



LAKE COUNTRY
Life. The Okanagan Way.

Water Quality Summary January 2021

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Water Quality Advisory:

- Beaver Lake Source (Beaver Lake Source (also supplying Okanagan Lake Distribution lines)
- Oyama Lake Source (Off line– Kalamalka Lake Primary supply)

1.0 Bacteriological

Fourteen (14) bacteriological samples membrane filtration (MF) and seven (7) Presence Absence (P/A) tests were collected in January from the Winfield Okanagan Centre Water System (Beaver Lake) all of which were negative for E.coli. One Positive result for total coliforms was detected on the Copper Hill Site. This site was flushed in December and resampled twice following low positive total coliform counts in that month. Three other locations were sampled prior to this site as well with no detection of coliforms. Residual is high, turbidity is low and a thorough drive through the neighbourhood investigating possible cross contamination locations was completed at each visit finding no obvious potential sites. Follow up samples returned negative results.

Eight (8) MF and four (4) P/A bacteriological samples were collected in January from the Oyama water system (Kalamalka Lake). All samples collected were negative for total coliforms and E.coli.

Four (4) MF and two (2) P/A bacteriological samples were collected in January from the Coral Beach water system (Okanagan Lake). All samples collected were negative for total coliforms and E.coli.

Four (4) MF and three (3) P/A bacteriological samples were collected in January from the Lake Pine water system (Okanagan Lake). All samples collected were negative for total coliforms and E.coli

Results for all bacteriological samples are reported in Tables 1 and 2. Water quality results for physical and chemical parameters tested are in Table 3.

LAKE COUNTRY

Water System, Source	Tests (MF / P/A)
Lake Country Water System, Beaver Lake Source:	14/7
Lake Country Water System, Kalamalka Lake Source:	8/4
Coral Beach Water System, Okanagan Lake Source:	4/2
Lake Pine Water System, Okanagan Lake Source:	4/3

Table 1. Bacteriological Results

Winfield Okanagan & Oyama Water Systems	Source	Total Coliforms CFU/100mL	E.coli CFU/100mL	Dates Sampled
Arena Sink	Beaver Lake	<1	<1	13
Arena Fountain	Beaver Lake	<1	<1	13
Copper Hill	Beaver Lake	77	<1	11
Copper Hill	Beaver Lake	<1	<1	13
Cooney	Beaver Lake	<1	<1	11
Cornwall	Kalamalka Lake	<1	<1	19
Easthill off Todd Rd.	Kalamalka Lake	<1	<1	12
Evans	Kalamalka Lake	<1	<1	13
Glenmore	Beaver Lake	<1	<1	11, 18
Glenmore – OK Lake Side	Beaver Lake	<1	<1	13
Jardine Pump House	Beaver Lake	<1	<1	18
Kal Pump House	Kalamalka Lake	<1	<1	12, 19
Lakes Lower Reservoir	Beaver Lake	<1	<1	18
Northview	Beaver Lake	<1	<1	18
Oyama Road North	Kalamalka Lake	<1	<1	19
Oyama Road South	Kalamalka Lake	<1	<1	12
Ponderosa Pump House	Beaver Lake	<1	<1	25
Pow Road	Beaver Lake	<1	<1	11
Todd Road	Kalamalka Lake	<1	<1	19
WWTP Sink	Beaver Lake	<1	<1	13
Coral Beach Water System	Source	Total Coliforms CFU/100mL	E.Coli CFU/100mL	Dates Sampled
Coral Beach South End B/O	Okanagan Lake	<1	<1	14, 20
Coral Beach Pumphouse	Okanagan Lake	<1	<1	14, 20
Lake Pine Water System	Source	Total Coliforms CFU/100mL	E.Coli CFU/100mL	Dates Sampled
Lake Pine Pump House	Okanagan Lake	<1	<1	12, 20
Lake Pine Upper Reservoir	Okanagan Lake	<1	<1	12
Lake Pine PR Station	Okanagan Lake	<1	<1	20



Table 2. Bacteriological Results-Presence/Absence

System/Site	Source	Total Coliforms	E.coli	Dates Sampled
District of Lake Country				
Lakes Upper Reservoir	Beaver Lake	<1	<1	4
Camp Road Shop	Beaver Lake	<1	<1	4
Arena Fountain Changeroom #1	Beaver Lake	<1	<1	13
Arena	Beaver Lake	<1	<1	13
Copperhill	Beaver Lake	<1	<1	13
WWTP	Beaver Lake	<1	<1	13
Pow Road	Beaver Lake	<1	<1	26
Oyama Intake Reservoir	Kalamalka Lake	<1	<1	5
Kal Pump Station	Kalamalka Lake	<1	<1	5, 26
Evans Road	Kalamalka Lake	<1	<1	12
Coral Beach Water System				
Coral Beach South End	Okanagan Lake	<1	<1	6, 27
Lake Pine Water System				
Lake Pine Pump House	Okanagan Lake	<1	<1	5
Lake Pine Upper Reservoir	Okanagan Lake	<1	<1	5
Lake Pine PR Station	Okanagan Lake	<1	<1	27

2.0 Chemical and Physical Parameters

Table 3 contains monthly water chemistry data collected at sites using the water quality hand-held equipment.

Table 3. Water Quality: Chemical & Physical Parameters

Lake Country Water System	Avg. Chlorine Residual	Avg. Turbidity (NTU)	Avg. Temp. (°C)	Avg. pH	Avg. Cond. (µS/cm)	*Apparent colour	Hardness mg/L CaCO3
Beaver Lk.-DS.	1.28	0.50	5.8	7.0	89		
Beaver Lk-Raw		0.57	2.5	7.5	29		
Kal Lk – D.S.	1.65	0.35	5.9	8.2	402		
Kal Lk – Raw		0.32	6.0	8.1	393	<5	
Coral Beach Water System							
Ok.Lk – D.S.	1.22	0.25	6.7	7.9	357		
Ok.Lk -Raw		0.32	7.0	8.0	276	<5	
Lake Pine Water System							
OK Lake – D.S.	1.27	0.24	6.1	7.9	331		
OK Lake - Raw		0.23	10.6	8.0	282	<5	

**True Colour results for Raw Water



3.0 Notable Events:

None.

4.0 Supervisory Control And Data Acquisition (SCADA)Summary

The SCADA reporting is currently unavailable as we are undergoing SCADA system upgrades. Once this spreadsheet data is available it will be updated into this report and reposted. At all times all systems remain under active monitoring and will alarm if any water quality parameter exceeds the set-point limit.

Eldorado SCADA Report

Date	Turbidity				Residual Chlorine (outlet)		
	Inlet		Outlet		Minimum (PPM)	Maximum (PPM)	Average (PPM)
	Maximum (NTU)	Average (NTU)	Maximum (NTU)	Average (NTU)			
January 1	0.60	0.47	0.58	0.57	1.88	3.15	2.31
January 2	0.62	0.46	0.57	0.55	1.70	3.35	2.12
January 3	0.63	0.46	0.56	0.56	1.78	3.05	2.23
January 4	0.51	0.43	0.80	0.46	1.73	3.32	2.21
January 5	0.57	0.42	0.50	0.46	1.95	3.46	2.46
January 6	0.58	0.44	0.51	0.48	1.89	3.74	2.46
January 7	0.54	0.44	0.86	0.52	2.03	3.39	2.49
January 8	0.80	0.47	0.51	0.45	1.99	3.39	2.40
January 9	0.54	0.44	0.54	0.52	1.84	3.47	2.40
January 10	0.60	0.46	0.56	0.54	1.67	3.42	2.36
January 11	0.50	0.42	0.57	0.48	2.05	3.79	2.71
January 12	0.63	0.44	0.55	0.51	2.04	3.53	2.52
January 13	0.64	0.50	1.11	0.54	2.32	3.74	2.78
January 14	0.55	0.50	0.48	0.46	2.21	3.72	2.74
January 15	0.61	0.50	0.48	0.48	2.34	3.86	2.84
January 16	0.56	0.47	0.48	0.48	2.24	4.06	2.76
January 17	0.57	0.47	0.51	0.46	2.26	3.65	2.61
January 18	0.57	0.43	0.59	0.43	1.97	3.75	2.56
January 19	0.58	0.45	0.49	0.47	2.07	3.58	2.67
January 20	19.92	0.49	19.97	0.47	1.89	3.18	2.27
January 21	0.52	0.44	0.46	0.44	1.66	3.12	2.19
January 22	1.50	0.58	0.48	0.46	1.37	3.12	1.96
January 23	8.18	0.59	0.48	0.46	1.50	2.98	2.05
January 24	1.42	0.63	0.47	0.44	1.53	2.96	2.04
January 25	0.75	0.57	0.63	0.44	1.66	2.84	2.08
January 26	6.97	0.64	0.51	0.48	1.71	2.87	2.10
January 27	14.99	0.57	0.65	0.48	1.66	2.75	2.05
January 28	0.57	0.47	0.48	0.48	1.56	2.80	1.95
January 29	0.57	0.45	0.53	0.50	1.58	2.49	1.89
January 30	0.60	0.44	0.55	0.53	1.39	2.28	1.72
January 31	0.61	0.40	0.56	0.53	0.10	1.54	1.08

Elevated results on highlighted days are from maintenance and alarm testing only.



Oyama Chlorination Facility/Reservoir SCADA Report

For the Oyama Creek Intake SCADA Excel reporting is currently in process of being updated for inclusion in future monthly reports. Even though we are unable to generate a report at this time this chlorination facility is under 24 hr surveillance through our SCADA and alarms will engage should a condition exceed the set limit .



Kalamalka Pumphouse SCADA Report

Date	Station Flow	Residual Free Chlorine			Turbidity		Runtime Hours			
	Total (m3)	Min (PPM)	Max (PPM)	Avg (PPM)	Max (PPM)	Avg (PPM)	Pump 1	Pump 2	Pump 3	Pump 4
January 1	74.8	1.14	7.96	1.82	0.39	0.28	33.0	0.0	0.0	0.0
January 2	125.7	1.01	6.91	1.84	0.37	0.28	33.0	0.0	0.0	0.0
January 3	122.8	1.11	8.35	1.85	0.37	0.27	33.0	0.0	0.0	0.0
January 4	58.0	1.01	6.47	1.85	0.37	0.27	33.0	0.0	0.0	0.0
January 5	109.8	0.99	10.92	2.24	0.36	0.28	33.0	0.0	0.0	0.0
January 6	125.2	1.16	10.02	2.30	0.38	0.27	33.0	0.0	0.0	0.0
January 7	35.4	1.33	8.14	1.94	0.37	0.27	33.0	0.0	0.0	0.0
January 8	91.9	1.18	7.79	1.79	0.37	0.25	33.0	0.0	0.0	0.0
January 9	131.2	1.28	6.82	1.84	0.36	0.26	33.0	0.0	0.0	0.0
January 10	114.6	1.20	7.32	1.75	0.39	0.26	33.0	0.0	0.0	0.0
January 11	43.1	1.54	7.39	2.27	0.40	0.26	33.0	0.0	0.0	0.0
January 12	121.1	0.11	9.99	2.32	0.43	0.30	33.0	0.0	0.0	0.0
January 13	116.5	1.64	2.79	2.11	10.00	0.27	46.0	0.0	0.0	0.0
January 14	63.6	0.96	7.39	1.72	0.52	0.24	111.0	0.0	0.0	0.0
January 15	89.5	1.24	4.36	1.83	0.47	0.26	121.5	0.0	0.0	0.0
January 16	125.4	0.96	7.11	1.76	0.48	0.26	128.0	0.0	0.0	0.0
January 17	87.5	1.13	7.98	1.77	0.43	0.25	128.0	0.0	0.0	0.0
January 18	59.6	1.31	7.33	1.76	0.54	0.24	128.0	0.0	0.0	0.0
January 19	131.1	0.11	9.30	2.09	0.53	0.25	128.0	0.0	0.0	0.0
January 20	110.3	1.15	8.53	2.16	0.47	0.26	128.0	0.0	0.0	0.0
January 21	53.6	0.93	10.07	1.93	0.40	0.24	128.0	0.0	0.0	0.0
January 22	105.3	1.15	8.03	1.95	0.47	0.26	128.0	0.0	0.0	0.0
January 23	130.9	1.12	8.75	1.87	0.45	0.26	128.0	0.0	0.0	0.0
January 24	78.6	1.07	7.57	1.69	0.41	0.24	128.0	0.0	0.0	0.0
January 25	67.7	1.25	7.80	1.88	0.48	0.25	128.0	0.0	0.0	0.0
January 26	128.0	1.03	8.65	1.94	0.54	0.26	128.0	0.0	0.0	0.0
January 27	108.3	1.19	7.42	1.81	0.50	0.23	128.0	0.0	0.0	0.0
January 28	58.4	-0.01	7.80	1.76	0.39	0.22	128.0	0.0	0.0	0.0
January 29	111.8	1.02	7.61	1.78	0.43	0.23	128.0	0.0	0.0	0.0
January 30	126.1	1.14	6.43	1.64	0.40	0.23	128.0	0.0	0.0	0.0
January 31	59.6	1.07	7.83	1.72	0.42	0.22	128.0	0.0	0.0	0.0

January 28th maintenance and alarm testing only.



Coral Beach Pumphouse SCADA Report

	Total (m3)	Min (pH)	Max (pH)	Avg (pH)	Min (PPM)	Max (PPM)	Avg (PPM)	Min (PPM)	Max (PPM)	Avg (PPM)	Total (Hrs)	Total (Hrs)
January 1	29.0	7.53	8.23	8.18	0.28	3.24	2.10	0.01	0.02	0.02	0.00	2.25
January 2	56.7	7.54	8.19	8.15	0.62	3.58	2.13	0.01	0.01	0.01	0.00	4.38
January 3	40.1	7.51	8.18	8.15	0.27	3.42	2.17	0.01	0.01	0.01	0.00	3.08
January 4	36.1	7.55	8.21	8.16	0.34	2.74	1.89	0.01	0.01	0.01	0.00	2.74
January 5	46.2	7.55	8.18	8.14	0.56	3.40	1.96	0.01	0.01	0.01	0.00	3.57
January 6	46.4	7.56	8.17	8.13	0.55	3.02	2.18	0.01	0.01	0.01	0.00	3.58
January 7	51.3	7.49	8.20	8.08	0.32	3.95	2.03	0.01	0.05	0.01	0.00	3.97
January 8	17.3	7.51	8.20	8.15	0.22	3.14	1.82	0.01	0.01	0.01	0.00	1.39
January 9	41.3	7.48	8.20	8.16	0.21	3.72	1.91	0.01	0.01	0.01	0.00	3.13
January 10	50.8	7.55	8.18	8.15	0.55	2.97	1.86	0.01	0.01	0.01	0.00	3.93
January 11	36.6	7.48	8.17	8.14	0.21	3.90	1.78	0.01	0.01	0.01	0.00	2.85
January 12	41.0	7.52	8.18	8.08	0.63	2.87	1.72	0.01	0.01	0.01	0.00	3.17
January 13	8.2	7.49	8.18	8.15	0.41	3.80	1.68	0.01	0.01	0.01	0.00	0.64
January 14	35.2	7.49	8.16	8.03	0.59	3.92	2.06	0.01	0.11	0.01	0.00	2.77
January 15	18.5	7.49	8.13	8.03	0.48	3.79	1.59	0.01	0.02	0.01	0.00	1.46
January 16	41.7	7.45	8.15	8.05	0.23	4.09	1.69	0.01	0.02	0.01	0.00	3.21
January 17	37.7	7.44	8.19	8.12	0.18	4.33	1.75	0.01	0.02	0.01	0.00	3.06
January 18	27.1	7.44	8.19	8.07	0.16	3.69	1.56	0.01	0.02	0.01	0.00	2.07
January 19	83.3	7.45	8.12	8.05	0.41	4.99	1.71	0.01	0.49	0.01	0.00	6.43
January 20	39.1	7.43	8.16	7.99	0.38	3.71	1.76	0.01	0.02	0.01	0.00	3.04
January 21	33.5	7.44	8.17	8.04	0.24	3.38	1.55	0.01	0.01	0.01	0.00	2.51
January 22	31.6	7.44	8.17	8.12	0.19	2.99	1.61	0.01	0.03	0.01	0.00	2.47
January 23	41.2	7.49	8.17	8.10	0.40	2.89	1.62	0.01	0.02	0.01	0.00	3.24
January 24	57.9	7.42	8.13	8.04	0.17	3.80	1.54	0.01	0.02	0.01	0.00	4.49
January 25	25.9	7.44	8.15	8.07	0.31	2.59	1.50	0.01	0.02	0.01	0.00	2.02
January 26	30.6	7.43	8.14	8.07	0.30	2.53	1.44	0.01	0.01	0.01	0.00	2.37
January 27	30.3	4.21	10.08	8.10	0.17	4.99	1.50	0.01	0.99	0.02	0.00	2.34
January 28	40.5	7.41	8.13	8.05	0.13	2.56	1.33	0.01	0.01	0.01	0.00	3.29
January 29	44.0	7.45	8.13	8.08	0.16	3.38	1.41	0.01	0.01	0.01	0.00	3.49
January 30	41.4	7.48	8.13	8.09	0.30	2.61	1.27	0.01	0.01	0.01	0.00	3.27
January 31	56.6	7.44	8.12	8.03	0.27	2.18	1.32	0.01	0.01	0.01	0.00	4.37

January 27th water quality equipment maintenance and testing only. Low/elevated chlorinated residuals are instantaneous drop and recovery at pumpstart

Lake Pine SCADA Report

Date	Flow	Turbidity		Injection Residual Chlorine			Flow	Distribution Residual Chlorine		
	Total (m3)	Max (NTU)	Avg (NTU)	Min (PPM)	Max (PPM)	Avg (PPM)	Total (m3)	Min (PPM)	Max (PPM)	Avg (PPM)
January 1	52.7	0.31	0.30	0.76	1.15	0.78	77.0	0.73	0.91	0.82
January 2	104.4	0.32	0.31	0.43	2.55	0.69	77.0	0.50	0.73	0.64
January 3	52.2	0.33	0.32	0.39	1.25	0.41	60.0	0.43	0.55	0.47
January 4	200.2	0.34	0.27	0.18	4.29	1.54	228.1	0.33	4.99	1.27
January 5	200.2	0.18	0.16	1.11	2.27	1.44	228.1	1.14	1.43	1.31
January 6	106.0	0.12	0.12	1.05	4.68	1.70	135.8	0.89	1.84	1.17
January 7	106.0	0.12	0.12	1.36	3.01	1.89	135.8	1.40	1.71	1.57
January 8	105.6	0.12	0.12	1.20	5.00	1.80	132.4	1.22	2.08	1.44
January 9	146.1	0.12	0.12	1.85	5.00	2.76	132.4	1.63	1.97	1.80
January 10	0.0	0.12	0.12	1.66	1.85	1.74	44.2	1.38	1.68	1.59
January 11	70.9	0.12	0.12	1.62	3.87	2.18	92.5	1.66	1.95	1.83
January 12	70.9	0.12	0.12	1.41	1.62	1.54	92.5	1.38	1.66	1.57
January 13	105.1	0.17	0.13	1.38	4.36	1.73	143.5	1.24	1.86	1.46
January 14	115.9	0.17	0.17	1.65	4.10	2.46	143.5	1.55	2.13	1.85
January 15	87.3	0.17	0.14	1.43	3.96	1.73	124.0	1.06	1.83	1.36
January 16	104.5	0.12	0.12	1.57	3.91	2.30	124.0	1.41	2.01	1.78
January 17	105.1	0.12	0.12	1.41	5.00	1.89	136.9	0.99	2.01	1.34
January 18	105.1	0.12	0.12	1.56	3.27	2.06	136.9	1.50	1.97	1.81
January 19	0.0	0.12	0.12	0.00	1.56	1.49	37.4	0.00	1.50	1.25
January 20	91.1	0.12	0.12	1.44	4.24	2.28	115.9	1.42	1.95	1.81
January 21	91.1	0.12	0.12	1.47	4.97	1.76	115.9	0.93	1.99	1.45
January 22	104.1	0.12	0.12	1.60	3.74	2.17	86.6	1.67	2.04	1.86
January 23	104.1	0.12	0.12	1.43	5.00	1.82	104.6	0.90	2.06	1.45
January 24	104.1	0.12	0.12	1.58	4.29	2.08	104.6	1.68	2.06	1.84
January 25	104.5	0.12	0.12	1.37	4.51	1.83	134.0	0.93	1.93	1.50
January 26	104.5	0.12	0.12	1.51	2.89	1.97	134.0	1.58	1.89	1.74
January 27	105.1	0.12	0.12	1.43	4.79	1.85	138.1	0.90	1.92	1.40
January 28	105.1	0.12	0.12	1.41	2.82	1.90	138.1	1.54	1.82	1.70
January 29	104.7	0.12	0.12	1.35	4.64	1.91	138.0	0.87	2.14	1.41
January 30	104.7	0.12	0.12	1.65	3.41	2.25	138.0	1.77	2.08	1.95
January 31	105.2	0.12	0.12	1.49	4.97	2.29	138.1	1.00	2.43	1.69

Power interruption No flow during this time follow with alarm testing and mainteance only at all time chlorinated water was entering distribution system.

