

108 Waterworks Annual Report

In accordance with Interior Health Permit No. 14-124-00001 for 108 Waterworks; the following is an annual report on the status of the 108 Waterworks for the period of June 2020 to June 2021.

The report contains:

- An overview of maintenance for the system
- Average daily water flows
- Results of bacteriological and chemical water testing
- Groundwater Supply

Please forward questions or concerns to the Cariboo Regional District Environmental Services Department at (250) 392-3351 or 1-800-665-1636.

Electoral Areas

A – Red Bluff-Quesnel South • B – Quesnel West-Bouchie Lake-Ten Mile • C – Barlow-Bowron • D – Wildwood-McLeese Lake
E – Esler-Dog Creek • F – Horsefly-Likely-150 Mile House • G – Lac La Hache-108 Mile House • H – Canim Lake-Forest Grove
I – Narcosli-Nazko • J – West Chilcotin • K – East Chilcotin • L – Lone Butte-Interlakes

Municipalities

Quesnel • Wells • Williams Lake • 100 Mile House

108 Waterworks Maintenance Schedule

Inspect the total supply area for signs of leaks or abuse of the water system – weekly

Check pump houses to ensure proper operation of the pumps and automatic pump-up system – twice per week.

Service pumps including testing of any standby pumps, and any minor maintenance and cleanup – monthly.

Obtain water samples and deliver to Interior Health – monthly for bacteriological and yearly for chemical.

Clean inside of buildings, paint pipes as required and clear weeds around building annually or as required.

Check heating system in the pump houses during the winter months.

Twice per year, service all fire hydrants and standpipes and ensure clear access. Paint hydrants, standpipes and valve boxes as required.

Flush distribution pipelines 2 times per year and exercise all isolating gate valves.

Reservoirs are cleaned once per year in the spring.

Inspect storage tanks during winter months for any signs of freezing or icing problems. Clean, flush and disinfect annually.

As requested, test and inspect all new water connections, and attend to water service turn-off and turn-on.

Attend to unscheduled inspections, emergency calls and repairs as appropriate.

Inspect treatment plant daily and back wash bi-monthly.

2020/2021
108 Water System
Average Daily Water Flows

<u>Month</u>	<u>Cubic Meters</u>	<u>Imperial Gallons</u>
June	914	202,908
July	900	200,022
August	1081	240,204
September	865	192,030
October	650	144,300
November	608	134,976
December	586	130,092
January	604	134,088
February	622	138,084
March	605	136,530
April	759	168,496
May	994	220,890
June	1543	342,546

108 Waterworks

Microbiological Monthly Monitoring – June 2020 to June 2021

Month	Sampling Point	Total Coliforms Results	E. coli	Chlorine (Range) mg/L
June 2020	Kylo Road	< 1	< 1	0.07 - 0.28
	Easzee Drive	< 1	< 1	
	Kitwanga Place	< 1	< 1	
	Telkqua	< 1	< 1	
July 2020	Kylo Road	< 1	< 1	0.06 – 0.28
	Easzee Drive	< 1	< 1	
	Kitwanga Place	< 1	< 1	
	Telqua Drive	< 1	< 1	
	Sepa Well	< 1	< 1	
August 2020	Telqua Drive	< 1	< 1	0.03 – 0.37
	Kitwanga Place	< 1	< 1	
	Kylo Road	< 1	< 1	
	Easzee Drive	< 1	< 1	
	Sepa Well	< 1	< 1	
September 2020	Easzee Drive	< 1	< 1	0.01 – 0.39
	Kitwanga Place	< 1	< 1	
	Kylo Road	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
October 2020	Kylo Road	< 1	< 1	0.17 – 0.38
	Easzee Drive	< 1	< 1	
	Kitwanga Drive	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
November 2020	Kitwanga Drive	< 1	< 1	0.21 – 0.37
	Easzee Drive	< 1	< 1	
	Kylo Road	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
December 2020	Kylo Road	< 1	< 1	0.20 – 0.38
	Kitwanga Drive	< 1	< 1	
	Easzee Drive	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	

January 2021	Easzee Drive	< 1	< 1	0.16 – 0.35
	Kitwanga Place	< 1	< 1	
	Kylo Road	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
February 2021	Easzee Drive	< 1	< 1	0.14 – 0.33
	Kitwanga Place	< 1	< 1	
	Kylo Road	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
March 2021	Kylo Road	< 1	< 1	0.13 - 0.39
	Kitwanga Place	< 1	< 1	
	Easzee Drive	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
April 2021	Easzee Drive	< 1	< 1	0.17 – 0.39
	Kylo Road	< 1	< 1	
	Kitwanga Place	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
May 2021	Kitwanga Place	< 1	< 1	0.29 – 0.35
	Kylo Road	< 1	< 1	
	Easzee Drive	< 1	< 1	
	Telqua	< 1	< 1	
	Sepa Well	< 1	< 1	
June 2021	Telqua	< 1	< 1	0.25 – 0.36
	Easzee Drive	< 1	< 1	
	Kylo Road	< 1	< 1	
	Kitwanga Place	< 1	< 1	
	Sepa Well	< 1	< 1	

Bacteriological tests are performed routinely for total coliforms and E. coli. The water is considered safe when no sample contains more than 10 total coliform organisms per 100 ml and no E.coli is present.

**WATER QUALITY MONITORING
108 WATERWORKS
CHEMICAL ANALYSIS**

Parameters	Sampling Point	Maximum Acceptable Concentration (MAC) – limit	Aesthetic Objective (AO) - limit
Conventional Parameters			
PH, Laboratory	8.25 PH Units		6.5-8.5 PH units
True Color	<5 CU		15 CU
Turbidity	<0.10 NTU	1 NTU	≤ 5 NTU
Total Dissolved Solids	747 mg/L		500 mg/L
Hardness	574 mg/L		500 mg/L
Nitrite	<0.0050 mg/L	1 mg/L	
Total Metals Analysis			
Mercury	<0.0000107 mg/L	0.001 mg/L	
Arsenic	0.00178 mg/L	0.010 mg/L	
Barium	<.0122 mg/L	1 mg/L	
Boron	<0.081 mg/L	5 mg/L	
Cadmium	<0.0000050 mg/L	0.005 mg/L	
Chromium	<0.00050 mg/L	0.050 mg/L	
Lead	<0.000510 mg/L	0.0050 mg/L	
Selenium	<0.000087 mg/L	0.050 mg/L	
Uranium	0.00489 mg/L	0.020 mg/L	
Copper	0.0208 mg/L	2 mg/L	1 mg/L
Iron	<0.010 mg/L		0.3 mg/L
Manganese	<0.00016 mg/L	0.12 mg/L	0.02 mg/L
Zinc	<0.0070 mg/L		5 mg/L

CU = color units

NTU = nephelometric turbidity units

mg/L = milligrams per liter

< = less than detection limit

≤ Less than or equal to detection limit

ug/L = micrograms per liter

MAC – This standard sets the maximum acceptable concentration for various substances in the water. Concentration of a given substance above the MAC could be hazardous to health.

AO – This standard determines acceptable appearance (cloudiness), smell or taste of the water being tested.

108 WATERWORKS GROUNDWATER SUPPLY AND TREATMENT PLANT

Construction of the water treatment plant to remove Manganese was completed in June 2018. The new treatment plant is achieving greater than 95% removal of Manganese. Manganese concentration in raw water ranges between 0.4 mg/L and 0.5 mg/L and is about 0.015 mg/L after treatment. A new groundwater supply was drilled in November 2018, near the existing Well #2. The well was completed in the same aquifer as Well #2 and has similar water quality. The well was connected to the system in March of 2020.