

Greater Vernon Water (GVW) Water Quality Report for August 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 ⁵	-----	10	52 ⁶	32.8
Total Coliform	RDNO Lab	MPN/100 mL	8 ⁵	-----	1467	3448 ⁶	2393.9
Turbidity	Operator Grab Samples	NTU	4	-----	1.67	2.01	1.89
Turbidity	SCADA ¹ Daily Average ³	NTU	31 Days	-----	0.98	1.54	1.20

¹SCADA: Supervisory Control and Data Acquisition.

²Drinking Water Treatment Objectives (Microbiological) 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.

³SCADA data for this online analyzer is a 24 hour average of readings taken every 10 minutes

⁴Non detect values are used at ½ the reporting limit for average calculations.

⁵Each sample includes at least one duplicate sample taken for quality assurance purposes.

⁶Duteau Creek Intake sees a yearly increase in Total Coliforms and E.coli beginning in middle to late spring and lasting throughout the summer.

Table 2 Kalamalka Lake Intake

Parameter	Laboratory		# of Samples	# of Deviations	Min	Max	Average ⁴
E.coli²	RDNO Lab	MPN/100 mL	8 ⁵	-----	1	17.3	6.2
Total Coliform	RDNO Lab	MPN/100 mL	10 ⁵	-----	18.7	67.7	29.2
Turbidity	Operator Grab Samples	NTU	4	-----	1.72	2.23	1.95
Turbidity	SCADA ¹ Average ³	NTU	31 Days	-----	1.27	2.00	1.63

¹SCADA: Supervisory Control and Data Acquisition.

²Drinking Water Treatment Objectives (Microbiological) 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.

³SCADA data for this online analyzer is a 24 hour average with readings taken every 15 seconds.

⁴Non detect values are used at ½ the reporting limit for average calculations.

⁵Each 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)	2.99	0.00	0.00	1.96
Max (ML/Day)	13.56	4.97	1.32	11.24
Average (ML/Day)	10.16	1.73	0.22	7.59
Monthly Total (ML)	314.99	53.51	6.80	235.36

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	31 Days	-----	1.84	1.97	1.90
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	31 Days	-----	0.23	0.41	0.29
Pre UVT ³	SCADA ¹ Daily Average	%	31 Days	-----	84.75	86.94	85.72

¹SCADA: Supervisory Control and Data Acquisition.

²Operation Guideline: As outlined in Deviation Response Plan, free chlorine >1.0 mg/L, turbidity <1.0 NTU.

³UVT is monitored pre-UV treatment which is used to determine UV dosage.

⁴Non detect values are used at ½ the reporting limit for average calculations.

This month, 0 m³ of off-spec water occurred at DCWTP

Table 5 DCWTP – Log Removal of Viruses

Log Removal of Viruses ¹	
Days Monitored	31 Days
Days 4-Log Inactivation Achieved	31 Days

¹4-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	31 Days	-----	2.13	2.22	2.19
E.coli	RDNO Lab	MPN/100 mL	4	-----	<1	<1	<1
Total Coliform	RDNO Lab	MPN/100 mL	4	-----	<1	<1	<1
Turbidity²	SCADA ¹ Daily Average	NTU	31 Days	-----	1.34	1.99	1.68 ⁴
Pre UVT	SCADA ¹ Daily Average	%	31 Days	-----	90.76	91.96	91.60

¹SCADA: Supervisory Control and Data Acquisition.

²Operation Guideline: As outlined in Deviation Response Plan, free chlorine >0.8 mg/L, turbidity <3.0 NTU.

³Non detect values are used at ½ the reporting limit for average calculations.

⁴Turbidity increase in MHWTP due to Marl in Kalamalka Lake.

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)	19.70	20.90
Max (ML/Day)	83.10	35.63
Average (ML/Day)	57.30	28.72
Monthly Total (ML)	1776.40	890.46

Table 8 summarizes results for chlorine, 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	109	6 ⁴	0.04	2.50	1.19
Total Chlorine	Operator Grab Samples	mg/L	109	-----	0.11	2.80	1.44
E.coli	RDNO Lab	MPN/100 mL	114 ³	-----	<1	<1	<1
E.coli	CARO	CFU/100 mL	1	-----	<1	<1	<1
Total Coliform	RDNO Lab	MPN/100 mL	114 ³	1 ⁵	<1	5.3	<1
E.coli	CARO	CFU/100 mL	1	-----	<1	<1	<1
Turbidity ¹	Operator Grab Samples	NTU	138	-----	0.19	2.68	0.91

¹GVW WQ Deviation Response Plan: free chlorine >0.20 mg/L, turbidity <5 NTU.

²Non detect values are used at ½ the reporting limit for average calculations.

³Three samples per week are ran in duplicate for quality assurance purposes.

⁴There were six sample locations which had free chlorine <0.2 mg/L. Four of the sites were part of the City of Vernon monitoring of low chlorine sites program. All six sites were sampled and bacterial testing showed <1 MPN/100mL for both E.coli and Total Coliforms.

⁵There was one sample with total coliforms >1 MPN/100m but below 10 MPN/100mL resulting in a moderate deviation as per the Greater Vernon Water Quality Deviation Response Plan (DRP). This site was flushed and resampled the following day as per the DRP, and a result of <1 MPN/100mL was obtained. No further action was required for this site.

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 five (5) customer calls this month.

Table 9 Water Quality Customer Calls for the month

Type of Call	Issue/Inquiry	Investigation	Comments
Issue	Water Filter Clogged	No	The customer called reporting decreased flow at their taps. When they replaced their water system filters, they noticed what appeared to be golden colored crystals on the filter. The customer was advised that golden crystals are resin beads typically from a failed water softener system. The customer was advised to call a plumber to service their water softener system.
Issue	Brown Water	Yes	Two customers in the same area called about brown water. SCADA readings showed a short spike in discharge pressure at PRV 2 around the same time, most likely due to a large water user in the area, that may have stirred up sediment in the water mains. Customers were advised to flush their homes. The water cleared after flushing.
Inquiry	Water Quality Update	No	Two customers were on a WQA and were calling for an update. The customers were advised that the WQA was still in effect until the repair was complete and water flows were returned to their normal state. The customers were advised to sign up to the RDNO mailing list for further updates.
Inquiry	Water Quality Update	No	The customer had received a letter saying water in the area would be turned off for the day while repairs were completed. The customer wanted to know whether they would be on a BWN once water was returned to service. They were advised that they would be on a BWN once water returned and will remain on a BWN until sampling confirms water quality is within required guidelines. Once the BWN was rescinded, the customer was informed that a notice would be hand delivered to them
Issue	Black particles in water	No	The customer noticed black particles collecting under the rim of the toilet and in the dishwasher. The particles look like soil. They are not noticing it suspended in their water nor anywhere else in the house. Staff advised that it was likely bacteria as it is collecting under the bowl but not in the water itself, but the customer disagreed. The customer was advised to flush their home and see if that made a difference as there was a recent water main break in the area. The customer was going to try that and call back if water quality did not improve.

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 42 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
9	Water Service GIS Locate
3	Water Main Break Repair
1	Property Damage Repair
0	Water Valve Maintenance
3	Water Valve Repair
5	Water Service Install
21	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
WQA	Water Main Break	Selkirk Dr, Montrose Pl, Elgin Dr, Kinrose Pl, Inverness Dr, 209-248 Sarsons Dr, Sarsons Pl, 240-380 Sarsons Rd	August 5 – August 14	121
WQA	Service Line Upgrades	9484 Aberdeen Rd	August 12 – Ongoing	1
None	Water Main Break	940 Pottery Rd	August 12	4
BWN	Water Main Repair	9907-10205 Hwy 6	August 13 – August 21	17
BWN	Water Main Break	9101-9130 Eastside Rd, 9030 and 9042 Peters Rd	August 14 – August 19	6
BWN	Water Main Break	North BX area	August 19 – August 21	380
WQA	Water Main Break	3600-3604 Pleasant Valley Rd	August 22 – August 24	4