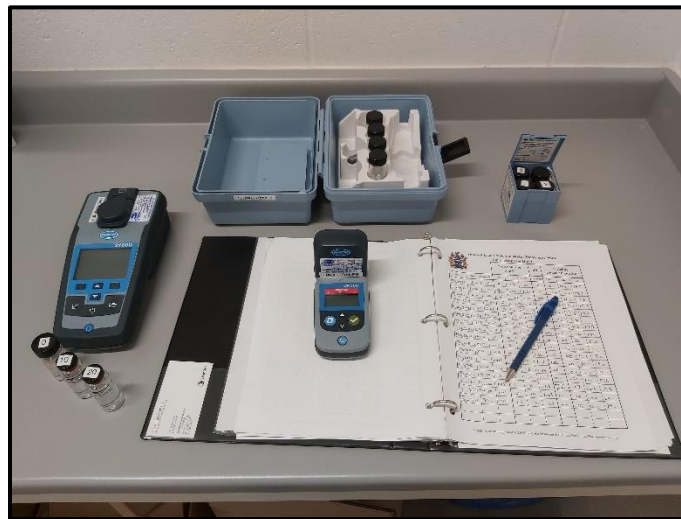




TOWN OF LAKE COWICHAN WATER TREATMENT PLANT



May 2021 Operations Performance Report



Permit to Operate

Operated water treatment plant under Operate Permit dated September 21, 2020.

Timeline

Monday, May 3 – Coolant heater for backup generator replaced. Alarm cleared.

Tuesday, May 11 – Monthly sampling (Al, N, P and microcystin).

Friday, May 14 – Chlorine colorimeter and turbidity meters sent to Hach for annual calibration.

Tuesday, May 25 – Soda ash restarted.

Monday, May 31 – Cleaned drums, removed labels and placed on pallets.

Performance Standards

The Operating Permit for the Town of Lake Cowichan Water System dated October 21, 2020 stipulates the following performance requirements:

PARAMETER	GUIDELINE	
Turbidity	≤ 0.3 NTU in ≥ 95% of samples Never to exceed 1 NTU	
<i>Giardia and Cryptosporidium</i>	2.5-Log (99.7%) removal coagulation, flocculation and filtration 1-Log (90%) inactivation via UV	
Viruses	1-Log (90%) removal coagulation, flocculation and filtration 3-Log (99.9%) inactivation via UV	
Free Available Chlorine	Sufficient for CT _{CALC} and not to exceed 4.0 mg/L	
Trihalomethane (THM)	≤ 0.100 mg/L	
Haloacetic Acid (HAA)	≤ 0.080 mg/L	
Total Aluminum	≤ 0.1 mg/L	
pH	Be between 7.0 and 10.5	
Microcystin-LR	≤ 1.5 µg/L	
15	4	30
20	3	22
25	2	15

Conclusion: Our retention time of 364.8 minutes • mg/L is 57-fold that as required for 4-Log virus removal as per **Error! Reference source not found.** above.



Water Quality Results

Monthly Testing Results

	Raw Al (mg/L)	Treated Al (mg/L)	TN (mg/L)	TP (µg/L)	Microcystin (µg/L)	THM (µg/L)	HAA (µg/L)
<i>OG/MAC</i>		<i>0.10</i>				<i>100</i>	<i>80.0</i>
Oct 27, 2020	-	0.049	0.047	4.70	0.06	20.4	10.71
Nov 24, 2020	-	0.157	-	-	-	-	-
Dec 08, 2020	-	0.264	0.380	2.47	-	-	-
Jan 05, 2021	0.190	0.196	0.175	3.70	0.00	27.3	10.9
Jan 19, 2021	0.104	0.129	-	-	-	-	-
Feb 16, 2021	0.095	0.136	0.111	4.50	0.00	-	-
Mar 02, 2021	0.136	0.242	0.069	23.50	0.00	29.6	2.29
Mar 16, 2021	0.129	0.171	-	-	-	-	-
Mar 31, 2021	0.125	0.352	-	-	-	-	-
Apr 13, 2021	0.130	0.255	0.011	8.00	0.00	<0.100	<0.100
May 11, 2021	0.119	0.171	0.034	-	-	-	-

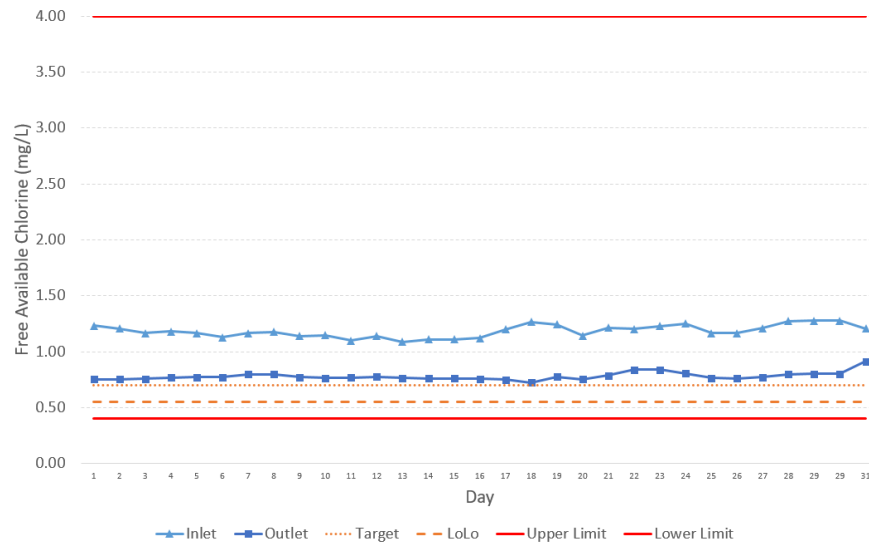
Discussion on Aluminum

Aluminum results are above the maximum operating guideline (OG) as stipulated in the Operating Permit. The coagulant used in the Town of Lake Cowichan water treatment plant is polyaluminum chloride (PAC) which uses aluminum as the positive charge in the coagulation process to achieve low turbidity. Zeta potential tests are used to maintain coagulation dosages at the low end of the effective curve. For the month of May a zeta potential of below -12 mV was targeted.

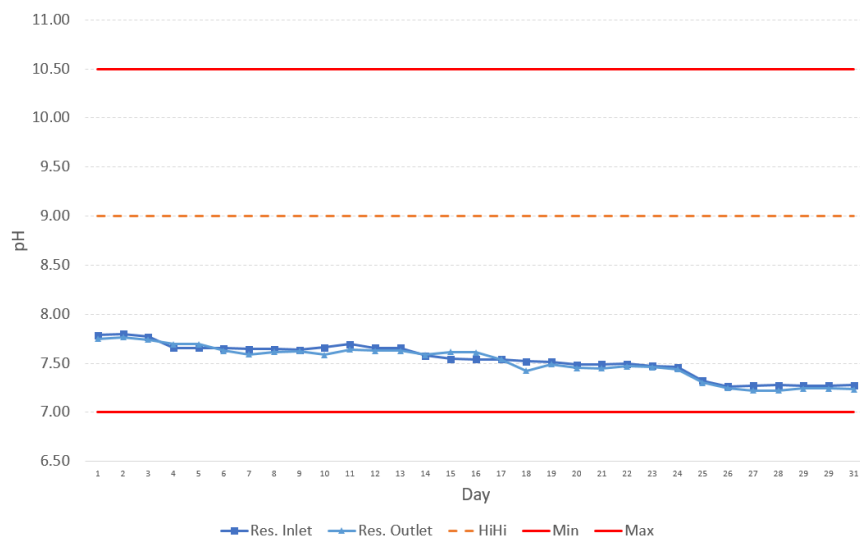


Individual Parameter Charts

Free Available Chlorine (May 2021)
Source: SCADA Daily Averages



Reservoir pH (May 2021)
Source: SCADA Daily Averages



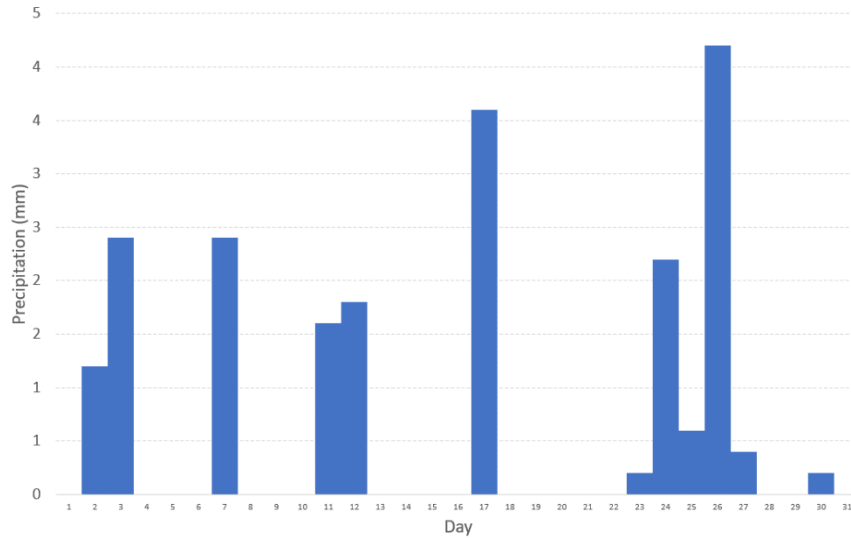


TOWN OF LAKE COWICHAN WATER TREATMENT REPORT

MAY 2021

Total Precipitation (May 2021)

Source: Environment Canada - North Cowichan Station



Turbidity (May 2021)

Source: SCADA Daily Averages

