


REGIONAL DISTRICT OF NANAIMO

Water Service Area Annual Report 2012



San Pareil Water System

June 2013

REGIONAL DISTRICT OF NANAIMO
Water & Utility Services Department

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Appendix A - Map of San Pareil Water Service Area

Appendix B - Water Quality Testing Results

Appendix C - Emergency Response Plan

1. Introduction

The following annual report describes the San Pareil Water Service Area and summarizes the water quality and production data from 2012. 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 2013.

2. San Pareil Water System

The San Pareil Water Service Area was established in 1999 when the RDN acquired the existing Bubbling Springs Water Utility. This system is located to the northeast of the Englishman River bridge on the east side of the City of Parksville. There are 280 water service connections in San Pareil. The water source for the San Pareil Water Service Area comes from a series of groundwater wells located in the well field on Plummer Road. The well water is chlorinated and stored in one reservoir. A back-up propane generator is present on site. A map of the San Pareil Water System is provided in Appendix A.

2.1 Groundwater Wells

Four groundwater production wells are present in the well field at 1090 Plummer Road, Parksville, B.C. Two of the wells are not currently in use: Well #2 is an older, shallow well that is kept on stand-by. Well #3 was converted to a monitoring well when Well #4 was drilled.

Well / Name	Well Depth	Wellhead Protection	Treated/Untreated with Chlorine
#1	4.4 m	Yes	Treated
#2	5.5 m	Yes	Not in use
#3	7.0 m	Yes	Not in use
#4	5.7 m	Yes	Treated

2.2 Reservoirs

One concrete service reservoir is present at 1090 Plummer Road, and has a capacity of 340 m³ (75,000 imperial gallons).

2.3 Distribution System

The water distribution system in San Pareil is summarized in the table below. Fire hydrants (16) are located throughout the water service area, but the hydrants do not meet current requirements for spacing and /or fire flows.

Watermain Material	Length of mains in San Pareil Water Service Area	Prevalence in Water Service Area
AC: 150mm or smaller AC: 200mm or larger	6.0 km none	91% n/a
PVC: 150mm or smaller PVC: 200mm or larger	0.2 km 0.4 km	3% 6%

Note: 'AC' is Asbestos-Concrete, 'PVC' is poly-vinylchloride (plastic)

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, TDS Monthly- Iron and Manganese
Monthly	BC Centre for Disease Control	Total coliforms, E.Coli
Annual Source Water Testing (every Fall)	North Island Labs	Complete potability testing of raw well water (including T-Ammonia in 2013)
Annual System Water Testing (every Spring)	North Island Labs	Complete potability testing of distribution system (including T-Ammonia in 2013)

4. Water Quality - Source Water and Distribution System

Up-to-date water quality reports and lab data are posted monthly on the RDN website at www.rdn.bc.ca in the Services section, under “Water & Utility 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.

GWUDI- Ground Water Under Direct Influence (of surface water)

A GWUDI investigation was conducted by Thurber Engineering Ltd. in 2010, and a follow-up investigation was completed in 2012 to address the additional monitoring and upgrades completed at the San Pareil well site. Thurber Engineering confirmed that there is a direct hydraulic connection between the aquifer at the San Pareil well field, the nearby wetlands, and likely the Englishman River. Well #1 and Well #4 are considered ‘at risk’ of containing pathogens from a GWUDI situation.

To ensure the provision of microbiologically safe drinking water, the groundwater supply from the San Pareil well field is chlorinated. Further, based on the particulate size distribution analysis, there is evidence to show that adequate filtration may be occurring within the aquifer. This water system has operated for over 40 years with no known issues of bacteria or pathogens at the point of consumption, which lends support to the evidence of *in situ* aquifer filtration. The current level of treatment will be maintained and long-term monitoring activities will continue.

5. Water Quality Inquiries and Complaints

Very few complaints or inquiries were received from the San Pareil water service area in 2012, and were typically related to water leaks or high water bills.

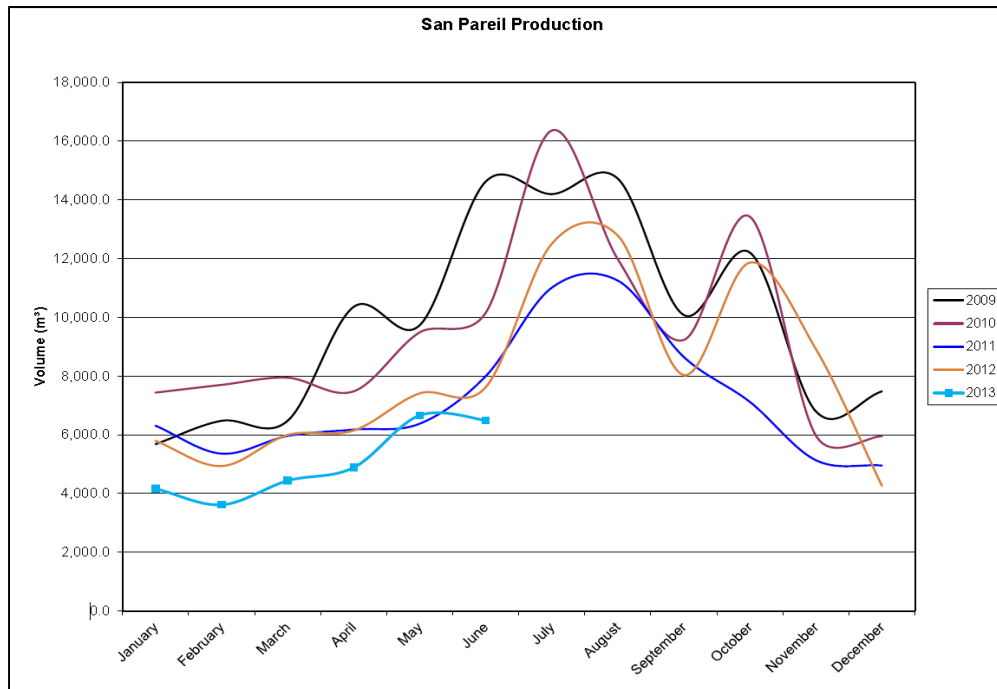
Fire insurance and the necessary water supply upgrades were discussed with residents of San Pareil in 2011 and 2012. Updates on the upcoming construction and improvements can be found at www.sanpareilwater.ca.



San Pareil Well Site

6. Groundwater Production and Consumption

The monthly groundwater production for San Pareil for the past 5 years is shown in the chart below. Groundwater production in 2012 was typically lower than previous years.



Consumption

In the Fall/Winter of 2012, the average usage per home in San Pareil was 0.47 cubic metres per day (103 imperial gallons). In the summer, the average water usage was 0.95 cubic metres per day (209 imperial gallons). Based on these figures, the annual consumption per capita is estimated to be 263 L/day (based on 2.4 people/household). This consumption is 2% less than the RDN system average of 268 L/day/capita in 2012.

7. Maintenance Program

A weekly pump station inspection is 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) in the Fall.

Twenty-four hour on-call coverage is in place to respond to water system emergencies and alarms.

8. Water System Projects

8.1 2012 Completed Studies & Projects

- Completed Phase 1 of water system upgrades including watermain replacements;
- Completed the permanent closure of San Pareil Well #2;
- Finalized the GWUDI Assessment report of San Pareil wells (for wells potentially under the direct influence of surface water);
- Completed Cross Connection Control wording in the water supply bylaw;
- Completed annual fire hydrant maintenance;
- Enforced the outdoor sprinkling regulations;
- Carried out a comprehensive water conservation campaign (Team WaterSmart);
- Updated and improved the RDN website at www.rdn.bc.ca;
- Updated the Emergency Response Plan;
- Utilized the Auto E-message service to notify member residents of water service disruptions and upcoming maintenance activities;
- Applied a low-flush toilet and a rainwater harvesting (rain barrel) incentive;
- Maintained a high level of water quality;
- Maintained excellent customer complaint and service request response times;
- Continued quality control through regular testing and monitoring; and
- Completed additional educational programs.

San Pareil
Well #2 Closure
July 2012



8.2 2013 Proposed Projects & Upgrades

- Tender Phase 2 of the water system upgrades: new pumphouse and storage reservoir;
- Install signs along Plummer Road to encourage groundwater protection awareness;
- Update the Standard Operating Procedures; and
- Continue to offer a low-flush toilet and rainwater harvesting (rain barrel) incentive.

9. **Emergency Response Plan**

The Regional District Emergency Response Plan (ERP) contains procedures and contact information to efficiently respond to water system emergencies such as contamination of water supply, loss of supply, and pump failure. The ERP was reviewed and updated in 2012, and copies are available on our website, at each RDN office, in each pumphouse, and in each Water Services vehicle. A copy of the ERP is also attached to this report in Appendix C.

10. **Cross Connection Control**

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

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

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

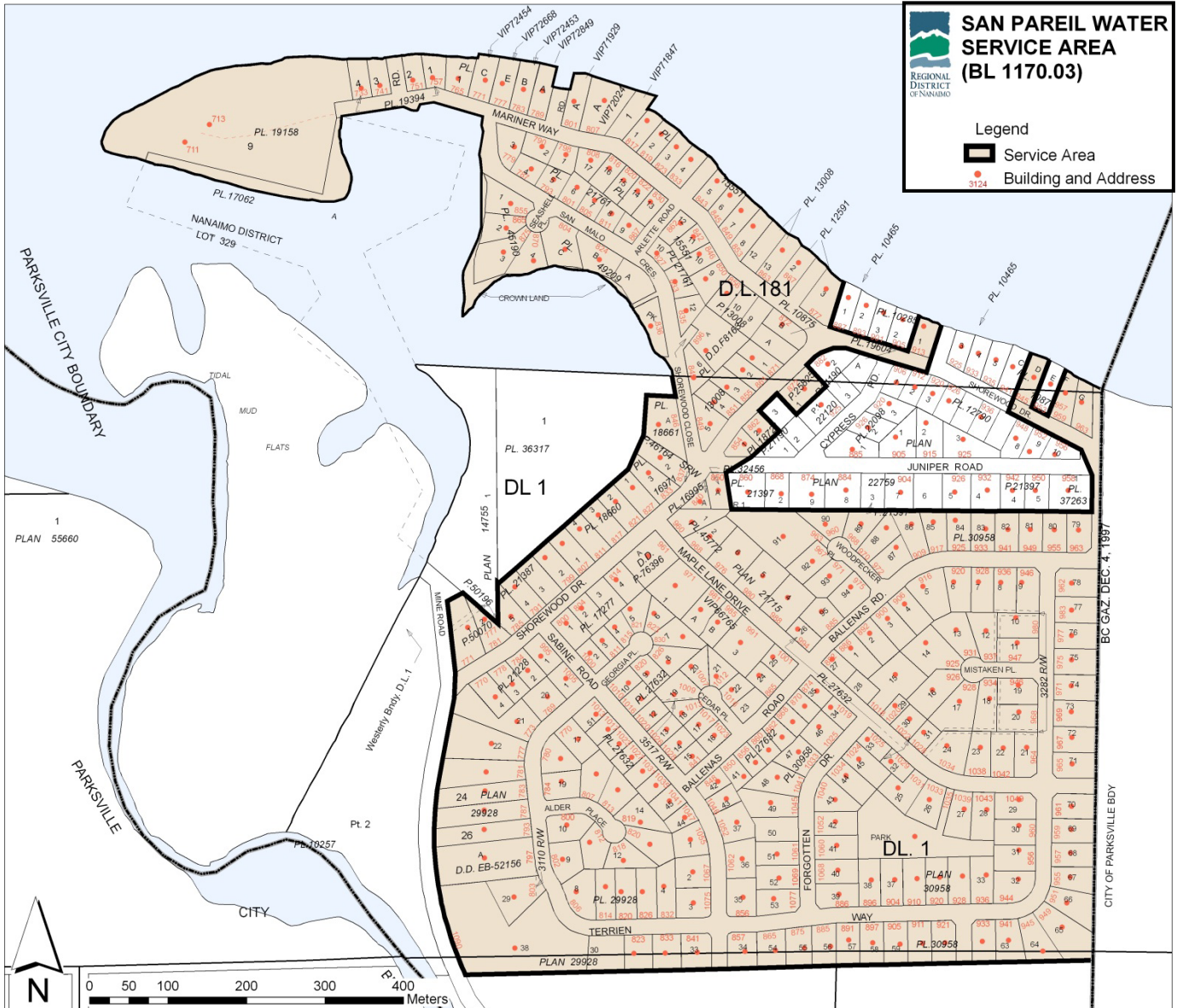
11. **Closing**

An annual report for the year 2013 will be prepared and submitted to the Vancouver Island Health Authority in the Spring of 2014. Annual reports are also available on our website at www.rdn.bc.ca in the SERVICES section, under "Water & Utility Services" then "WaterSmart Communities".

APPENDIX A

**MAP OF SAN PAREIL
WATER SERVICE AREA**

SAN PAREIL WATER SERVICE AREA



SAN PAREIL WATER SERVICE AREA (BL 1170.03)

REGIONAL DISTRICT OF NANAIMO

Legend

- Service Area
- Building and Address

APPENDIX B

WATER QUALITY TESTING RESULTS