

District of Lantzville

Incorporated June 2003



Annual Water Report ~ 2010 ~

District of Lantzville
Water System Annual Report - 2010

Date of Report: July 28th, 2011

Period of Monitoring: January to December 2010

Water Supply Permit Number: 1310847

Location of Water System: Lantzville, BC

Name of Owner: District of Lantzville

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Water System Description

Source:

The District of Lantzville has four wells that produce a combined 1.2 cubic meters of water per minute, (260 imperial gallons per minute). Each of the four wells varies in depth from 70 feet to 120 feet. Within each well there are pumps that range in horsepower from 5hp to 20 hp. The District has a portable generator that can supply power to the pumps during a power outage on an intermittent basis.

The wells are located in a confined aquifer. A confined aquifer is a body of water that is underground and confined to an extent by non-penetrable soils. Studies have been done on the aquifer that state we have maximized the aquifer to its fullest potential.

The wells, while during the winter months artesian, the overall supply drops significantly during the dry season. In addition to the drop in supply, water demands double during the summer months, as people tend to irrigate their properties. Therefore, The District has necessary water restrictions to ensure conservation during these seasonal demands.

The criteria that sets water restrictions is based on an average hourly use of the well pumps for one week and are as follows:

Water Restriction 1: Regardless of well pump hours the latest is May

Water Restriction 2: When well pumps reach 15 hours per day

Water Restriction 3: When well pumps reach 18 hours per day

Water Restriction 4: When well pumps reach 21 hours per day

Treatment:

The water from the well field is pumped via isolated supply line to the existing 1854.8 cubic meter concrete reservoir on Ware Road. Prior to the water supply reaching the reservoir, chlorine is injected in very small doses to eliminate the possibility of bacteria growth.

A small pump that is attached to the supply line does the injecting of chlorine. The “chlorine pump” is controlled by the Supervisory Control and Data Acquisitions Systems (SCADA) and is activated at the same time the well pumps start. Staff at the District are very aware of the amount of chlorine that is being placed in the system. Currently, staff maintains a chlorine residual of between 0.1 and 0.3 within the distribution system.

Reservoirs:

The District has two reservoirs: one at Ware Road and one at Aulds Road. The Ware Road reservoir consists of a two chamber concrete tank (927.4m³ each) that is partially buried in the ground. With the two chambers, staff has the ability to drain one chamber for cleaning/repairs, while keeping the second chamber in operation. Also, at the Ware Road reservoir, there are booster pumps which alternate in pumping water to a higher elevation, a permanent generator, the SCADA system that controls both the water and sewer systems in the District.

From the Ware Road reservoir water is distributed in two directions. Firstly, the water is released from the reservoir via gravity to the lower pressure zone; this zone is mainly any part of the water distribution system that is north of the Island Highway. The second direction has the water being pumped from the Ware Road reservoir to a second reservoir, which is at a higher elevation near Aulds Road.

The Aulds Road reservoir, a 262.76 cubic meter pre-cast concrete circular tank supplies the upper pressure zone. The upper pressure zone consists of any part of the water distribution system that is above (south of) the highway with the exception of a few properties on the North side of the highway.

Distribution System:

The Distribution System consists of 9,035 meters of PVC (plastic) pipe. In addition to the PVC there is 14,533m of AC (asbestos cement) pipe for a total of 24,598 meters.

The following table shows the different pipes and lengths of those pipes that are in the District's water distribution system:

200 Millimeter – PVC	6,955 Meters (M)
250 Millimeter – PVC	1,880 M
300 Millimeter – PVC	800 M
150 Millimeter – PVC	40 M
100 Millimeter – Asbestos Cement (AC)	5,598 M
150 Millimeter – AC	7,970 M
200 Millimeter – AC	1,335 M
250 Millimeter - AC	60 M

With two separate pressure zones within the District's water system there is a need for interconnection. A pressure-reducing valve (PRV) allows this interconnection. When the pressure on the lower side drops, the PRV opens and water is supplied from the upper pressure zone to the lower pressure zone. When the pressure in the lower zone returns to normal, the PRV then closes, separating the two zones once again.

There are currently 26 dead ends in the water system. There are no areas where the water goes stagnant within the water system. This is due to the District's Annual Uni-Directional Flushing Program.

Currently there are no new water connections being provided within the District and this is due to the lack of supply. The District does not anticipate any growth in its water system over the next year.

Improvement Action and Plans:

The District of Lantzville continues to update and upgrade the water infrastructure.

Scheduled for the 2011 construction season is:

- Replacement of the water main that runs along Lantzville Road from Dickenson Road to Tweedhope Road with 200mm PVC pipe, approximately 150 meters;
- Replace 50m of 100mm AC water main on Tremblay Drive with 150mm PVC;
- Replace 100 Residential Meters.

Water System Maintenance

Source:

Maintenance on the Wells and Kiosks is as follows:

- Back flush every 7 to 10 years
- Remove brush every 1 to 2 years
- Wire brush and re-paint piping every 5 to 10 years
- Visual check daily
- Annual water sample testing
- Raw Water Sampling Quarterly (E. Coli and Total Coliform)

Treatment:

Maintenance on the Chlorinator is as follows:

- Equipment taken apart and cleaned twice per year
- Hypochlorite solution is added once a week
- Chlorine levels are adjusted as needed

Reservoirs:

Maintenance on the Reservoirs is as follows:

- Drained and cleaned every five years
- Daily/Weekly/Monthly inspections of hatches and venting
- Concrete integrity
- Landscape

Distribution System:

Maintenance of the Distribution System is as follows:

- Entire system flush once per year
- Hydrant disassemble and re-assemble once per year
- Meter replacement
- Brush around hydrants as necessary
- Weekly water sample collecting
- Leak Detection Program

Water Sampling and Testing Program

As per the requirements of the Vancouver Island Health Authority, the District of Lantzville collects samples on a weekly basis for testing. The following tables show the results from the testing completed in 2010 on a weekly basis.

Monitoring for coliform/E-coli, as per Section 11 of the Act and Section 8 of the Water Regulations

6966 Seaside Terrace	Total Coliform	E-Coli
January 20/10	L1	L1
February 16/10	L1	L1
March 16/10	L1	L1
April 21/10	L1	L1
May 19/10	L1	L1
June 9/10	L1	L1
July 20/10	L1	L1
August 20/10	L1	L1
September 21/10	L1	L1
October 20/10	L1	L1
November 2/10	L1	L1
December 14/10	L1	L1
Total Positive	0	0

7536 Superior Road	Total Coliform	E-Coli
January 26/10	L1	L1
February 24/10	L1	L1
March 9/10	L1	L1
April 27/10	L1	L1
May 26/10	L1	L1
June 22/10	L1	L1
July 27/10	L1	L1
August 30/10	L1	L1
October 27/10	L1	L1
November 30/10	L1	L1
December 15/10	L1	L1
Total Positive	0	0

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7329 Millard Drive	Total Coliform	E-Coli
January 20/10	L1	L1
February 16/10	L1	L1
March 23/10	L1	L1
April 27/10	L1	L1
May 19/10	L1	L1
June 16/10	L1	L1
July 6/10	L1	L1
August 18/10	L1	L1
September 21/10	L1	L1
October 20/10	L1	L1
November 17/10	L1	L1
December 14/10	L1	L1
Total Positive	0	0

8020 Lantzville Rd	Total Coliform	E-Coli
January 26/10	L1	L1
February 10/10	L1	L1
March 2/10	L1	L1
April 14/10	L1	L1
May 19/10	L1	L1
June 2/10	L1	L1
July 13/10	L1	L1
August 10/10	L1	L1
September 21/10	L1	L1
October 5/10	L1	L1
November 2/10	L1	L1
December 14/10	L1	L1
Total Positive	0	0

7345 Venture Road	Total Coliform	E-Coli
January 26/10	L1	L1
February 24/10	L1	L1
March 23/10	L1	L1
April 21/10	L1	L1
May 26/10	L1	L1
June 9/10	L1	L1
July 20/10	L1	L1
August 25/10	L1	L1
September 14/10	L1	L1
October 27/10	L1	L1
November 9/10	L1	L1
December 7/10	L1	L1
Total Positive	0	0

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7192 Lantzville Road	Total Coliform	E-Coli
January 13/10	L1	L1
February 2/10	L1	L1
March 2/10	L1	L1
April 27/10	L1	L1
May 3/10	L1	L1
July 16/10	L1	L1
July 27/10	L1	L1
August 10/10	L1	L1
September 29/10	L1	L1
October 12/10	L1	L1
November 23/10	L1	L1
December 14/10	L1	L1
Total Positive	0	0

7430 Aulds Road	Total Coliform	E-Coli
January 13/10	L1	L1
February 2/10	L1	L1
March 9/10	L1	L1
April 7/10	L1	L1
May 12/10	L1	L1
June 9/10	L1	L1
July 6/10	L1	L1
August 10/10	L1	L1
September 14/10	L1	L1
October 12/10	L1	L1
November 17/10	L1	L1
December 14/10	L1	L1
Total Positive	0	0

7052 Caillet Road	Total Coliform	E-Coli
January 5/10	L1	L1
February 24/10	L1	L1
March 9/10	L1	L1
April 7/10	L1	L1
May 12/10	L1	L1
June 13/10	L1	L1
July 27/10	L1	L1
August 3/10	L1	L1
September 8/10	L1	L1
October 5/10	L1	L1
November 9/10	L1	L1

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December 7/10	L1	L1
Total Positive	0	0

6898 Harwood Drive	Total Coliform	E-Coli
January 5/10	L1	L1
February 10/10	L1	L1
March 16/10	L1	L1
April 14/10	L1	L1
May 12/10	L1	L1
June 3/10	L1	L1
July 2/10	L1	L1
August 3/10	L1	L1
September 8/10	L1	L1
October 5/10	L1	L1
November 9/10	L1	L1
December 7/10	L1	L1
Total Positive	0	0

Total Number of Samples = 108

Total Number of Positive Samples = 0

Annual Untreated Water Testing

The District, on a yearly basis, carries out a broader range of testing than is required on a weekly basis.

During the annual sampling, water is collected directly from the well prior to any treatment. These samples are then sent off to a lab that has the capability to carry out the full range of testing required.

The following report from North Island Labs is for the untreated water testing the District does on an annual basis. The following test results are for Wells 12 and 4. In 2011, the testing will be on Wells 6 and 9.



North Island Laboratories

• 2755 B Maray Avenue, Courtenay, B.C. V9N 8M9 Tel: (250) 338-7786 Fax: (250) 338-7553

Certificate of Analysis

Report To: District of Lantzville
Vince Coles

Lab Number: 80435
Date Reported: 21 May 10
Date Completed: 21 May 10
Date Received: 14 May 10 13:43

80435-01 Well #12 Lantzville W/S
Sampled By: Vince Coles
Sampling Date: 14 May 10 12:15

Test	Result	Units	Drinking Water Guideline
Conductivity	298	uS	
pH	7.3	pH Units	6.5-8.5
Total Organic Carbon	3.7	mg/L	
T-Aluminium	0.006	mg/L	0.1 Operational Std
T-Antimony	<0.0002	mg/L	0.006 MAC
T-Arsenic	<0.0002	mg/L	0.010 MAC
T-Barium	0.009	mg/L	1.0 MAC
T-Beryllium	<0.00004	mg/L	
T-Boron	0.107	mg/L	5 MAC
T-Bismuth	<0.001	mg/L	
T-Cadmium	<0.00001	mg/L	0.005 MAC
T-Calcium	29.6	mg/L	
T-Chromium	0.0008	mg/L	0.05 MAC
T-Cobalt	0.00003	mg/L	
T-Copper	0.002	mg/L	1.0 AO
T-Iron	<0.01	mg/L	0.3 AO
T-Lead	0.0003	mg/L	0.010 MAC
T-Lithium	0.001	mg/L	
T-Magnesium	9	mg/L	
T-Manganese	0.0009	mg/L	0.05 AO
T-Molybdenum	<0.0001	mg/L	
T-Nickel	<0.001	mg/L	
T-Phosphorus	<0.01	mg/L	
T-Potassium	0.6	mg/L	
T-Selenium	<0.0006	mg/L	0.01 MAC
T-Silicon	11.5	mg/L	
T-Silver	<0.00001	mg/L	

AO = Aesthetic Objective; MAC = Max. Allowable Concentration; IMAC = Interim MAC

> = Greater than; < = Less than

Results relate only to samples as submitted. This certificate must not be reproduced, except in its entirety, without written consent from the laboratory.

Canadian Drinking Water Guidelines as listed on Dec. 5th, 2005 and are subject to

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North Island Laboratories

• 2755 B Moray Avenue, Courtenay, B.C. V9N 8M9 Tel: (250) 338-7786 Fax: (250) 338-7553

80435-01 Well #12 Lantzville W/S

Sampled By: Vince Coles

Sampling Date: 14 May 10 12:15

Test	Result	Units	Drinking Water Guideline
T-Sodium	13.5	mg/L	200 AO
T-Strontium	0.102	mg/L	
T-Thallium	<0.00001	mg/L	
T-Tin	<0.0001	mg/L	
T-Titanium	<0.001	mg/L	
T-Uranium	<0.0004	mg/L	
T-Vanadium	0.0014	mg/L	
T-Zinc	0.004	mg/L	5.0 AO
Hardness (CaCO ₃)	110	mg/L	80-100
Turbidity	<0.5	NTU's	5 AO
UV Absorbance	0.007	cm(-1)	

80435-02 Well #4 Lantzville W/S

Sampled By: Vince Coles

Sampling Date: 14 May 10 12:10

Test	Result	Units	Drinking Water Guideline
Conductivity	228	uS	
pH	7.2	pH Units	6.5-8.5
Total Organic Carbon	6.9	mg/L	
T-Aluminium	0.005	mg/L	0.1 Operational Std
T-Antimony	<0.0002	mg/L	0.006 MAC
T-Arsenic	<0.0002	mg/L	0.010 MAC
T-Barium	0.01	mg/L	1.0 MAC
T-Beryllium	<0.00004	mg/L	
T-Boron	0.048	mg/L	5 MAC
T-Bismuth	<0.001	mg/L	
T-Cadmium	<0.00001	mg/L	0.005 MAC
T-Calcium	23.7	mg/L	
T-Chromium	0.0005	mg/L	0.05 MAC
T-Cobalt	0.00002	mg/L	
T-Copper	<0.001	mg/L	1.0 AO
T-Iron	0.137	mg/L	0.3 AO
T-Lead	<0.0001	mg/L	0.010 MAC

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North Island Laboratories

• 2755 B Moray Avenue, Courtenay, B.C. V9N 8M9 Tel: (250) 338-7786 Fax: (250) 338-7553

80435-02 Well #4 Lantzville W/S

Sampled By: Vince Coles

Sampling Date: 14 May 10 12:10

Test	Result	Units	Drinking Water Guideline
T-Lithium	0.002	mg/L	
T-Magnesium	7.35	mg/L	
T-Manganese	0.0023	mg/L	0.05 AO
T-Molybdenum	<0.0001	mg/L	
T-Nickel	<0.001	mg/L	
T-Phosphorus	0.011	mg/L	
T-Potassium	0.4	mg/L	
T-Selenium	<0.0006	mg/L	0.01 MAC
T-Silicon	11.4	mg/L	
T-Silver	<0.00001	mg/L	
T-Sodium	8.12	mg/L	200 AO
T-Strontium	0.073	mg/L	
T-Thallium	<0.00001	mg/L	
T-Tin	<0.0001	mg/L	
T-Titanium	0.002	mg/L	
T-Uranium	<0.0004	mg/L	
T-Vanadium	0.0014	mg/L	
T-Zinc	0.002	mg/L	5.0 AO
Hardness (CaCO ₃)	89	mg/L	80-100
Turbidity	0.9	NTU's	5 AO
UV Absorbance	0.006	cm(-1)	

80435-03 Ware Rd Pump Station Lantzville W/S

Sampled By: Vince Coles

Sampling Date: 14 May 10 11:55

Test	Result	Units	Drinking Water Guideline
Conductivity	255	uS	
pH	7.1	pH Units	6.5-8.5
Total Organic Carbon	4.5	mg/L	
T-Aluminium	<0.005	mg/L	0.1 Operational Std
T-Antimony	<0.0002	mg/L	0.006 MAC
T-Arsenic	<0.0002	mg/L	0.010 MAC
T-Barium	0.007	mg/L	1.0 MAC

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North Island Laboratories

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80435-03 Ware Rd Pump Station Lantzville W/S

Sampled By: Vince Coles

Sampling Date: 14 May 10 11:55

Test	Result	Units	Drinking Water Guideline
T-Beryllium	<0.00004	mg/L	
T-Boron	0.109	mg/L	5 MAC
T-Bismuth	<0.001	mg/L	
T-Cadmium	<0.00001	mg/L	0.005 MAC
T-Calcium	26	mg/L	
T-Chromium	0.0006	mg/L	0.05 MAC
T-Cobalt	0.00003	mg/L	
T-Copper	0.005	mg/L	1.0 AO
T-Iron	0.053	mg/L	0.3 AO
T-Lead	0.0001	mg/L	0.010 MAC
T-Lithium	0.001	mg/L	
T-Magnesium	8.24	mg/L	
T-Manganese	0.0005	mg/L	0.05 AO
T-Molybdenum	<0.0001	mg/L	
T-Nickel	<0.001	mg/L	
T-Phosphorus	0.012	mg/L	
T-Potassium	0.5	mg/L	
T-Selenium	<0.0006	mg/L	0.01 MAC
T-Silicon	11.3	mg/L	
T-Silver	<0.00001	mg/L	
T-Sodium	12.1	mg/L	200 AO
T-Strontium	0.086	mg/L	
T-Thallium	<0.00001	mg/L	
T-Tin	<0.0001	mg/L	
T-Titanium	<0.001	mg/L	
T-Uranium	<0.0004	mg/L	
T-Vanadium	0.0019	mg/L	
T-Zinc	0.006	mg/L	5.0 AO
Hardness (CaCO ₃)	99	mg/L	80-100
Turbidity	0.6	NTU's	5 AO
UV Absorbance	0.006	cm(-1)	

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