REGIONAL DISTRICT NORTH OKANAGAN

Greater Vernon Water (GVW) Water Quality Report for June 2025

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	-----	2	63.7[5]	19.4
Total Coliform	RDNO Lab	MPN/100 mL	8	-----	272.3	920.8[5]	508.9
Turbidity	Operator Grab Samples	NTU	3[6]	-----	1.46	1.90	1.71
Turbidity	SCADA[1] Daily Average[3]	NTU	30 Days	-----	1.10	3.26	1.35

[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]Duteau Creek Intake sees a yearly increase in Total Coliforms and E.coli begining in middle to late spring and lasting throughout the summer.
[6]Turbidity on June 3, 2025, was not collected due to instrument error,

Table 2 Kalamalka Lake Intake

Parameter	Laboratory		# of Samples	# of Deviations	Min	Max	Average[4]
E.coli[2]	RDNO Lab	MPN/100 mL	8	-----	<1	2.0	<1
Total Coliform	RDNO Lab	MPN/100 mL	8	-----	<1	8.5	4.4
Turbidity	Operator Grab Samples	NTU	4	-----	0.59	1.00	0.74
Turbidity	SCADA[1] Average[3]	NTU	30 Days	-----	0.45	0.75	0.61

[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.

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)	0.85	0.00	0.00	0.44
Max (ML/Day)	12.83	4.18	0.96	8.70
Average (ML/Day)	5.53	1.64	0.12	4.21
Monthly Total (ML)	166.04	49.31	3.48	126.40

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 clarification is achieved by Dissolved Air Flotation (DAF). 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	-----	1.86	2.00	1.91
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	-----	0.20	0.37	0.26
Pre UVT[3]	SCADA[1] Daily Average	%	30 Days	-----	84.10	87.40	85.76

[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, 119 m^3 of off-spec water occurred representing <0.02% of the water treated in May at DCWTP. This event occurred following a lamp failure. A new row of lamps was automatically brought online immediately following the other row failure, with UV dose dipping below the required dose during lamp warm up.

Table 5 DCWTP – Log Removal of Viruses

Log Removal of Viruses[1]	
Days Monitored	31 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	-----	1.88	2.02	1.99
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	-----	0.48	0.68	0.58
Pre UVT	SCADA[1] Daily Average	%	30 Days	-----	90.16	91.94	91.32

[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 different 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)	36.60	20.44
Max (ML/Day)	85.90	34.08
Average (ML/Day)	62.59	25.62
Monthly Total (ML)	1877.60	768.63

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	114	1[3]	0.13	1.79	1.05
Total Chlorine	Operator Grab Samples	mg/L	114	-----	0.26	2.00	1.30
E.coli	RDNO lab	MPN/100 mL	119	-----	<1	<1	<1
E.coli	CARO	CFU/100 mL	1	-----	<1	<1	<1
Total Coliform	RDNO Lab	MPN/100 mL	119	-----	<1	<1	<1
E.coli	CARO	CFU/100 mL	1	-----	<1	<1	<1
Turbidity[1]	Operator Grab Samples	NTU	114	-----	0.26	2.17	0.72

[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]There was one sample location (Boss Creek 1 PS Return) which had free chlorine <0.2 mg/L. This is a known and monitoried low chlorine site and bacterial testing showed <1 MPN/100mL for both E.coli and Total Coliforms.

5. Water Quality and Customer Calls and Notifications

Water Quality Customer Calls within the GVW Service area are tracked and recorded. There was a total of seven (7) customer calls this month.

Table 9 Water Quality Customer Calls for the month

Type of Call	Issue/Inquiry	Investigation	Comments
Issue	Poor Water Quality	No	Customer called stating poor water quality. WQ staff called customer back and water quality had improved. Customer was on a WQA at the time due to a power outage at the lift station the previous night. Customer was advised to continue to monitor the water quality and call back if it doesn't improve.
Issue	Water Odour	No	The customer was located on a dead end main. WQ staff called City of Vernon to get the area flushed. Operators mentioned there was an odour to the water when they started flushing but it dissipated once the water was flushed.
Issue	Black Growth on fixtures	No	Customer noted a black growth in water after a storm. Customer cleaned it up so there was nothing to sample or show WQ staff. The customer was going to monitor and call WQ staff to come sample next time it was observed.
Issue	Black Growth on fixtures	Yes	Customer noted a black growth on their water fixtures and elsewhere that had previous contact with water. Customer took a sample of the black growth and WQ staff took samples at the customer's house. Sample was sent to consultant to identify if it was an algae. The consultant stated it was a suspected aquatic fungus, but that they were unable to further identify it.
Issue	Illness	No	Caller stated their son was sick and admitted to the ER and it was determined it was a water borne bacteria. Customer was told RDNO monitors for E.coli and Total Coliforms in the drinking water. Customer suspected it was from Kalamalka lake. The customer was informed to contact Interior Health to report this.
Inquiry	Water Quality Report	No	Customer was curious if they were on municipal water and wanted the most recent water quality report. Customer was receiving municipal water, and the most recent water quality report was sent to them.
Issue	Turbid Water	Yes	Customer has been having issues with turbid water on and off for the past year and a half. WQ staff sampled the customers house in the summer of 2024 and found nothing unusual, so the customer was to continue to monitor the water quality. A plan was made to loop the water main in 2025 but that could not be completed due to a logistical change in water pressures for the area. The District of Coldstream will be installing a blow-off at the end of the water main to allow for flushing of that water main.
Inquiry	No Chlorine in Water	No	Customer called stating they were told that there was no chlorine in their water. Customer tested with a pool chlorine kit and received a negative reading. Customer was informed that they are just below a Greater Vernon Water pump station where water samples are routinely taken and there is constantly an acceptable amount of chlorine in the water at that station. Customers were told

			to call back if there were still concerns and WQ can take a sample at their residence.

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 28 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
1	New Hydrant Install
5	Water Service GIS Locate
0	Water Main Break Repair
0	Property Damage Repair
0	Water Valve Maintenance
5	Water Valve Repair
2	Water Service Install
15	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, fourteen (14) Water Quality Advisories (WQA), and three (3) Boil Water Notices (BWN)

Table 11 Monthly public notifications

Type of Notice	Reason	Area	Length or Time in Place	Number of Connections Affected
Loss of Water Notice/ WQA	Planned Water Tie In's	4100-4215 20 St	June 11 – June 13	10
Loss of Water Notice/ WQA	Planned Water Tie In's	41 Ave and 20 St area	June 13 – June 17	51
BWN	Power Outage Resulting in Loss of Pressure	999-1125 Galiano Rd	June 12 – June 17	5
Loss of Water Notice/ WQA	Planned Water Main Upgrades	18 Ave and Hwy 97 area	June 23 – June 25	6
WQA	Overland Water Supplied to Customer	9848 Aberdeen Rd	June 23 – July 11	1
Loss of Water Notice / WQA	Planned Power Outage	Learmouth Rd and Reid Rd area	June 24 – June 30	30
Loss of Water Notice/ WQA	Planned Water Upgrades	28 Ave and 16 St Area	June 25 – June 27	37
WQA	Power Outage Resulting in Pressure Reduction	6780-6880 Goose Lake Rd	June 27 - XXX	6