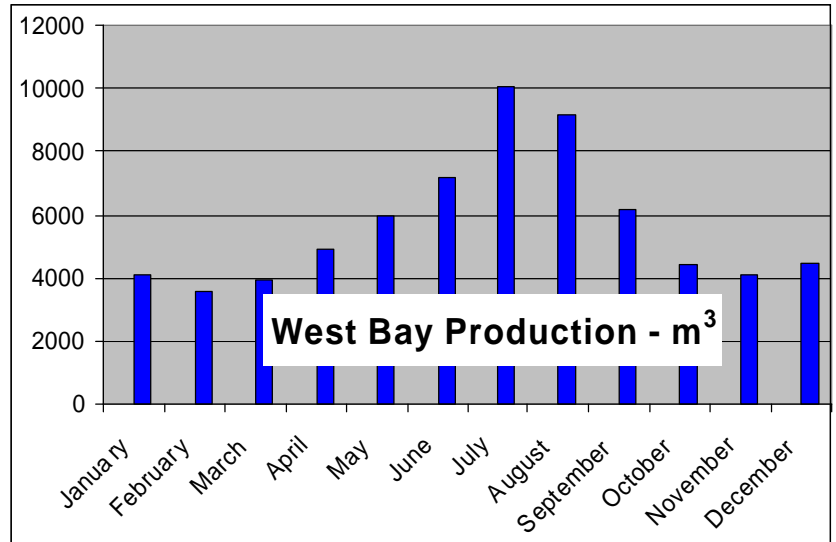
No complaints or inquiries were received from the West Bay water service area.

## 6. Groundwater Production and Average Consumption

Average monthly groundwater production is shown in the table and chart below.

### Monthly Production

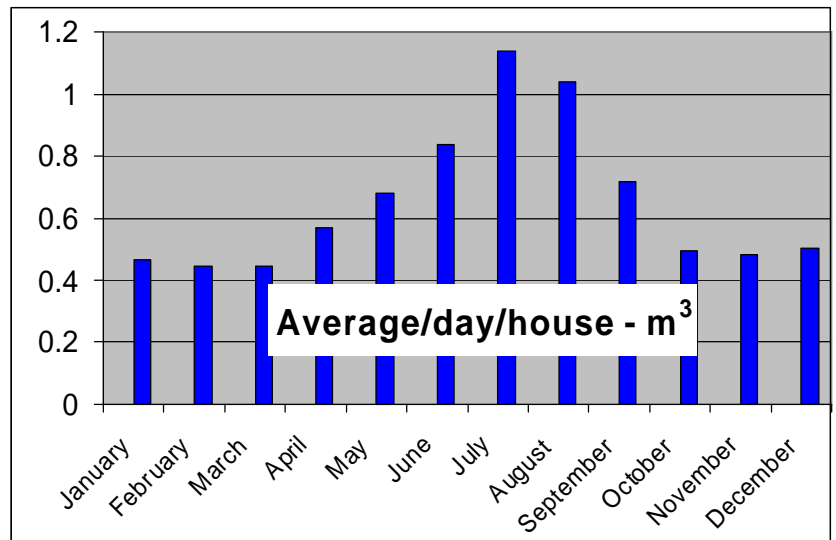
|           |       |                |
|-----------|-------|----------------|
| January   | 4109  | m <sup>3</sup> |
| February  | 3575  | m <sup>3</sup> |
| March     | 3935  | m <sup>3</sup> |
| April     | 4894  | m <sup>3</sup> |
| May       | 5993  | m <sup>3</sup> |
| June      | 7192  | m <sup>3</sup> |
| July      | 10049 | m <sup>3</sup> |
| August    | 9186  | m <sup>3</sup> |
| September | 6121  | m <sup>3</sup> |
| October   | 4393  | m <sup>3</sup> |
| November  | 4121  | m <sup>3</sup> |
| December  | 4455  | m <sup>3</sup> |



The average household water consumption per month is shown in the table and chart below.

### Average / Day / House

|           |       |                |
|-----------|-------|----------------|
| January   | 0.465 | m <sup>3</sup> |
| February  | 0.448 | m <sup>3</sup> |
| March     | 0.445 | m <sup>3</sup> |
| April     | 0.572 | m <sup>3</sup> |
| May       | 0.678 | m <sup>3</sup> |
| June      | 0.841 | m <sup>3</sup> |
| July      | 1.137 | m <sup>3</sup> |
| August    | 1.040 | m <sup>3</sup> |
| September | 0.716 | m <sup>3</sup> |
| October   | 0.497 | m <sup>3</sup> |
| November  | 0.482 | m <sup>3</sup> |
| December  | 0.504 | m <sup>3</sup> |



Groundwater production and household water consumption both increased dramatically from May to September despite the implementation of outdoor watering restrictions.

## 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 once annually; in the Spring.

## 8. Water System Projects

### 8.1 2006 Completed Projects

- West Bay Well #3 was camera inspected (video), and the well screen was re-developed.
- West Bay Well #1 was closed permanently.
- The chlorine storage area in West Bay was upgraded.
- Iron and manganese water quality study was completed.
- Water audit for the whole Nanoose Bay Peninsula (including West Bay) was completed.
- A comprehensive water conservation program was carried out from May to October.
- A Standard Operating Procedures Manual was created for all routine Utilities duties.
- The Emergency Response Plan was reviewed and updated.
- A security review was completed by an independent agency and a report with recommendations was provided.
- A web-based Capital Asset Management Program was completed to inventory all water system pipes, valves, wells, reservoirs, hydrants, and manholes, etc. to assist with infrastructure replacement priorities.

### 8.2 2007 Proposed Projects & Upgrades

- Iron and Manganese removal pilot project (Worleyparsons Komex).
- Install chlorine analyzer in West Bay.
- Re-keying all locked facilities.
- Other security improvements.
- Developing objectives for a SCADA system.

### 8.3 2007 Proposed Studies

- Innovative water supply and re-use.
- Well redevelopment planning.
- Water Use Bylaw/Best Practices Review.

## 9. Emergency Response Plan

The Emergency Response Plan (ERP) was reviewed and updated in 2006. A copy of the ERP is attached in Appendix C.

## 10. Cross Connection Control

A formalized Cross Connection Control Program will be initiated in 2007. Cross connection controls already in-place include check valves at each residential water meter.

## 11. Closing

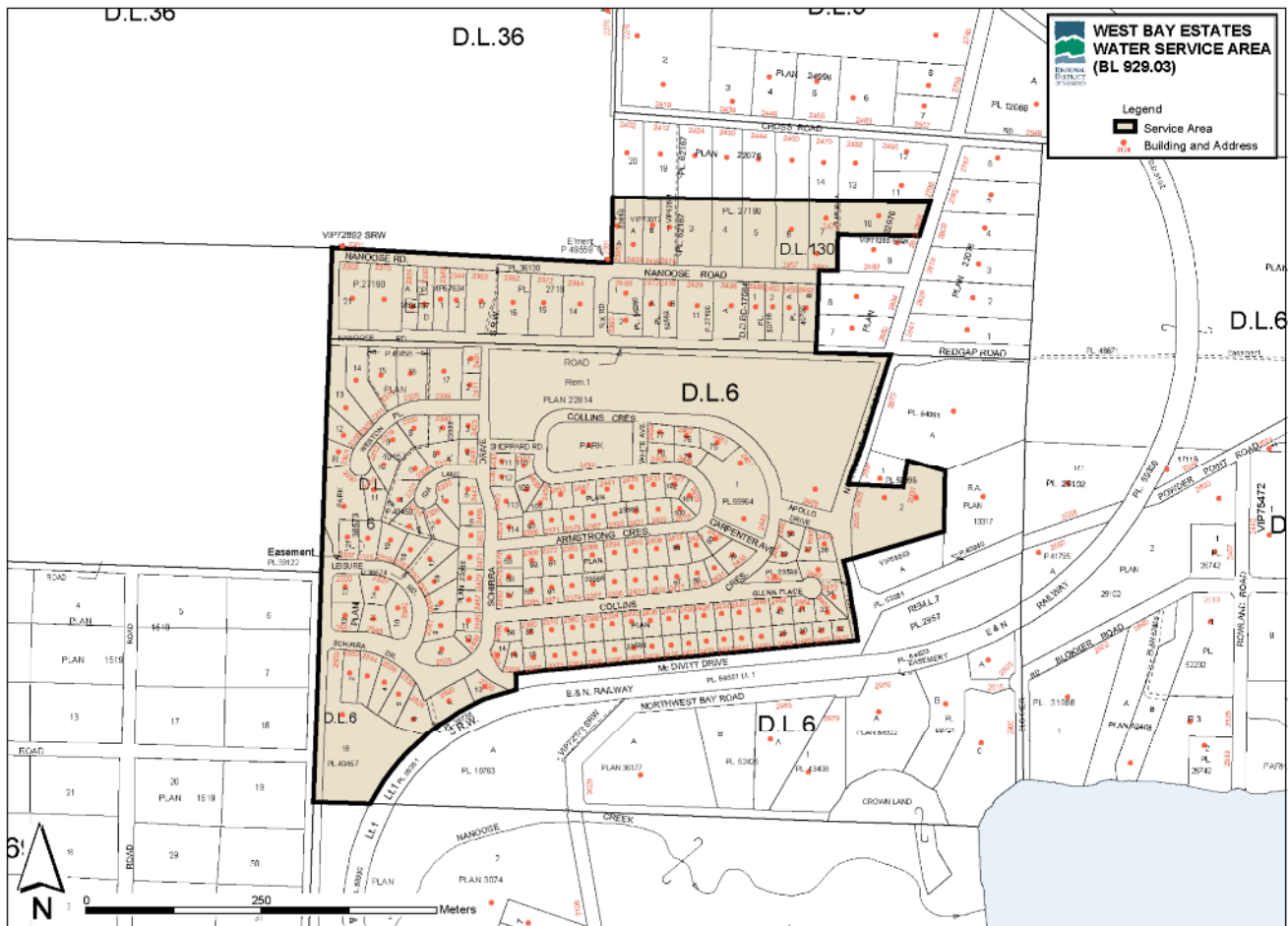
An annual report for the year 2007 will be prepared and submitted to the Vancouver Island Health Authority in the Spring of 2008. Annual reports are also available on our website at [www.rdn.bc.ca/WaterSmart](http://www.rdn.bc.ca/WaterSmart).

**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