

November 5, 2019

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 1/18 to Dec 31/18**

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

Sincerely

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

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 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	clay.reitsma@northcowichan.ca

3 System Description

This is a groundwater supply. Water is pumped from the Boys Road wells. In 2018, Vancouver Island Health Authority amended the operating certificate for the South End Water System and the Municipality is now required to Chlorinate continuously to reduce bacterial growth in the distribution system.

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*

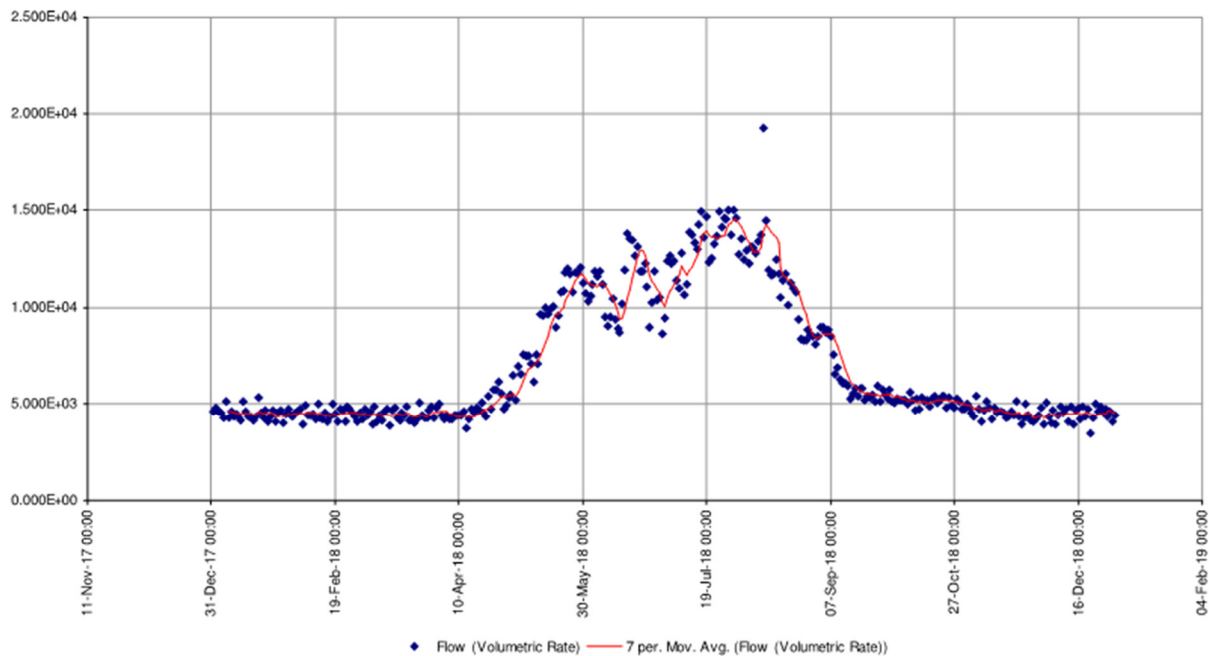
Table 1: Average daily water consumption by month and quarter.

Item	Average Daily Consumption (m ³ /d)
Observed	
- Jan	4520
- Feb	4843
- Mar	4449
- Quarter 1	4484
Observed	
- Apr	4772
- May	9170
- Jun	11066
- Quarter 2	8345
Observed	
- Jul	13053
- Aug	11625
- Sep	6474
- Quarter 3	10426
Observed	
- Oct	5164
- Nov	4560
- Dec	4493
- Quarter 4	4741
Annual	7009



Chart (CH-004)

Start Date: 01-Jan-2018 00:00:00
End Date: 31-Dec-2018 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.

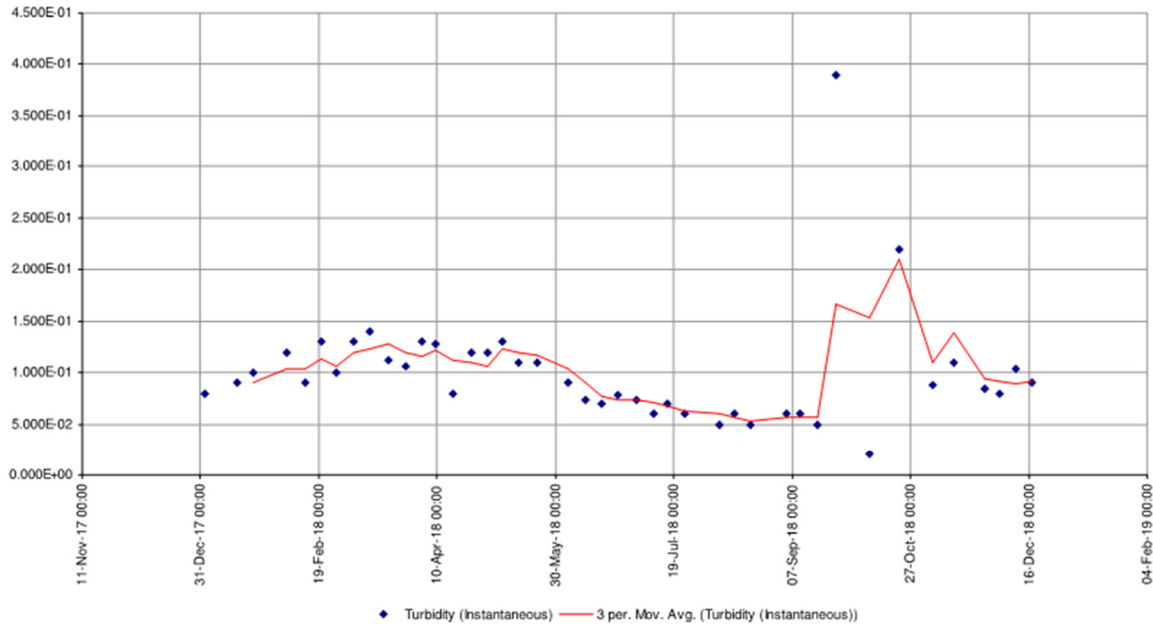
7.2 Turbidity

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)
Observed			
- Jan	0.100	100.00	100.00
- Feb	0.130	100.00	100.00
- Mar	0.140	100.00	100.00
- Quarter 1	0.140	100.00	100.00
Observed			
- Apr	0.130	100.00	100.00
- May	0.130	100.00	100.00
- Jun	0.090	100.00	100.00
- Quarter 2	0.130	100.00	100.00
Observed			
- Jul	0.073	100.00	100.00
- Aug	0.060	100.00	100.00
- Sep	0.390	100.00	100.00
- Quarter 3	0.390	100.00	100.00
Observed			
- Oct	0.220	100.00	100.00
- Nov	0.110	100.00	100.00
- Dec	0.104	100.00	100.00
- Quarter 4	0.220	100.00	100.00
Annual	0.390	100.00	100.00

Chart (CH-003)

Start Date: 01-Jan-2018 00:00:00
End Date: 31-Dec-2018 23:59:59
System: South End Drinking Water
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
Observed			
- Quarter 1	0.000	100.00	100.00
- Quarter 2	0.000	100.00	100.00
- Quarter 3	0.000	100.00	100.00
- Quarter 4	0.000	100.00	100.00
Annual	0.000	100.00	100.00

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

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

7.4 Cysts

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

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