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 2019 to June 2020.

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.

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.

2019/2020
108 Water System
Average Daily Water Flows

Month	Cubic Meters	Imperial Gallons
June	1378	305,916
July	972	215,784
August	1169	259,518
September	740	164,280
October	624	138,528
November	686	152,292
December	644	142,968
January	686	152,292
February	732	162,504
March	638	141,636
April	679	150,738
May	903	200,466
June	914	202,908

108 Waterworks
Microbiological Monthly Monitoring – June 2019 to June 2020

Month	Sampling Point	Total Coliforms Results	E. coli
June 2019	Kylo Road	< 1	< 1
	Easzee Drive	< 1	< 1
	Kitwanga Place	< 1	< 1
	Telkqua	< 1	< 1
July 2019	Kylo Road	< 1	< 1
	Easzee Drive	< 1	< 1
	Kitwanga Place	< 1	< 1
	Telqua Drive	< 1	< 1
	Sepa Well	< 1	<1
August 2019	Telqua Drive	< 1	< 1
	Kitwanga Place	< 1	< 1
	Kylo Road	< 1	< 1
	Easzee Drive	< 1	< 1
	Sepa Well	< 1	<1
September 2019	Easzee Drive	< 1	< 1
	Kitwanga Place	< 1	< 1
	Kylo Road	< 1	< 1
	Telqua	< 1	< 1
	Sepa Well	< 1	< 1
October 2019	Kylo Road	< 1	< 1
	Easzee Drive	< 1	< 1
	Kitwanga Drive	< 1	< 1
	Telqua	< 1	< 1
	Sepa Well	< 1	< 1
November 2019	Kitwanga Drive	< 1	< 1
	Easzee Drive	< 1	< 1
	Kylo Road	< 1	< 1
	Telqua	< 1	< 1
	Sepa Well	< 1	< 1
December 2019	Kylo Road	< 1	< 1
	Kitwanga Drive	< 1	< 1
	Easzee Drive	< 1	< 1
	Telqua	< 1	< 1
	Sepa Well	< 1	< 1
January 2020	Easzee Drive	< 1	< 1
	Kitwanga Place	< 1	< 1
	Kylo Road	< 1	< 1

January 2020 cont.	Telqua Sepa Well	< 1 < 1	< 1 < 1
February 2020	Easzee Drive Kitwanga Place Kylo Road Telqua Sepa Well	< 1 < 1 < 1 < 1 < 1	< 1 < 1 < 1 < 1 < 1
March 2020	Kylo Road Kitwanga Place Easzee Drive Telqua Sepa Well	< 1 < 1 < 1 < 1 < 1	< 1 < 1 < 1 < 1 < 1
April 2020	Easzee Drive Kylo Road Kitwanga Place Telqua Sepa Well	< 1 < 1 < 1 < 1 < 1	< 1 < 1 < 1 < 1 < 1
May 2020	Kitwanga Place Kylo Road Easzee Drive Telqua Sepa Well	< 1 < 1 < 1 < 1 < 1	< 1 < 1 < 1 < 1 < 1
June 2020	Telqua Easzee Drive Kylo Road Kitwanga Place Sepa Well	< 1 < 1 < 1 < 1 < 1	< 1 < 1 < 1 < 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 - Treatment Plant	Maximum Acceptable Concentration (MAC) – limit	Aesthetic Objective (AO) - limit
Conventional Parameters			
PH, Laboratory	8.08 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	723 mg/L		500 mg/L
Dissolved Chloride	76.9 mg/L		250 mg/L
Dissolved Sulphate	53.4 mg/L		500 mg/L
Hardness	483 mg/L		500 mg/L
Nitrite	<0.0050 mg/L	1 mg/L	
Total Metals Analysis			
Mercury	<0.00020 mg/L	0.001 mg/L	
Arsenic	0.00156 mg/L	0.010 mg/L	
Barium	<.020 mg/L	1 mg/L	
Boron	<0.10 mg/L	5 mg/L	
Cadmium	<0.00020 mg/L	0.005 mg/L	
Chromium	<0.0020 mg/L	0.050 mg/L	
Lead	<0.00070 mg/L	0.0050 mg/L	
Selenium	<0.0010 mg/L	0.050 mg/L	
Uranium	0.00499 mg/L	0.020 mg/L	
Copper	0.0300 mg/L	2 mg/L	1 mg/L
Iron	<0.030 mg/L		0.3 mg/L
Manganese	<0.0020 mg/L	0.12 mg/L	0.02 mg/L
Zinc	<0.050 mg/L		5 mg/L

CU = color units
mg/L = milligrams per liter
≤ Less than or equal to detection limit
NTU = nephelometric turbidity units
< = less than 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.