Beddis Water Service

2024 Annual Report

CRD | Drinking Water

INTRODUCTION

This report provides a summary of the Beddis Water Service for 2024. It includes a description of the service, summary of the water supply, demand, and production, drinking water quality, operations highlights, capital project updates and financial report.

SERVICE DESCRIPTION

The Beddis Water Utility is a rural residential community located on Salt Spring Island. The service was created in 1969 as the Beddis Waterworks District and became a CRD service in 2004. The Beddis Water Utility (Figure 1) is comprised of 137 parcels of land of which 128 are presently connected to the system.

The utility obtains its drinking water from Cusheon Lake, a relatively small lake that lies within an uncontrolled multi-use watershed. The Capital Regional District (CRD) holds two licenses to divert a total of up to 102,850 m^3 per year. Cusheon Lake is subject to seasonal water quality changes and is affected by periodic algae blooms.

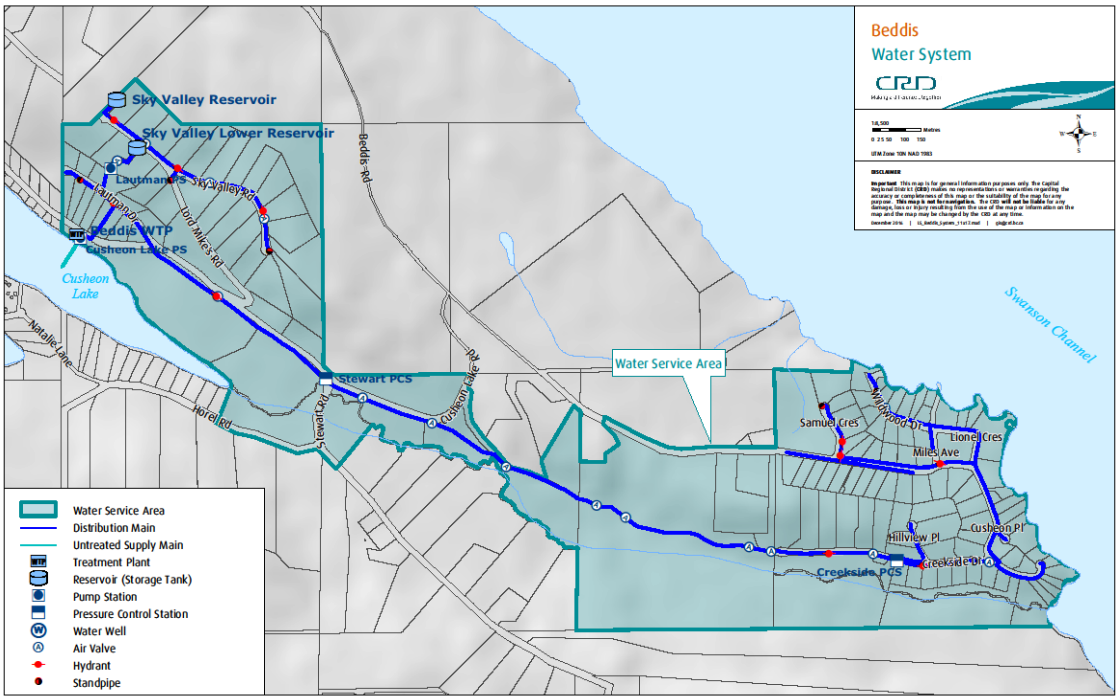

Figure 1: Beddis Water Service

The Beddis water system is primarily comprised of:

- water treatment plant (WTP) that draws water from Cusheon Lake and treats it at a location on Cusheon Road approximately 250m west of Lautman Drive. The water is treated using a rapid mix system, flocculation, dissolved air floatation (DAF) and filters, then chlorination prior to being pumped, via the distribution system to reservoirs. The water treatment plant (WTP) design flow is rate is 16.35 m^3/hour (60 Igpm)
- approximately 7,200 m of water distribution pipe
- 1 pump station/re-chlorination station
- 2 water reservoirs – one 45 m^3 (10,000 Igal) and one 76 m^3 (16,700 Igal)
- fire hydrants, standpipes, and gate valves
- water service connections complete with water meters
- 2 pressure regulating stations (PCS) Stewart Road and Creekside Drive

WATER PRODUCTION AND DEMAND

Referring to Figure 2, 19,855 cubic meters (m^3) of water was extracted (water production) from Cusheon Lake in 2024; a 4% decrease from the previous year and is 21% decrease from the five-year rolling average. Water demand (customer water billing) for the service totalled 15,845 m^3 of water; an 12% decrease from the previous year and a 17% decrease from the five-year rolling average. Both production and demand were historic lows for the service area.

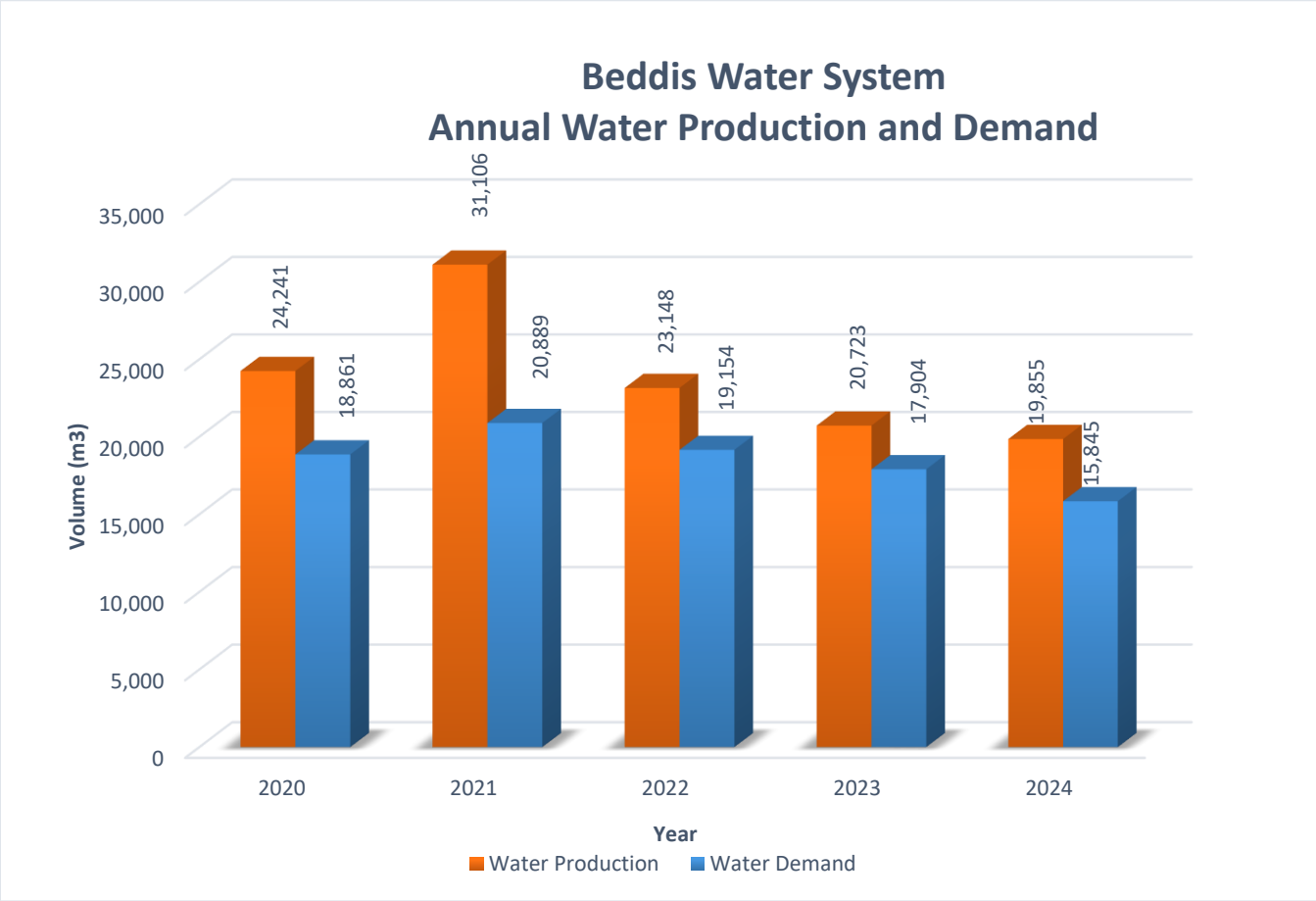

Figure 2: Beddis Water Service Annual Water Production and Demand

Water production by month for the past five years is shown in Figure 3. The monthly water production trends are typical for small water systems such as the Beddis water service.

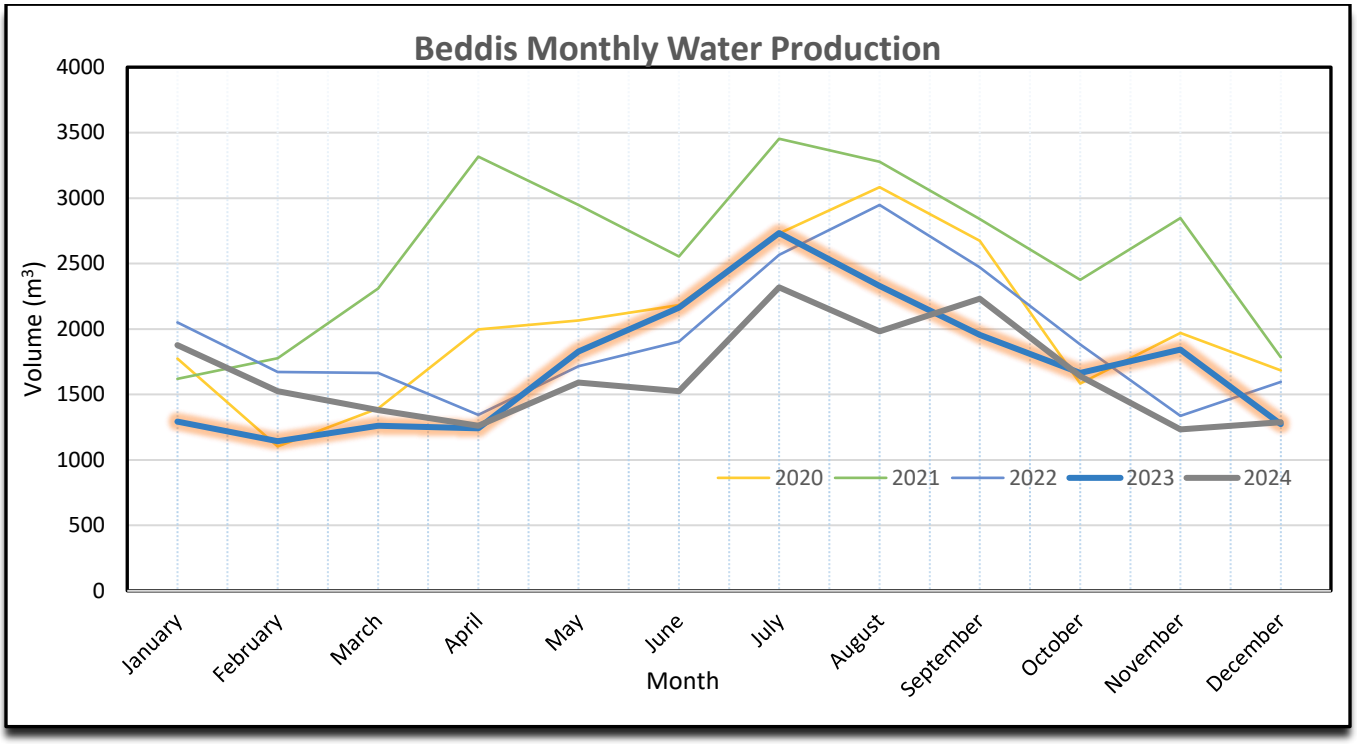

Figure 3: Beddis Water Service Monthly Water Production

The Beddis Water System is fully metered, and water meters are read quarterly. Water meter information enables water production and consumption to be compared in order to estimate leakage losses in the distribution system. The difference between water produced and water demand (total metered consumption) is called non-revenue water and includes distribution leaks, meter error, and unmetered uses such as fire hydrant usage, distribution system maintenance, and process water for the treatment plant. Non-revenue water is approximately 20%. Water loss is estimated to be approximately 14% which is considered acceptable for small water systems.

WATER QUALITY

In 2024, the analytical results of water samples collected from the Beddis Water System indicated that the drinking water was of good quality. The source water from Cusheon Lake was of good quality throughout the year with low concentrations of algae, most metals and generally low turbidity. Indicator bacteria concentrations (total coliforms) in the raw water were very low between November and May and higher during the warm weather season. Manganese and iron concentrations were elevated in Cusheon Lake throughout all seasons but summer. Due to a lack of specific metal removal treatment, the aesthetic objective for manganese in the Guidelines for Canadian Drinking Water Quality (GCDWQ) was exceeded in the treated water during the quarterly sampling events in November and February and was likely exceeded to the entire period between these sampling events. Manganese concentrations in exceedance of the aesthetic objectives can lead to water discolouration and become a nuisance for customers. The maximum acceptable concentration (MAC) in the GCDWQ for manganese was never reached. Besides this, the DAF treatment system functioned very well under these source water conditions. The annual average of the disinfection by-product concentrations was below the limit in the GCDWQ in both sampled locations. However, a few individual results in 2024 came very close to or even slightly exceeded the MAC for the disinfection by-product trihalomethanes (THM) indicating the potential for exceedances if

source water conditions are not ideal and chlorine dosage is not carefully managed. Other than water temperature during the summer months, there have been no exceedances of any monitored water quality parameter in the system.

The data below provides a summary of the water quality characteristics in 2024:

Raw Water:

- The raw water exhibited typically low concentrations of total coliform and *E. coli* bacteria throughout the year with significantly higher concentrations during the summer months. These higher bacteria concentrations during summer are easily addressed by the water treatment process.
- No *Giardia* cysts or *Cryptosporidium* oocysts were detected in 2024.
- The raw water samples indicated fluctuating and elevated concentrations of iron and manganese. Iron and manganese concentrations were typically above the aesthetic objectives during all seasons but summer.
- The raw water was soft (median hardness 37.2 mg/L $CaCO_3$).
- The raw water turbidity (cloudiness) was often below 1 NTU with some higher peaks in the winter. Highest recorded raw water turbidity was 4.0 NTU on January 18, 2024. Higher turbidity levels during the fall is typical for this water source.
- The median annual total organic carbon, an indicator of organic compounds and material in the lake water, was a moderate 4.95 mg/L. This demonstrates a slightly upward trend in recent years potentially indicating increasing algal activity in Cusheon Lake.
- Cusheon Lake raw water had a high colour rating all year in 2024, which is typical.
- CRD staff tested raw water entering the treatment plant for per-and polyfluoroalkyl substances (PFAS) in the fall of 2024. The result was non-detect with a detection limit of 4 ng/L or less.

Treated Water:

- The treated water was bacteriologically safe to drink. No sample tested positive for *E.coli* or total coliform bacteria.
- The treated water turbidity was always well below the turbidity limit of 1.0 NTU with an annual median of <0.15 NTU. This indicates the high efficacy of the existing water treatment process and overall good drinking water quality.
- The annual average levels of the disinfection by-products trihalomethanes (TTHM = 67.3 µg/L) across the distribution system were below the MAC limits in the GCDWQ (100 µg/L). Individual results however were close or even above the MAC during May and June. Haloacetic acids (HAA) were not tested in 2024; historic data has shown that HAA concentrations are typically low when TTHM concentrations are low.
- The treated water total organic carbon (TOC) was in line with historical trends, with a median value of 2.2 mg/L. There is currently no guideline in the GCDWQ for TOC levels, however the USEPA suggests a treated water TOC concentration of < 2 mg/L as confirmation of effective treatment and disinfection by-product control.
- All treated water sampled were low in iron concentrations. Manganese concentrations exceeded the aesthetic limit as per GCDWQ in November and February at the water treatment plant. It is likely that this exceedance extended throughout this entire winter period. The manganese health limit MAC was never reached. Cusheon Lake is known for the potential of seasonally high iron and manganese concentrations. Such exceedances can lead to water discolouration.
- The aesthetic limit for water temperature (15ºC) was exceeded from May until October. This is a

common occurrence in this water system during the summer months.

Table 1 and 2 below provide a summary of the 2024 raw and treated water test results.

Water Quality data collected from this drinking water system can be reviewed on the CRD website:

https://www.crd.bc.ca/about/data/drinking-water-quality-reports

OPERATIONAL HIGHLIGHTS

The following is a summary of the major operational issues that were addressed during the 2024 operating period:

- Water System leak repairs:
  - 131 Lionel Creek service line repair
  - 211 Creekside Drive service line repair
  - 1475/1483 Beddis Rd service line repair
- Water Treatment Plant corrective maintenance:
  - Replaced failed backwash and rinse to waste valve actuators
  - Uninterrupted power supply (UPS) maintenance and replacement
  - Replaced failed booster pump variable frequency drive (VFD) capacitors
  - Troubleshoot and repair flow sensors
  - Saturator pump repair

CAPITAL IMPROVEMENTS

The following is a summary of the major capital improvements, including year-ending spending for 2024:

Water Intake Assessment/Design (CE.676.7501): The intake pumps have been drawing in air/gas, resulting in reduced flow and even air-locking of the pump(s). This project will be complete in Q2 2025.

Project	Spending
Budget	$302,725
Project Management	($44,820)
Design (Engineering, Drafting, etc.)	($72,792)
Construction	($71,842)
Balance Remaining	**$113,271**

Safe Work Procedures (CE.699.4503): The work includes reviewing and developing safe work procedures for operational and maintenance tasks, and ongoing capital improvements.

Project	Spending
Budget	$12,000
Project Management	($605)
Contract	($2,478)
Supplies/Materials	($209)
Balance Remaining	**$8,708**

Back-up Power Design (CE.735.4502): Complete electrical designs for new onsite backup power. This project was included in Project 26-02 so this project was closed at the end of 2024 and funds were returned back to the source.

Project	Spending
Budget	$10,000
Project Management	($0)
Balance Remaining	**$10,000**

Sky Valley New Booster Pump & Reservoir (CE.831.5101): The work includes designs for a new booster pump and reservoir as the Sky Valley Upper Reservoir is reaching the end of its useful life. A new reservoir will be built next to the existing Sky Valley Lower Reservoir as well as a booster pump to service the Upper Sky Valley pressure zone.

Project	Spending
Budget	$33,000
Project Management	($2,361)
Contract	($0)
Supplies/Materials	($0)
Balance Remaining	**$30,639**

Beddis WTP Lifting Apparatus (CE.836.2001): Support for a lifting apparatus is required at ceiling level to lift the 80lb lid for the saturator and for a confined space entry apparatus over the DAF system. This project will be completed in Q1 of 2025.

Project	Spending
Budget	$55,000
Project Management	($7,040)
Design	($9,528)
Construction	($7,008)
Balance Remaining	**$31,424**

Beddis PRV Strainers (CE.836.2002): Install inline strainer Stewart Road PRS and Creekside Road PRS. Strainers provide a measure of filtration to minimize maintenance and assurance of supply of water. Operations has determined that this project is no longer required so it will be closed out in 2025.

Project	Spending
Budget	$11,000
Project Management	($1,864)
Contract	($0)
Supplies/Materials	($0)
Balance Remaining	**$9,136**

Replacement of Variable Frequency Drives (CE.836.2003): The VFDs require replacement. This project results in new capacitors for the VFDs for the two booster pumps. New capacitors will extend the life of the VFDs several more years. This project was closed at the end of 2024 and surplus funds returned to source.

Project	Spending
Budget	$9,000
Project Management	($3,172)
Supplies/Materials	($4,023)
Balance Remaining	**$1,805**

Referendum for Borrowing (CE.836.4601): Referendum for borrowing for debt funded projects.

Project	Spending
Budget	$20,000
Project Management	($27)
Balance Remaining	**$19,973**

Public Engagement for Debt Funded Projects (CE.836.4602): Public engagement for projects requiring debt funding.

Project	Spending
Budget	$10,000
Project Management	($54)
Balance Remaining	**$9,946**

2024 FINANCIAL REPORT

Please refer to the attached 2024 Statement of Operations and Reserve Balances.

Revenue includes parcel taxes (Transfers from Government), fixed user fees (User Charges), water sales (Sale-Water), interest on savings (Interest earnings), transfers from the Operating Reserve Fund, and miscellaneous revenue such as late payment charges (Other revenue).

Expenses include all costs of providing the service. General Government Services include budget preparation, financial management, utility billing and risk management services. CRD Labour and Operating Costs include CRD staff time as well as the costs of equipment, tools, and vehicles. Debt servicing costs are interest and principal payments on long-term debt. Other Expenses include all other costs to administer and operate the water system, including insurance, water testing, and electricity.

The difference between Revenue and Expenses is reported as Net revenue (expenses). Any transfers to or from capital or reserve funds for the service (Transfers to own funds) are deducted from this amount, and it is then added to any surplus or deficit carried forward from the prior year, yielding an Accumulated Surplus (or deficit). In alignment with Local Government Act Section 374 (11), any deficit must be carried forward and included in the next year's financial plan.

WATER SYSTEM PROBLEMS - WHO TO CALL:

To report any event or to leave a message regarding the Beddis Water System, call either:

CRD water system emergency call centre: **1-855-822-4426 (toll free)**
1-250-474-9630 (toll)

CRD water system general enquiries (toll free): **1-800-663-4425**

When phoning with respect to an emergency, please specify to the operator, the service area in which the emergency has occurred.

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Appendix A : 2024 Statement of Operations and Reserve Balances

For questions related to this Annual Report please email: saltspring@crd.bc.ca

Table 1: 2024 Summary of Raw Water Test Results, Beddis Water System										
PARAMETER		**2024 ANALYTICAL RESULTS**				**CANADIAN GUIDELINES**	**2014 - 2023 ANALYTICAL RESULTS**			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum	Range Maximum
Physical Parameters/Biological										
Colour, True	TCU	**20**	17	13.9	29	≤ 15 AO	16	147	6	35
Hardness as $CaCO_3$	mg/L	**37.2**	4	35.3	39.7	No Guideline Required	35.7	41	17.9	42
pH	pH Units	**7.35**	3	6.1	7.1	7.0-10.5 AO	7.2	33	6.1	7.7
Carbon, Total Organic	mg/L	**4.95**	12	4.4	9		4.34	81	1.5	6.57
Turbidity	NTU	**0.65**	17	0.35	4		0.865	174	< 0.14	11
Water Temperature	Degrees C	**13.75**	48	3.9	25.5	≤ 15 AO	14.85	498	3	26.6
Microbial Parameters										
Indicator Bacteria										
Coliform, Total	CFU/100 mL	**65**	17	4	870		67	171	<1	4600
E. coli	CFU/100 mL	**< 1**	17	< 1	3		< 1	173	<1	122
Hetero. Plate Count, 7 day	CFU/1 mL	Not tested in 2024					1200	64	170	11900
Parasites										
Cryptosporidium , Total oocysts	oocysts/100 L	**<1**	2	<1	<1	Zero detection desirable	< 1	24	< 1	2.45
Giardia , Total cysts	cysts/100 L	**<1**	2	<1	<1	Zero detection desirable	< 1	25	< 1	< 1
Algal Toxins										
Microcystin (Abraxis)	ug/L	Not tested in 2024				1.5 MAC	<1	19	<1	<1
Anatoxin A	ug/L	Last analyzed in 2014					< 0.01	1	< 0.01	< 0.01
Cylindrospermopsin	ug/L	Last analyzed in 2014					< 0.01	1	< 0.01	< 0.01
Microcystin-RR	ug/L	Last analyzed in 2014					< 0.01	1	< 0.01	< 0.01
Microcystin-YR	ug/L	Last analyzed in 2014					< 0.01	1	< 0.01	< 0.01
Microcystin-LR	ug/L	Last analyzed in 2014					< 0.02	1	< 0.02	< 0.02
Total Microcystins	ug/L	Last analyzed in 2016				1.5 MAC	< 0.14	4	< 0.01	0.2
Nodularin	ug/L	Last analyzed in 2014					< 0.01	1	< 0.01	< 0.01
Metals										
Aluminum	ug/L as Al	**17.15**	4	< 3	72.8	2900 MAC / 100 OG	13.4	41	< 3	267
Antimony	ug/L as Sb	**< 0.5**	4	< 0.5	< 0.5	6 MAC	< 0.5	41	< 0.5	1.8
Arsenic	ug/L as As	**0.295**	4	0.24	0.37	10 MAC	0.29	41	< 0.1	0.76
Barium	ug/L as Ba	**5.85**	4	5	7.6	100 MAC	6.4	41	4.1	13
Beryllium	ug/L as Be	**< 0.1**	4	< 0.1	< 0.1		< 0.1	41	< 0.1	< 3
Bismuth	ug/L as Bi	**< 1**	4	< 1	< 1		< 1	39	< 1	< 1
Boron	ug/L as B	**< 50**	4	< 50	< 50	5000 MAC	< 50	41	< 5	412
Cadmium	ug/L as Cd	**< 0.01**	4	< 0.01	< 0.01	7 MAC	< 0.01	41	< 0.01	< 0.1
Calcium	mg/L as Ca	**10.25**	4	9.8	10.9	No Guideline Required	9.84	41	5.34	11.6
Chromium	ug/L as Cr	**< 1**	4	< 1	< 1	50 MAC	< 1	41	< 1	< 10
Cobalt	ug/L as Co	**< 0.2**	4	< 0.2	< 0.2		< 0.2	41	< 0.2	< 20
Copper	ug/L as Cu	**9.025**	4	6.02	11.5	2000 MAC / ≤ 1000 AO	7.11	41	4.21	32.5
Iron	ug/L as Fe	**143.5**	4	62.5	187	≤ 100 AO	138	41	< 10	389
Lead	ug/L as Pb	**0.685**	4	0.45	1.09	5 MAC	<0.5	39	0.28	2.76
Lithium	ug/L as Li	**< 2**	4	< 2	< 2		< 2	28	< 2	< 5
Magnesium	mg/L as Mg	**2.835**	4	2.64	2.99	No Guideline Required	2.7	41	1.1	3.14
Manganese	ug/L as Mn	**36.9**	4	13.7	75.5	120 MAC / ≤ 20 AO	35.3	41	10.5	111
Molybdenum	ug/L as Mo	**< 1**	4	< 1	< 1		< 1	41	< 1	< 20
Nickel	ug/L as Ni	**< 1**	4	< 1	< 1		< 1	41	< 1	< 50
Potassium	mg/L as K	**0.5525**	4	0.468	0.591		0.53	41	0.148	0.754
Selenium	ug/L as Se	**< 0.1**	4	< 0.1	< 0.1	50 MAC	< 0.1	41	< 0.1	< 0.5
Silicon	mg/L as Si	**4190**	4	3700	4440		3840	41	1710	5880
Silver	ug/L as Ag	**< 0.02**	4	< 0.02	< 0.02	No Guideline Required	< 0.02	41	< 0.02	< 10
Sodium	mg/L as Na	**6.465**	4	6.19	7.01	≤ 200 AO	6.085	40	1.71	8.19
Strontium	ug/L as Sr	**72.45**	4	68.1	82.3	7000 MAC	69	41	18.1	86
Sulfur	mg/L as Si	**3.05**	4	< 3	3.3		< 3	39	< 3	5.7
Tin	ug/L as Sn	**< 5**	4	< 5	< 5		< 5	41	< 5	< 20
Titanium	ug/L as Ti	**< 5**	4	< 5	< 5		< 5	41	< 5	10.5
Thallium	ug/L as Tl	**< 0.01**	4	< 0.01	< 0.01		< 0.01	39	< 0.01	< 0.05
Uranium	ug/L as U	**< 0.1**	4	< 0.1	< 0.1	20 MAC	< 0.1	39	< 0.1	< 0.1
Vanadium	ug/L as V	**< 5**	4	< 5	< 5		< 5	41	< 5	< 10
Zinc	ug/L as Zn	**8.5**	4	6.6	10.9	≤ 5000 AO	9	41	< 5	200
Zirconium	ug/L as Zr	**< 0.1**	4	< 0.1	< 0.1		< 0.1	39	< 0.1	< 0.5

Table 2: 2024 Summary of Treated Water Test Results, Beddis Water System										
PARAMETER		**2024 ANALYTICAL RESULTS**				**CANADIAN GUIDELINES**	**2014 - 2023 ANALYTICAL RESULTS**			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum	Range Maximum
ND means Not Detected by analytical method used										
Physical Parameters										
Carbon, Total Organic	mg/L as C	**2.2**	12	1.9	2.8	Guideline Archived	2	102	0.27	5.3
Colour, True	TCU	**3**	51	< 2	8	≤ 15 AO	< 2	211	0.8	7
Hardness as $CaCO_3$	mg/L	**38.55**	16	35	51.1	No Guideline Required	37.55	118	<1	53.1
pH	pH units	**7.01**	3	6.96	7.07	7.0-10.5 AO	6.8	39	6.2	7.5
Turbidity	NTU	**0.15**	51	0.05	1.7	1.0 MAC	0.15	262	0.07	3.6
Water Temperature	Degress C	**11.5**	265	2	24.5	≤ 15 AO	11.5	3547	0.5	26.5
Microbial Parameters										
Indicator Bacteria										
Coliform, Total	CFU/100 mL	**< 1**	85	< 1	< 1	0 MAC	< 1	704	<1	4
E. coli	CFU/100 mL	**< 1**	85	< 1	< 1	0 MAC	< 1	703	<1	< 1
Hetero. Plate Count, 7 day	CFU/1 mL	Not tested in 2024					< 10	126	<1	280
Algal Toxins										
Microcystin (Abraxis)	ug/L	Not tested in 2024								
Anatoxin A	ug/L	Last analyzed in 2014					<0.16	1	<0.16	<0.16
Cylindrospermopsin	ug/L	Last analyzed in 2014					< 0.16	1	< 0.16	< 0.16
Microcystin-RR	ug/L	Last analyzed in 2014					< 0.1	1	< 0.1	< 0.1
Microcystin-YR	ug/L	Last analyzed in 2014					< 0.16	1	< 0.16	< 0.16
Microcystin-LR	ug/L	Last analyzed in 2014					< 0.16	1	< 0.16	< 0.16
Total Microcystins	ug/L	Last analyzed in 2015				1.5 MAC	< 0.16	1	< 0.16	< 0.16
Nodularin	ug/L	Last analyzed in 2014					< 0.14	4	< 0.14	< 0.16
Disinfectants										
Disinfectants										
Chlorine, Free Residual	mg/L as Cl2	**0.7**	265	0.2	2.17	No Guideline Required	0.92	3732	0.04	2.5
Chlorine, Total Residual	mg/L as Cl_2	Not tested in 2024				No Guideline Required	1.07	3218	0.07	7
Disinfection By-Products										
Trihalomethanes (THMs)										
Bromodichloromethane	ug/L	**11**	24	8.9	15		11	137	<0.1	20
Bromoform	ug/L	**< 1**	24	< 1	< 1		< 1	137	< 0.1	< 1
Chloroform	ug/L	**50.5**	24	38	91		55.5	137	6.91	130
Chlorodibromomethane	ug/L	**1.25**	24	< 1	2		1.2	137	<0.1	6.88
Total Trihalomethanes	ug/L	**60.5**	24	50	110	100 MAC	68.1	137	6.91	150
Haloacetic Acids (HAAs)										
HAA5	ug/L	Not tested in 2023				80 MAC	31.59	20	13	81.5
Metals										
Aluminum	ug/L as Al	**6.85**	16	3.1	11.9	2900 MAC / 100 OG	< 10	119	< 3	346
Antimony	ug/L as Sb	**< 0.5**	16	< 0.5	< 0.5	6 MAC	< 0.5	118	< 0.5	1.33
Arsenic	ug/L as As	**0.22**	16	0.13	0.26	10 MAC	0.19	118	<0.1	0.993
Barium	ug/L as Ba	**5.7**	16	5.1	6.8	100 MAC	5.7	118	4	11
Beryllium	ug/L as Be	**< 0.1**	16	< 0.1	< 0.1		< 0.1	118	< 0.1	< 3
Bismuth	ug/L as Bi	**< 1**	16	< 1	< 1		< 1	116	< 1	< 1
Boron	ug/L as B	**< 50**	16	< 50	< 50	5000 MAC	< 50	118	< 50	505
Cadmium	ug/L as Cd	**< 0.01**	16	< 0.01	< 0.01	7 MAC	< 0.01	118	< 0.01	0.1
Calcium	mg/L as Ca	**11.2**	16	9.74	17.7	No Guideline Required	10.75	118	8.06	19.4
Chromium	ug/L as Cr	**< 1**	16	< 1	< 1	50 MAC	< 1	118	< 1	10
Cobalt	ug/L as Co	**< 0.2**	16	< 0.2	< 0.2		< 0.2	118	< 0.2	20
Copper	ug/L as Cu	**7.44**	16	2.41	29.8	2000 MAC / ≤ 1000 AO	9.755	118	0.66	127
Iron	ug/L as Fe	**23.5**	16	< 5	71	≤ 100 AO	18.4	118	< 5	2650
Lead	ug/L as Pb	**0.4**	16	< 0.2	1.28	5 MAC	0.29	118	< 0.2	2.9
Lithium	ug/L as Li	**< 2**	16	< 2	< 2		< 2	68	< 2	< 5
Magnesium	mg/L as Mg	**2.61**	16	1.33	3.03	No Guideline Required	2.505	118	0.586	3.07
Manganese	ug/L as Mn	**5.8**	16	1.1	22.4	120 MAC / ≤ 20 AO	7.75	118	< 1	73.9
Molybdenum	ug/L as Mo	**< 1**	16	< 1	< 1		< 1	118	< 1	< 1
Nickel	ug/L as Ni	**< 1**	16	< 1	< 1		< 1	118	< 1	<50
Potassium	mg/L as K	**0.5345**	16	0.489	0.577		0.536	118	< 0.03	0.735
Selenium	ug/L as Se	**< 0.1**	16	< 0.1	< 0.1	50 MAC	< 0.1	118	< 0.1	< 0.1
Silicon	mg/L as Si	**4050**	16	3420	4360		3660	117	2180	6070
Silver	ug/L as Ag	**< 0.02**	16	< 0.02	< 0.02	No Guideline Required	< 0.02	118	< 0.02	< 0.02
Sodium	mg/L as Na	**10.205**	16	8.32	12.5	≤ 200 AO	8.73	118	7.13	10.9
Strontium	ug/L as Sr	**72.65**	16	66.9	88.6	7000 MAC	72.8	118	58.3	92.3
Sulfur	mg/L as Si	**3.05**	16	< 3	4.2		< 3	116	< 3	4.2
Tin	ug/L as Sn	**< 5**	16	< 5	< 5		< 5	118	< 5	< 20
Titanium	ug/L as Ti	**< 5**	16	< 5	< 5		< 5	118	< 5	< 10
Thallium	ug/L as Tl	**< 0.01**	16	< 0.01	< 0.01		< 0.01	116	< 0.01	< 0.01
Uranium	ug/L as U	**< 0.1**	16	< 0.1	< 0.1	20 MAC	< 0.1	116	< 0.1	< 0.1
Vanadium	ug/L as V	**< 5**	16	< 5	< 5		< 5	118	< 5	< 10
Zinc	ug/L as Zn	**5.7**	16	< 5	24.5	≤ 5000 AO	7.2	118	< 5	1160
Zirconium	ug/L as Zr	**< 0.1**	16	< 0.1	< 0.1		< 0.1	116	< 0.1	< 0.5