REGIONAL DISTRICT NORTH OKANAGAN

Greater Vernon Water (GVW) Water Quality Report for April 2026

The following is the water quality summary for the Greater Vernon Water (GVW) utility.

1. Potable Sources

GVW has two sources that are routinely used for potable water. The two sources are Duteau Creek and Kalamalka Lake. Raw (untreated) water samples are taken at the intakes of Duteau Creek and Kalamalka Lake once per week. Two additional groundwater sources, Antwerp Deep Well and Ranch Well 3, may also be used in emergency situations or when there is additional demand to the system. Tables 1 and 2 summarize the results for bacteria and turbidity for the potable water sources in use.

Table 1 Duteau Creek Intake

Parameter	Laboratory		# of Samples	# of Deviations	Min	Max	Average[4]
E.coli[2]	RDNO Lab	MPN/100 mL	8[5]	-----	1	8.6	3.7
Total Coliform	RDNO Lab	MPN/100 mL	8[5]	-----	56.3	195.6	117.9
Turbidity	Operator Grab Samples	NTU	4	-----	1.59	2.83	2.20
Turbidity	SCADA[1] Daily Average[3]	NTU	30 Days	-----	0.74	2.01	1.24

[1]SCADA: Supervisory Control and Data Acquisition.
[2]Drinking Water Treatment Objectives (Microbilological) for Surface Water Supplies in British Columbia (Sec 4.3): The number of E. coli in raw water samples should not exceed 20/100 mL in at least 90% of the weekly samples from the previous six months.
[3]SCADA data for this online anazlyer is a 24 hour average of readings taken every 10 minutes
[4]Non detect values are used at ½ the reporting limit for average calculations.
[5]Each sample includes at least one duplicate sample taken for quality assurance purposes.

Table 2 Kalamalka Lake Intake

Parameter	Laboratory		# of Samples	# of Deviations	Min	Max	Average[4]
E.coli[2]	RDNO Lab	MPN/100 mL	8[5]	-----	<1	1.0	<1
Total Coliform	RDNO Lab	MPN/100 mL	8[5]	-----	<1	2.0	1.0
Turbidity	Operator Grab Samples	NTU	4	-----	0.77	0.97	0.84
Turbidity	SCADA[1] Average[3]	NTU	30 Days	-----	0.40	0.72	0.49

[1]SCADA: Supervisory Control and Data Acquisition.
[2]Drinking Water Treatment Objectives (Microbilological) for Surface Water Supplies in British Columbia (Sec 4.3): The number of E. coli in raw water samples should not exceed 20/100 mL in at least 90% of the weekly samples from the previous six months.
[3]SCADA data for this online anazlyer is a 24 hour average with readings taken every 15 seconds.
[4]Non detect values are used at ½ the reporting limit for average calculations.
[5]Each sample includes at least one duplicate sample taken for quality assurance purposes.

2. Agriculture/ Irrigation Sources

The sources used for irrigation supply include Duteau Creek, King Edward/Deer Creek, Goose Lake, Coldstream Ranch Well #2 and Well #3. Table 3 summarizes the daily flows for each irrigation system.

Duteau Creek is separated into a potable water system and a non-chlorinated, non-potable water system, the latter of which is used exclusively for irrigation purposes. The other sources are separated from the potable system and are not chlorinated.

The irrigation season is from April 15 to September 15. Irrigation water used during the off season is used mainly for livestock watering. This water comes from Ranch Well #2, Ranch Well #3, King Edward and Duteau Creek.

Table 3 Irrigation Volumes for Irrigation Sources over the Month

Irrigation Sources	DCWTP	Well 3	Well 2	King Edward
Min (ML/Day)	0.00	0.00	0.00	0.00
Max (ML/Day)	1.88	1.49	0.19	2.99
Average (ML/Day)	0.43	0.11	0.01	1.16
Monthly Total (ML)	13.25	3.34	0.22	35.81

3. Treatment Plants

GVW has two treatment plants: Duteau Creek Water Treatment Plant (DCWTP) and Mission Hill Water Treatment Plant (MHWTP). At the DCWTP, water is treated with a coagulant and mixed to create a floc before Dissolved Air Flotation (DAF) achieves clarification. Chlorine is added after clarification to ensure contact time for the removal of viruses, followed by Ultra-violet (UV) disinfection. Finally, an additional dose of chlorine is added before entering the distribution system to maintain residual chlorine throughout the system. MHWTP contains dual disinfection which includes UV and chlorine.

Tables 4 and 6 summarize results for chlorine, bacteria, turbidity, and UV Transmittance (UVT). Table 5 summarizes the log removal of viruses at the DCWTP.

Table 4 Duteau Creek Water Treatment Plant Reservoir

Parameter	Laboratory	Units	# of Samples	# of Deviations	Min	Max	Average[4]
Free Chlorine[2]	SCADA[1] Daily Average	mg/L	30 Days	-----	1.87	2.06	1.95
E.coli	RDNO Lab	MPN/100 mL	4	-----	<1	<1	<1
Total Coliform	RDNO Lab	MPN/100 mL	4	-----	<1	<1	<1
Turbidity[2]	SCADA[1] Daily Average	NTU	30 Days	-----	0.17	0.37	0.23
Pre UVT[3]	SCADA[1] Daily Average	%	30 Days	-----	86.04	88.78	87.09

[1]SCADA: Supervisory Control and Data Acquisition.
[2]Operation Guideline: As outlined in Deviation Response Plan, free chlorine >1.0 mg/L, turbidity <1.0 NTU.
[3]UVT is monitored pre-UV treatment which is used to determine UV dosage.
[4]Non detect values are used at ½ the reporting limit for average calculations.

This month, 0 m^3 of off-spec water occurred at DCWTP.

Table 5 DCWTP – Log Removal of Viruses

Log Removal of Viruses[1]	
Days Monitored	30 Days
Days 4-Log Inactivation Achieved	30 Days

[1]4-log virus removal logged by the minute on SCADA.

Table 6 Mission Hill Water Treatment Plant

Parameter	Laboratory	Units	# of Samples	# of Deviations	Min	Max	Average[3]
Free Chlorine	SCADA[1] Daily Average	mg/L	30 Days	-----	1.91	2.21	2.09
E.coli	RDNO Lab	MPN/100 mL	4	-----	<1	<1	<1
Total Coliform	RDNO Lab	MPN/100 mL	4	-----	<1	<1	<1
Turbidity[2]	SCADA[1] Daily Average	NTU	30 Days	-----	0.38	0.84	0.46
Pre UVT	SCADA[1] Daily Average	%	30 Days	-----	92.09	93.36	92.26

[1]SCADA: Supervisory Control and Data Acquisition.
[2]Operation Guideline: As outlined in Deviation Response Plan, free chlorine >0.8 mg/L, turbidity <3.0 NTU.
[3]Non detect values are used at ½ the reporting limit for average calculations.

This month, no off-spec water occurred at MHWTP.

4. Distribution

While the domestic GVW system has areas that are normally served by either of the two main sources (DCWTP or MHWTP), the system is interconnected with the ability to move water from each source to various parts of the system. The distribution areas from either source may change depending on water demands, source water availability or water quality, and is therefore considered a combined system for the purposes of data reporting. GVW has approximately 23,000 service connections. When possible, water source change notices may be put out to advise customers of a change.

Table 7 summarizes the daily flow for each distribution system. The Duteau and Kalamalka systems have many locations where they can be interconnected. This means there are areas where there is a blend of water quality and can be identified by the conductivity of the water.

Table 7 Volumes for GVW Distribution Systems over the Month

Volumes	DCWTP	MHWTP
Min (ML/Day)	12.90	11.43
Max (ML/Day)	36.00	23.22
Average (ML/Day)	20.29	15.27
Monthly Total (ML)	608.60	458.13

Table 8 summarizes results for chorine, bacteria, and turbidity for the combined distribution system which includes both the Duteau distribution system and the Kalamalka distribution system. These results are from grab samples taken weekly at designated spots within the distribution system.

Table 8 Duteau and Kalamalka Distribution

Parameter	Laboratory		# of Samples	# of Deviations	Min	Max	Average[2]
Free Chlorine[1]	Operator Grab Samples	mg/L	104	1[4]	0.14	1.99	1.14
Total Chlorine	Operator Grab Samples	mg/L	104	-----	0.27	2.19	1.40
E.coli	RDNO Lab	MPN/100 mL	110[3]	-----	<1	<1	<1
E.coli	CARO	CFU/100 mL	1	-----	<1	<1	<1
Total Coliform	RDNO Lab	MPN/100 mL	110[3]	-----	<1	<1	<1
E.coli	CARO	CFU/100 mL	1	-----	<1	<1	<1
Turbidity[1]	Operator Grab Samples	NTU	104	1[5]	0.18	24.90	0.96

[1]GVW WQ Deviation Response Plan: free chlorine >0.20 mg/L, turbidity <5 NTU.
[2]Non detect values are used at ½ the reporting limit for average calculations.
[3]Three samples per week are ran in duplicate for quality assurance purposes.
[4]One sample was below 0.2 mg/L of free chlorine. This site is on the City of Vernon's low chlorine site and was flushed and sampled.
[5]One sample was above 5 NTU turbidity and therefore a major deviation. It is suspected that this was due to air in the sample.

5. Water Quality and Customer Calls and Notifications

Water Quality Customer Calls within the GVW Service area are tracked and recorded. There were a total of nine (9) customer calls this month.

Table 9 Water Quality Customer Calls for the month

Type of Call	Issue/Inquiry	Investigation	Comments
Issue	High Chlorine Taste In Water	Yes	Two customer calls about high chlorine in a centralized area. Historical data was checked and a slow increase in chlorine residual in the area was noted. RDNO staff sampled the customers' house and the nearby reservoir and noticed increased chlorine levels. RDNO staff spoke to CoV staff, and it was noted that there was a necessary temporary change to the nearby pumpstation that inadvertently had the pumpstation rechlorinating the water repeatedly. The chlorine dosing set point at the pump station was reduced to compensate for this and chlorine levels returned to normal ranges.
Information	Boil Water Information	No	The customer called asking for information regarding a Boil Water Notice in their area. They were advised that they were not in the RDNO area and to contact their water supplier.
Information	Water Quality Advisory Information	No	The customer called asking if it is required to boil their water during the advisory. RDNO staff informed the customer that a water quality advisory is issued when there is a low risk to drinking water. Boiling water is not required but it is suggested for those with weakend immune systems.
Issue	Brown Water	No	The customer called the RDNO about brown water. RDNO staff advised the customer to flush their water using an outside tap until it is clear.
Issue	Black Sludge In Water	Yes	The customer called stating they had black sludge in their water that was coming out of the faucet. This issue is on the inside, kitchen faucet. RDNO staff attended the customers' residence to investigate and sample. RDNO staff suspect that the black gunk the customer saw was a buildup of airborne manganese reducing bacteria or possibly a non-harmful black mould. Both of these organisms are airborne and produce the black sludge on damp surfaces. Samples were taken from inside and outside the house and no black sludge was found in any of the samples. The main outside the customers house was flushed the following day by CoV operators.
Issue	Brown Water	Yes	The customer called stating they had brown water the previous week, but it had cleared. RDNO staff advised the customer to call back next time the water is brown. Customer called back following week and noted the water was still slightly brown. RDNO staff attended and sampled the water. The water had a slight brown color to it but cleared up after flushing. The customer showed the RDNO staff member a bottle of water that they had collected previously showing similar color to the water when RDNO staff first arrived at the customers house.

			Samples were taken from both the house and from the previously collected water. Customer was advised to flush their water if they notice the color return and to inform the RDNO.
Information	Water Quality Questions	No	The customer called the RDNO asking if the water they receive at their home is safe to drink or if they require filters. RDNO staff called the customer and explained how the water system operates, how water quality is monitored, and where they can find the water quality information.
Issue	Fishy Smelling Water	Yes	The customer called the RDNO stating they had fishy/swampy smelling water. The customer was also worried about a lack of chlorine at their house. RDNO staff asked CoV operators to flush the area. RDNO staff sampled the customer's water and all parameters were within expected parameters. It was noted that the hydrant had just been flushed prior to RDNO sampling, so that may have had some bearing on the results. The customer was told to call back if they experienced any further issues.

6. Operational or Maintenance Activity

Operational activity within the GVW City of Vernon service area is tracked and recorded using an online database. There was a total of 25 operational activities outlined this month in Table 10.

Table 10 Monthly operational work and maintenance for the City of Vernon

NUMBER OF LOCATIONS	TYPE OF WORK
0	Hydrant Maintenance
0	Hydrant Maintenance – Corrective
0	New Hydrant Install
4	Water Service GIS Locate
2	Water Main Break Repair
1	Property Damage Repair
1	Water Valve Maintenance
6	Water Valve Repair
2	Water Service Install
9	Water Service Repair
0	Reservoirs Cleaned

7. Localized WQA's and Other Activity

Water quality events are tracked and recorded below. The type of notices for any given event varies based on the severity of the event and the availability of water to adequately flush the area. This month,

there was a total of zero Type 1 breaks where no advisory was required, four (4) Water Quality Advisories (WQA), and zero (0) Boil Water Notices (BWN)

Table 11 Monthly public notifications

Type of Notice	Reason	Area	Length or Time in Place	Number of Connections Affected
WQA	Water Flushing Causing Loss of Pressure	3400 33 Ave	April 9 – April 10	2
WQA	Loss of Pressure During Planned Work	Juniper Dr	April 15 – April 17	24
WQA	Planned Tie-In's	15th St and Hwy 6	April 27 – April 30	20
WQA	Water Main Break	Quirk Rd	April 30 – May 2	1