

November 28, 2017

File: 5630-55

Environmental Health Officer  
Central Vancouver Island Health Region  
1665 Grant Avenue  
NANAIMO BC V9S 5K7

**Re: South End Water System Water Quality Report  
Premises Number 1310818  
Report for the Period Jan 1/16 to Dec 31/16**

Please find the Municipality of North Cowichan's Water quality report for the Chemainus Water System attached.

Sincerely

Clay Reitsma, M. Eng., P. Eng  
Manager of Engineering (Infrastructure & Environment)

[clay.reitsma@northcowichan.ca](mailto:clay.reitsma@northcowichan.ca)



## 1 General

This report is comprised of two parts.

- The first part provides a summary of the data along with a compliance assessment. This part is provided to the VIHA and is also published on the Municipality's website at [www.northcowichan.ca](http://www.northcowichan.ca) on an annual basis.
- The second part includes all of the relevant data tables and charts that back up the summary report. Any data points that are non-compliant with the Canadian Drinking Water Quality Guidelines (CDWQGs) are flagged in red. This part is provided to the VIHA only but is available to the public upon request.

## 2 Operator Information

Contact Name	Clay Reitsma, M.Eng. , P.Eng.
Phone	250-746-3100
Email	<a href="mailto:clay.reitsma@northcowichan.ca">clay.reitsma@northcowichan.ca</a>

## 3 System Description

This is a groundwater supply. Water is pumped from the Boys Road wells.

## 4 Boil Advisories

None.

## 5 Future Improvements

A UV disinfection system has been installed and has been operating since June of 2013.

## 6 Additional Comments

Should you have any questions regarding this report, please do not hesitate to contact the Municipality at (250) 746-3100.

## 7 Results

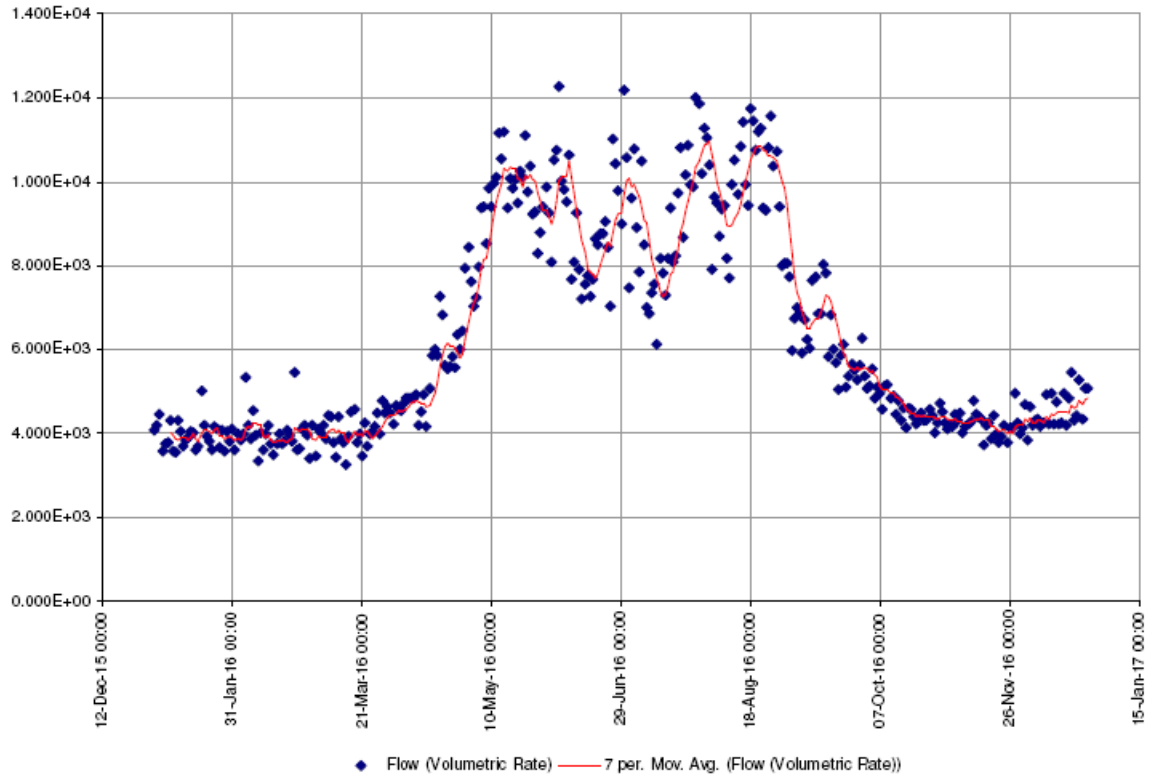
### 7.1 *Water Consumption*

**Table 1: Average daily water consumption by month and quarter.**

Item	Average Daily Consumption (m <sup>3</sup> /d)
<b>Observed</b>	
- Jan	3949
- Feb	3990
- Mar	4038
- Quarter 1	3992
<b>Observed</b>	
- Apr	5366
- May	9453
- Jun	9092
- Quarter 2	7987
<b>Observed</b>	
- Jul	9082
- Aug	9926
- Sep	6410
- Quarter 3	8495
<b>Observed</b>	
- Oct	4664
- Nov	4203
- Dec	4536
- Quarter 4	4467
<b>Annual</b>	6261

## Chart (CH-004)

Start Date: 01-Jan-2016 00:00:00  
End Date: 31-Dec-2016 23:59:59  
System: South End Drinking Water  
Sites: Boys Rd PS  
Project: Regular Sampling  
Parameter Class: Physical  
Parameters: Flow (Volumetric Rate) [m3/d]



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Figure 1: Average daily water consumption.

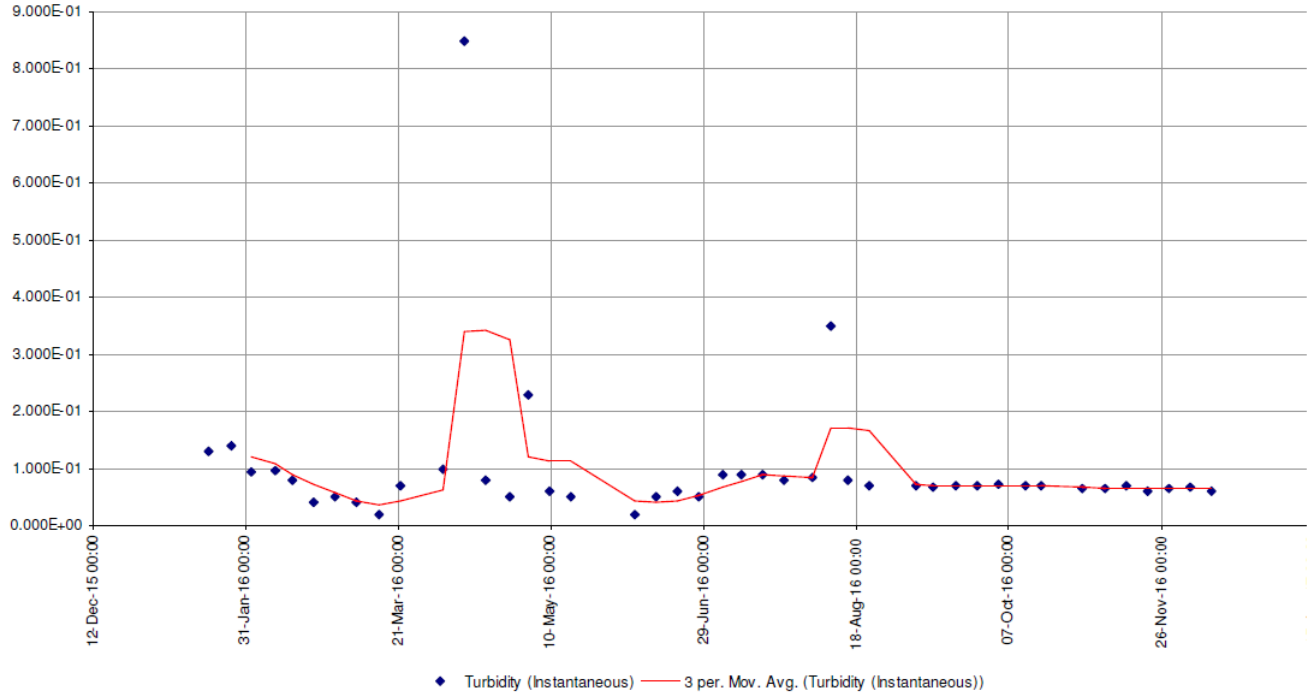
## 7.2 Turbidity

**Table 2: Finished water maximum turbidity by month and quarter.**

Item	Maximum (NTU)	Percent of Samples in Compliance (%)	
		100% <= 5 NTU	>95% <= 1 NTU (In A Month)
Compliance Requirement		100% <= 5 NTU	>95% <= 1 NTU (In A Month)
<b>Observed</b>			
- Jan	0.140	100.00	100.00
- Feb	0.096	100.00	100.00
- Mar	0.070	100.00	100.00
- Quarter 1	0.140	100.00	100.00
<b>Observed</b>			
- Apr	0.850	100.00	100.00
- May	0.230	100.00	100.00
- Jun	0.060	100.00	100.00
- Quarter 2	0.850	100.00	100.00
<b>Observed</b>			
- Jul	0.090	100.00	100.00
- Aug	0.350	100.00	100.00
- Sep	0.070	100.00	100.00
- Quarter 3	0.350	100.00	100.00
<b>Observed</b>			
- Oct	0.072	100.00	100.00
- Nov	0.070	100.00	100.00
- Dec	0.068	100.00	100.00
- Quarter 4	0.072	100.00	100.00
<b>Annual</b>		100.00	100.00

### Chart (CH-003)

Start Date: 01-Jan-2016 00:00:00  
End Date: 31-Dec-2016 23:59:59  
System: South End Drinking Water  
Project: Regular Sampling  
Parameter Class: Physical  
Parameters: Turbidity (Instantaneous) [NTU]



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Figure 2: Finished water turbidity.

## 7.3 Coliforms

**Table 3: Distribution system maximum total coliforms by quarter.**

Item	Maximum (CFU/100 mL)	Percentage of Samples in Compliance (%)	
		100% < 10 CFU/100 mL	>90% < 1 CFU/100 mL
CDWQG Requirement		100% < 10 CFU/100 mL	>90% < 1 CFU/100 mL
<b>Observed</b>			
- Quarter 1	14.00	97.96	83.67
- Quarter 2	90.00	95.12	85.37
- Quarter 3	72.00	92.86	61.90
- Quarter 4	330.00	74.36	53.85
<b>Annual</b>		90.64	71.93

**Table 4: Distribution system maximum *Escherichia* coliforms by quarter.**

Item	Maximum (CFU/100 mL)	Percentage of Samples in Compliance (%)
		100 % < 1 CFU/100 mL
CDWQG Requirements		100 % < 1 CFU/100 mL
<b>Observed</b>		
- Quarter 1	0.000	100.00
- Quarter 2	0.000	100.00
- Quarter 3	1.000	97.62
- Quarter 4	0.000	100.00
<b>Annual</b>	1.000	99.42

## 7.4 Cysts

**Table 5: Raw water maximum number of *Giardia* cysts by quarter.**

Item	Maximum (Cysts/100 L)	Percent of Samples in Compliance (%)
<b>Permit Requirements</b>		<b>100% = 0</b>
<b>Observed</b>		
- Quarter 1	0.000	100.00
- Quarter 2	No Data	No Data
- Quarter 3	No Data	No Data
- Quarter 4	No Data	No Data
<b>Annual</b>	0.000	100.00

**Table 6: Raw water maximum number of *Cryptosporidium* cysts by quarter.**

Item	Maximum (Cysts/100 L)	Percent of Samples in Compliance (%)
<b>Permit Requirements</b>		<b>100% = 0</b>
<b>Observed</b>		
- Quarter 1	0.000	100.00
- Quarter 2	No Data	No Data
- Quarter 3	No Data	No Data
- Quarter 4	No Data	No Data
<b>Annual</b>	0.000	100.00



## 7.6 *Miscellaneous Items*

**Table 8: Finished water miscellaneous parameters.**

Item	Compliance Assessment
Metals	All parameters meet CDWQG limits. Data is attached.
Microorganisms	No limits exist. Data is attached.
Algae	No limits exist. Data is attached.
PAH	All parameters meet CDWQG limits. Data is attached.
Chemical [1] [2]	All parameters meet the CDWQG limits with the exception of pH noted above. Data is attached.

[1] Compliance standards for miscellaneous chemicals and metals vary depending on the substance.

[2] There are no Minimum/Maximum Acceptable Concentration (MAC) limits for pH. There is only Aesthetic Objectives (AO) to keep the pH between 6.5 and 8.5.

## 8 Additional Comments

Should you have any questions regarding this report, please do not hesitate to contact the Municipality at (250) 746-3100.

Sincerely



Clay Reitsma, M.Eng., P.Eng.  
Manager of Engineering (Infrastructure & Environment)

cc: Robert Bell, Assistant Manager of Operations (Utilities)

CR/cr  
Enclosures