



Capital Regional District

Notice of Meeting and Meeting Agenda Wilderness Mountain Water Service Commission

Monday, June 24, 2024

9:30 AM

Goldstream Conference Room, 479 Island
Highway, Victoria, BC

For members of the public who wish to listen to the meeting via telephone please call 1-833-353-8610 and enter the Participant Code 1911461 followed by #. You will not be heard in the meeting room but will be able to listen to the proceedings.

MEMBERS:

D. Pepino (Chair); A. Wickheim (EA Director); L. Cutler; P. Twamley

1. Territorial Acknowledgement

2. Approval of Agenda

3. Adoption of Minutes

- 3.1. [24-668](#) Minutes of the February 15, 2024 Wilderness Mountain Water Service Commission

Recommendation: That the minutes of the February 15, 2024 meeting be adopted.

Attachments: [Minutes - February 15, 2024](#)

4. Chair's Remarks

5. Presentations/Delegations

Delegations will have the option to participate electronically. Please complete the online application for "Addressing the Board" on our website and staff will respond with details.

Alternatively, you may email your comments on an agenda item to the Wilderness Mountain Water Service Commission at iwsadministration@crd.bc.ca. Requests must be received no later than 4:30 p.m. two calendar days prior to the meeting.

6. Senior Manager's Report

- 6.1. Union of British Columbia Municipalities Grant for Disaster Risk Reduction - Climate Adaptation 2024

7. Commission Business

7.1. [24-617](#) 2023 Annual Report

Recommendation: There is no recommendation. This report is for information only.

Attachments: [Staff Report: 2023 Annual Report](#)
[Appendix A](#)

7.2. [24-569](#) Capital Project Status Reports and Operational Updates - June 2024

Recommendation: There is no recommendation. This report is for information only.

Attachments: [Staff Report: Project and Operations Update June 2024](#)

7.3. Source Water Protection Plan and Island Health Compliance

8. Correspondence**9. New Business****10. Adjournment**

Next Meeting: November 2024

MINUTES OF A MEETING OF THE Wilderness Mountain Water Service Commission, held Thursday, February 15, 2024 at 9:30 a.m., In the Goldstream Conference Room, 479 Island Highway, Victoria, BC

PRESENT: Commissioners: D. Pepino (Chair); M. Lechowicz (Vice Chair); L. Cutler; A. Wickheim (EA Director)
Staff: S. Irg, Senior Manager, Infrastructure Water Operations; C. Moch, Manager, Water Quality; M. Risvold (Recorder)

The meeting was called to order at 9:30 am.

1. ELECTION OF CHAIR

The Senior Manager called for nominations for the position of Chair of the Wilderness Mountain Water Service Commission for the term ending December 31, 2024.

M. Lechowicz nominated D. Pepino. D. Pepino accepted the nomination.

The Senior Manager called for nominations a second time.

The Senior Manager called for nominations a third and final time.

Hearing no further nominations, the Senior Manager declared D. Pepino Chair of the Wilderness Mountain Water Service Commission for the term ending December 31, 2024, by acclamation.

2. ELECTION OF VICE CHAIR

The Chair called for nominations for the position of Vice Chair of the Wilderness Mountain Water Service Commission for the term ending December 31, 2024.

L. Cutler nominated M. Lechowicz. L. Cutler accepted the nomination.

The Chair called for nominations a second time.

The Chair called for nominations a third and final time.

Hearing no further nominations, the Chair declared M. Lechowicz Vice Chair of the Wilderness Mountain Water Service Commission for the term ending December 31, 2024, by acclamation.

3. APPROVAL OF AGENDA

MOVED by L. Cutler, **SECONDED** by M. Lechowicz,
That the agenda be approved.

CARRIED

4. ADOPTION OF MINUTES

Item 5.1.5 was amended to read:

“There was a discussion regarding the Associated Engineering report and the Commission noted that the class D estimates plus or minus 50% are ~~reports’ recommendation was too~~ risky.”

The following was added to item 7:

“The commission advised the Wilderness Mountain Water Service community does not find these two options affordable or desirable. The community is confident that Source Water Treatment Objectives can be achieved through affordable, incremental trials of improvements to the present treatment system.”

MOVED by D. Pepino, **SECONDED** by A. Wickheim,
That the minutes of the November 10, 2023 Wilderness Mountain Water Service Commission meeting be adopted as amended.

CARRIED

5. CHAIR’S REMARKS

The Chair made no remarks.

6. PRESENTATIONS/DELEGATIONS

There were none.

7. SENIOR MANAGER’S REPORT

S. Irg provided the following updates:

Boil water advisory (BWA): the BWA that was issued October 28, 2023, was rescinded on January 24, 2024. Discussion ensued regarding the BWA procedures.

Manganese advisory: The manganese advisory was rescinded January 29, 2024. Current turbidity is 0.65NTU.

The committee asked if there is a document that outlines the steps to be taken in an emergency. Staff advised there is an internal Emergency Response Procedures (ERP) document that covers different scenarios and is referred to as needed. The committee requested a copy of this document and staff further advised it is not a public facing document and is required by the *Drinking Water Protection Act*.

Discussion ensued regarding:

- Turbidity
- Suspended particles
- ERP
- Dissolved organic matter
- Manganese
- Lake turnover

8. COMMISSION BUSINESS

8.1. Project and Operations Update

S. Irg spoke to item 8.1.

Staff responded to a question regarding the status of the application for the intake platform. Staff advised this is a two-part process. The pre-screening has passed which means it meets the required criteria. The formal application will be submitted once the Board approves the budget in March 2024. The report was received for information.

9. WILDERNESS MOUNTAIN WATER SERVICE COMMISSION MEETING SCHEDULE

Regular meetings of the Wilderness Mountain Water Service Commission shall be held in the Goldstream Conference Room, 479 Island Highway, Victoria, BC in February, June, and November to approve the Operating and Capital Budget. Meetings will commence at 9:30 am unless otherwise determined.

10. CORRESPONDENCE

10.1. Wilderness Mountain Water System (Capital Regional District), 706 Cains Way, Sooke, BC

Staff responded to a question from the commission regarding how the letter was drafted. Staff advised the letter resulted from the change to the Operating Permit from Island Health, which requested a plan moving forward. The General Manager of Integrated Water Services wanted to provide an update to Island Health, as required. As of today, there has not been a response from Island Health.

11. NEW BUSINESS

M. Lechowicz provided a document to the commission titled “to address identifying and funding an affordable offshore extension of the WMWS source water intake”. The document is available upon request.

MOVED by M. Lechowicz, **SECONDED** L. Cutler,
That:

- A. CRD-IWS staff seek bids from qualified contractors to construct a floating intake on the lines described subsequently and at an explicitly specified total final cost below the \$132,000 allowed by CRD-IWS staff in their previously proposed project 21-01; and
- B. The floating intake be designed and installed by a contractor fully qualified to assess and if necessary, remedy any hydraulic constraints imposed by the existing intake pump on the intake pipe extension; and
- C. The new intake be hung at ~3-m depth on a float anchored in the ~9-m deep pool offshore from the present nearshore intake and screened to ensure debris free source water is drawn from well above the sediments; and
- D. The intake depth be readily adjustable ± 2 m using simple onshore controls to allow for seasonal changes in the reservoir level or the depth profile of water quality; and
- E. Before any construction contract is undertaken all required funding must have been sought and obtained through a grant requiring no more than \$13,200 support from the WMWS Capital Reserve Fund.

DEFEATED

Opposed: Pepino, Cutler, Wickheim

Staff provided the following comments:

- The use of public funds for the design and build of a new pumpstation.
- A professional engineer is required for the design.
- Could hire someone to provide a design to receive a Class A estimate.
- Higher chance of successfully obtaining a grant by having a design ready.
- The system is unable to meet Island Health's objectives and requirements with only completing the floating intake.
- Recommends considering showing a floating intake design for the ability to apply for grants.
- Island Health having the ability to provide an order for the water system.
- It is CRD's responsibility for centralized treatment, infrastructure, operations and following industry standards.

The commission noted the following and discussion ensued regarding:

- The commission wants to provide high quality water at a low cost.
- Potential financial burden for a small community.
- Raising the intake instead of building a new one.
- Manganese and e. Coli concerns.
- The commission would like to work with CRD and Island Health to result in a compromise.

MOVED by D. Pepino, **SECONDED** L. Cutler,

That:

- A. CRD-IWS staff seek bids from qualified contractors to construct a floating intake on the lines described subsequently and at an explicitly specified total final cost below the \$132,000 allowed by CRD-IWS staff in their previously proposed project 21-01; and
- B. The floating intake be designed and installed by a contractor fully qualified to assess and if necessary, remedy any hydraulic constraints imposed by the existing intake pump on the intake pipe extension; and
- C. The new intake be hung at ~3-m depth on a float anchored in the ~9-m deep pool offshore from the present nearshore intake and screened to ensure debris free source water is drawn from well above the sediments; and
- D. The intake depth be readily adjustable ± 2 m using simple onshore controls to allow for seasonal changes in the reservoir level or the depth profile of water quality; and
- E. Before any construction contract is undertaken all required funding must have been sought and obtained through a grant requiring no more than \$13,200 support from the WMWS Capital Reserve Fund
- F. To be considered as part of the tasking for conversation at the November meeting, in preparation of the 2025 budget.

CARRIED

Staff advised this motion will remain dormant until the November Budget meeting.

12. ADJOURNMENT

MOVED by M. Lechowicz, **SECONDED** by L. Cutler,
That the February 15, 2024 Wilderness Mountain Water Service Commission meeting be
adjourned at 11:04
am.

CARRIED

CHAIR

SECRETARY

DRAFT

Wilderness Mountain Water System

2023 Annual Report

CRD | Drinking Water

Introduction

This report provides a summary of the Wilderness Mountain Water Service for 2023 and 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 community of Wilderness Mountain is a rural residential development located on Mount Matheson in the Juan de Fuca Electoral Area. The area was originally serviced by a private water utility from about 1983, and in 2008 the service converted to the Capital Regional District (CRD). The Wilderness Mountain water service is made up of 82 parcels encompassing a total area of approximately 124 hectares. Of the 82 parcels, 74 were customers to the water system in 2023.

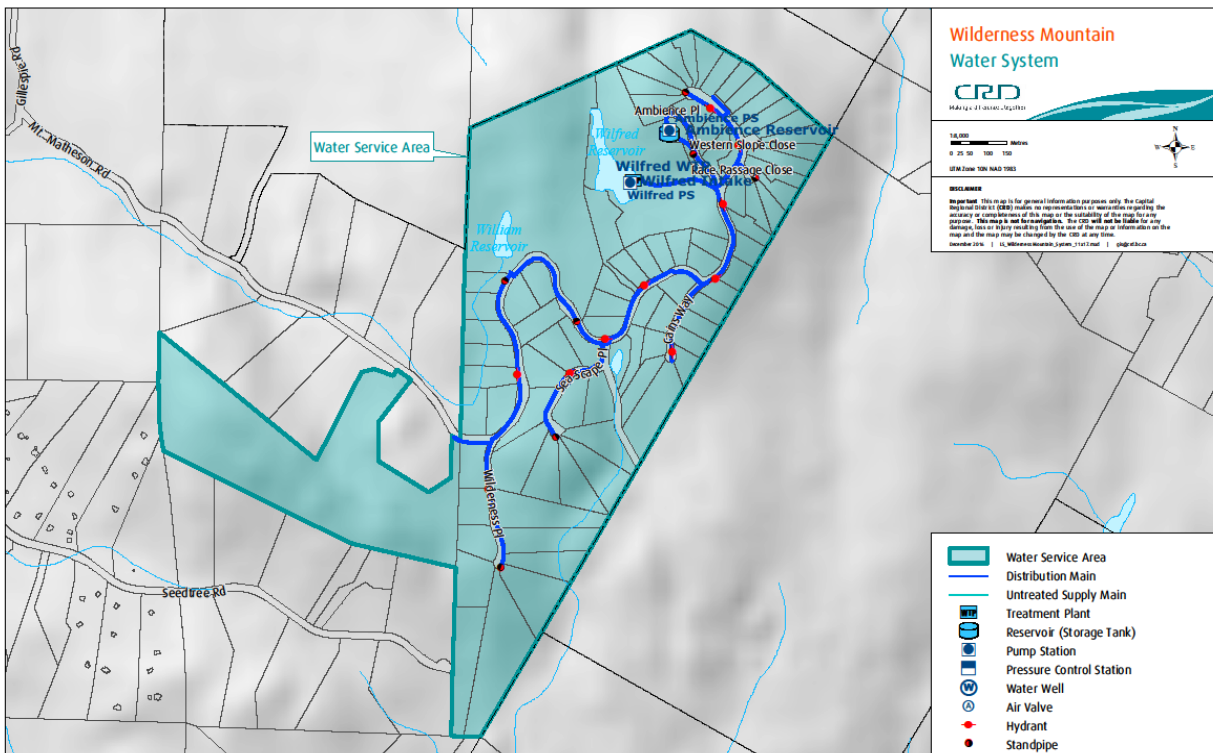


Figure 1: Map of the Wilderness Mountain Water Service Area

The Wilderness Mountain water system is primarily comprised of:

- Raw water obtained from Wilfred Reservoir, a small surface water body which lies within a protected watershed and was created by the construction of two dams.
- Water from Wilfred Reservoir is pumped to the treatment plant which consists of coarse cartridge filtration, ultraviolet disinfection and chloramine disinfection.
- The chloraminated water is then pumped to two distribution system storage tanks (combined capacity of 250 cubic metres or 66,000 US gallons) and the distribution system.
- Distribution system. 3,750 meter network of 150 millimeter (6 inch) and 100 mm (4 inch) polyvinyl chloride (PVC) water mains.
- Other water system assets: 74 service connections, 10 hydrants, six standpipes, 21 gate valves and a Supervisory Control and Data Acquisition (SCADA) system.
- Although the water system also includes the William Brook Dam and related water reservoir, this reservoir is no longer utilized for water supply.

Water Supply

The raw water supply level in Wilfred Reservoir is shown in Figure 2. The lake level was at its lowest point in October. The reservoir reached full volume in January 2023.

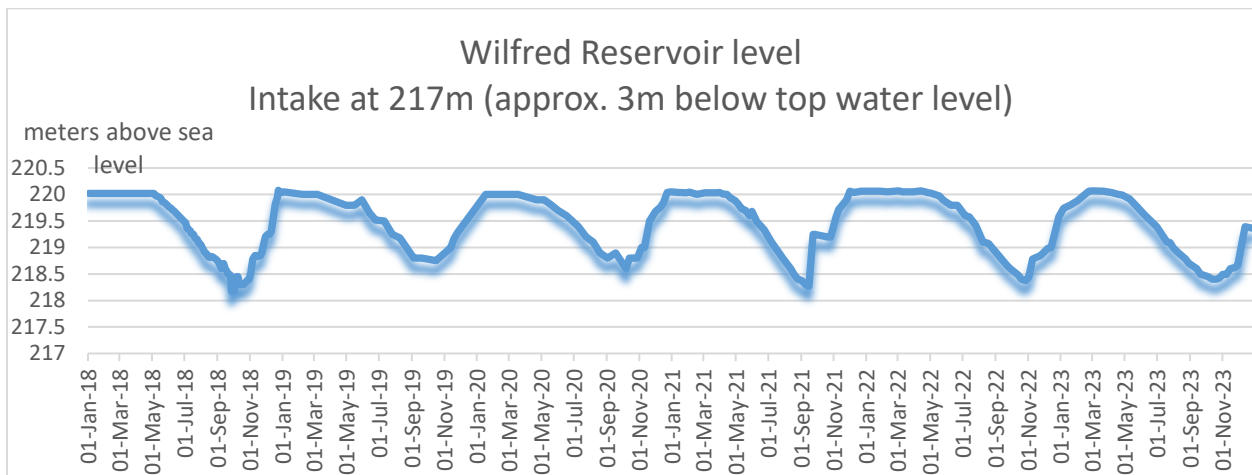


Figure 2: Wilfred Reservoir Water Level 2018-2023

Water Usage

The volume used by the community, or the water demand, is illustrated in Figure 3. The demand in 2023 was 14% lower than in 2022 and within 1% the five-year average.

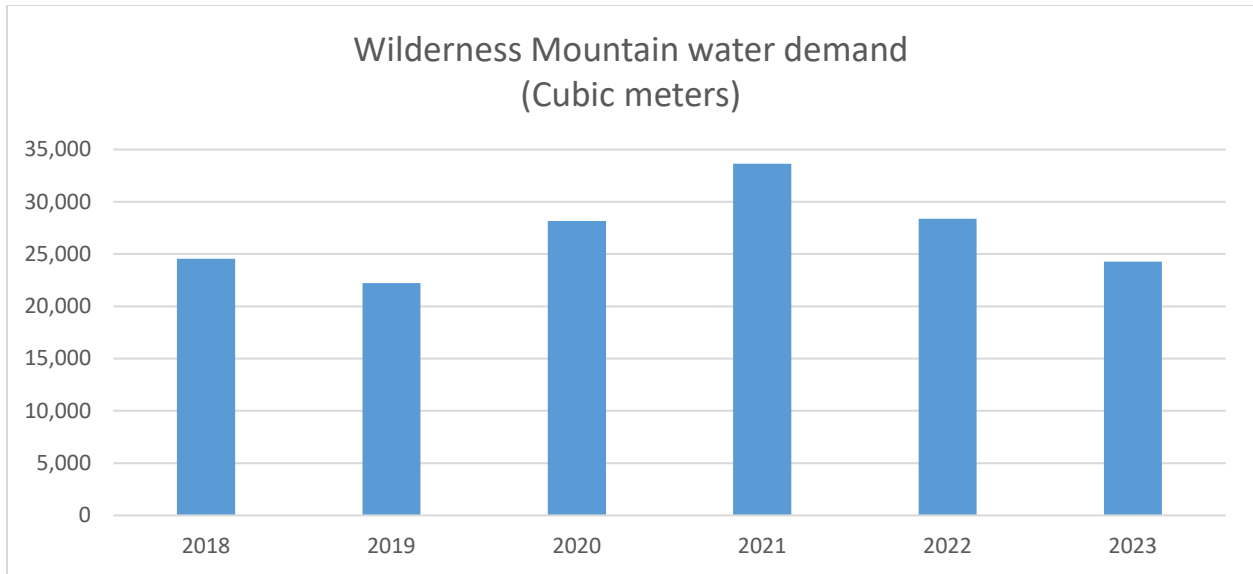


Figure 3: Wilderness Mountain Water Demand (cubic meters) 2018-2023

Drinking Water Quality

The Wilderness Mountain Water System was on a boil water advisory (BWA) for 65 days in 2023 due to elevated turbidity in the treated water. High algal activity and the inability of the existing filtration system to filter out very small algae species in bloom were the main factors for this long BWA for this system. Ongoing discussions with the Commission, Island Health, and CRD staff are taking place to plan upgrades in the near future to mitigate this situation.

Wilfred Reservoir raw water exhibited elevated iron and manganese concentrations throughout the entire year, but especially during the fall and winter. Lake turnover and rain-driven runoff events are the main causes. Without designated treatment in place to remove these metals from the raw water, the aesthetic objective for manganese, as per Guidelines for Canadian Drinking Water Quality (GCDWQ), was regularly exceeded in the treated water. Iron concentrations exceeded the aesthetic objective during the wet season. In samples from November 15, the manganese concentrations in the treated water even exceeded the maximum acceptable concentration (MAC), the health-related limit stipulated by the GCDWQ. Concentrations beyond the aesthetic limit can lead to water discolourations, while exceedances of the MAC can become a health issue with chronic exposure. Because the disinfection process in the Wilderness Mountain Water System utilizes chloramination, the effects on customers in terms of discoloured water may have been reduced. Additional treatment is required to mitigate this ongoing issue.

The data below provides a summary of the water quality characteristics in 2023:

Raw Water:

- In June and July, the raw water exhibited a very high spike of total coliform bacteria concentrations. Aside from that, total coliform concentrations were low throughout the year.
- *E. coli* bacteria concentrations were mostly low with higher concentrations in the fall following the first post-summer rainfall and runoff event.
- *Cryptosporidium* and *Giardia* parasites were tested twice in 2023 and neither were detected.

- The raw water was tested for metals in February, May, August and November. The results indicate that both iron and manganese concentrations are particularly high during the wet season in fall and winter. Cause for this is likely a combination of the lake turnover in October/November and runoff from rainfall events.
- The median annual raw water turbidity was 0.88 Nephelometric Turbidity Unit (NTU) and therefore slightly higher than in 2022. The turbidity was typically over 1 NTU during the wet season and during the peak of the summer. The maximum turbidity was 1.8 NTU (November). Most raw water turbidity spikes coincided with algal and/or zooplankton blooms in Wilfred Reservoir. Runoff and lake turnover events can also have an adverse effect on turbidity.
- The raw water was soft (median hardness 16.40 mg/L CaCO₃).
- The pH was slightly acidic (median pH 6.9).
- The median total organic carbon (TOC) concentration was moderately high at 4.25 mg/L, which is in line with historic results.

Treated Water:

- The treated water was safe to drink outside the 65-day BWA from October 28 into 2024. No *E. coli* bacteria were found in the treated water and only one of 56 bacteriological samples tested positive for total coliform bacteria throughout the year (November 15: 2 CFU/100mL, near 767 Cains Way).
- The treated water turbidity was above the GCDWQ turbidity limit of 1.0 NTU in November. This led to the aforementioned prolonged BWA.
- Manganese concentrations exceeded the aesthetic objective in the treated water during most parts of the year. Two treated water samples from November were above the MAC in the GCDWQ. Iron concentrations were elevated throughout the year and in November and February in exceedance of the aesthetic objective. Despite the exceedances, no significant water discoloration was reported by customers.
- The disinfection by-products Trihalomethanes (TTHM) and Haloacetic Acids (HAA) were well below the GCDWQ limits.
- The annual median total chlorine residual in the system was 1.51 mg/L.

Table 1 and 2 below provide a summary of the 2023 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 operational issues that were addressed by CRD Integrated Water Services staff:

- Maintenance of all 10 fire hydrants
- Replace ammonia solution tank and added secondary containment
- Powerline to treatment plant, vegetation clearing monthly dam inspections and dam maintenance

Capital Project Updates – 2023

No Capital Projects were approved on the 2023 Capital Plan. CRD did initiate preliminary efforts that will support the replacement of the wooden intake platform, which was approved as a 2024 project. CRD recommends future Capital Projects to comply with Island Health's operating permit to achieve Drinking Water Treatment Objectives (Microbiological) for Surface Water Supplies in British Columbia (SWTO).

Financial Report

Please refer to the attached 2023 Statement of Operations and Reserve Balances.

Revenue includes parcel taxes (Transfers from Government), fixed user fees (User Charges), water sales and interest on savings (Interest earnings), 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, supplies, 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 carry 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.

Increased system maintenance costs in 2023 resulted in an annual deficit of \$3,000. The operating reserve balance was not sufficient to cover the deficit, therefore it must be carried forward and included in 2024 financial plan for immediate recovery. The service is experiencing ongoing drinking water quality issues, which requires system cyclical maintenance and capital upgrades to provide additional treatment to mitigate the ongoing water quality issues and potential risk of not meeting health regulatory requirements. The Commission will be engaged for ongoing discussions regarding sustainable service delivery, regulatory compliance requirement and prudent financial planning for future years.

Submitted by:	Shayne Irg, P.Eng., Senior Manager, Water Infrastructure Operations
	Joseph Marr, P.Eng., Senior Manager, Infrastructure Engineering
	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
	Angela Linwood, CPA, CMA, Controller, Financial Services
Concurrence:	Alicia Fraser, P.Eng., General Manager, Integrated Water Services
	Luisa Jones, MBA, General Manager, Parks, Recreation & Environmental Services

Attachments: Table 1
Table 2
2023 Statement of Operations and Reserve Balances

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

Table 1

Table 1: 2023 Summary of Raw Water Test Results, Wilderness Mountain Water System										
PARAMETER		2023 ANALYTICAL RESULTS				CANADIAN GUIDELINES	2013 - 2022 ANALYTICAL RESULTS			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum Maximum		≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum Maximum	
mg/L = parts per million ug/L = parts per billion										
Physical Parameters (ND means Not Detected by analytical method used)										
Carbon, Dissolved Organic	mg/L as C	4.2	2	4	4.4		3.8	21	1.91	5.4
Carbon, Total Organic	mg/L as C	4.25	4	3.9	4.6	Guideline Archived	4	27	2.96	8.8
Colour, True	TCU	19.5	6	15	28	≤15 AO	14	59	7	26
Hardness as CaCO ₃	mg/L	16.4	4	15.3	17.2	No Guideline Required	15.85	32	11.1	20.6
pH	pH units	6.86	13	6.3	7.33	7.0 - 10.5 AO	6.9	67	6.14	8.1
Total Suspended Solids	mg/L	2.4	1	2.4	2.4		1.4	2	1.2	1.6
Total Solids	mg/L	42	1	42	42		49.9	15	42	88
Turbidity, lab tests	NTU	0.875	34	0.45	1.8		0.9	400	0.35	5.8
Ultraviolet Transmittance	%	78.4	6	74.1	80.4		76.65	32	69.9	82.1
Water Temperature	degrees C	13.6	24	4.8	20.8	≤15 AO	11.5	320	1.7	21.2
Non-Metallic Inorganic Chemicals (ND means Not Detected by analytical method used)										
Ammonia, Total	ug/L as N	< 15	2	< 15	< 15		< 15	18	< 0.61	71
Bromide	ug/L as Br	0.035	1	0.035	0.035		33	16	< 0.03	50
Chloride	mg/L as Cl	12	1	12	12	≤ 250 AO	11	10	10	14
Cyanide	mg/L as Cn	< 0.0005	1	< 0.0005	< 0.0005	0.2 MAC	0.00058	10	< 0.0005	0.0164
Fluoride	mg/L as F	< 0.05	1	< 0.05	< 0.05	1.5 MAC	< 0.05	10	< 0.05	< 0.05
Nitrogen, Nitrate	ug/L as N	25	2	< 20	< 15		0.028	18	< 0.45	37
Nitrogen, Nitrite	ug/L as N	< 5	2	< 5	< 15		< 5	18	< 0.005	< 5
Nitrogen, Total	ug/L as N	244.5	2	242	247		200	18	84	267
Phosphate, Total	ug/L as P	6.45	2	5.6	7.3		5.6	18	< 1	71
Silica	mg/L as SiO ₂	2.65	2	2	3.3		3.6	17	< 0.5	5.5
Silicon	mg/L as Si	1149.5	4	809	2190		1735	28	380	2920
Sulphate	mg/L as SO ₄	4.5	3	4.3	5.2	≤ 500 AO	6.33	20	4	19
Sulphide	mg/L as H ₂ S	< 0.0018	1	< 0.0018	< 0.0018	≤ 0.05 AO	0.00275	2	< 0.0018	0.0037
Sulphur	mg/L as S	< 3	4	< 3	< 3		< 3	29	< 3	5.94
Metals (ND means Not Detected by analytical method used)										
Aluminum	ug/L as Al	16.85	4	7.9	30.7	2900 MAC / 100 OG	28.95	28	7.8	81.5
Antimony	ug/L as Sb	< 0.5	4	< 0.5	< 0.5	6 MAC	< 0.5	28	< 0.5	< 0.5
Arsenic	ug/L as As	< 0.1	4	< 0.1	0.13	10 MAC	< 0.1	28	< 0.1	0.15
Barium	ug/L as Ba	1.95	4	1.8	2.4	1000 MAC	2	28	< 1	2.7
Beryllium	ug/L as Be	< 0.1	4	< 0.1	2.4		< 0.1	28	< 0.1	< 0.1
Bismuth	ug/L as Bi	< 1	4	< 1	< 1		< 1	28	< 1	< 1
Boron	ug/L as B	< 50	4	< 50	< 50	5000 MAC	< 50	28	< 50	< 50
Cadmium	ug/L as Cd	< 0.01	4	< 0.01	< 0.01	7 MAC	< 0.01	28	< 0.01	0.117
Calcium	mg/L as Ca	3.515	4	3.21	3.72	No Guideline Required	3.38	28	2.9	4.56
Chromium	ug/L as Cr	< 1	4	< 1	< 1	50 MAC	< 1	28	< 1	< 1
Cobalt	ug/L as Co	< 0.2	4	< 0.2	< 0.2		< 0.2	28	< 0.2	0.5
Copper	ug/L as Cu	4.66	4	2.86	28	2000 MAC / ≤ 1000 AO	3.135	28	1.95	28.5
Iron	ug/L as Fe	276	4	90.5	463	≤ 300 AO	174	28	111	902
Lead	ug/L as Pb	0.435	4	0.22	0.51	5 MAC	0.25	28	< 0.2	1.01
Lithium	ug/L as Li	< 2	4	< 2	< 2		< 2	19	< 2	5
Magnesium	mg/L as Mg	1.855	4	1.76	1.94	No Guideline Required	1.735	28	1.48	2.24
Manganese	ug/L as Mn	54.7	4	19.7	179	120 MAC / ≤ 20 AO	54.85	28	23.7	364
Mercury	ug/L as Hg	< 0.0019	4	< 0.0019	< 0.0019		< 0.002	25	< 0.0019	< 0.05
Molybdenum	ug/L as Mo	< 1	4	< 1	< 1		< 1	28	< 1	< 1
Nickel	ug/L as Ni	< 1	4	< 1	< 1		< 1	28	< 1	5.2
Potassium	mg/L as K	0.365	4	0.342	0.395		0.32	28	0.249	0.423
Selenium	ug/L as Se	< 0.1	4	< 0.1	< 0.1	50 MAC	< 0.1	28	< 0.1	0.12
Silver	ug/L as Ag	< 0.02	4	< 0.02	< 0.02	No Guideline Required	< 0.02	28	< 0.02	< 0.02
Sodium	mg/L as Na	6.73	4	6.48	7.1	≤ 200 AO	6.83	28	6.18	10.9
Strontium	ug/L as Sr	14.5	4	14	15.5	7000 MAC	14.25	28	12.2	17.2
Thallium	ug/L as Tl	< 0.01	4	< 0.01	< 0.01		< 0.01	28	< 0.01	< 0.05
Tin	ug/L as Sn	< 5	4	< 5	< 5		< 5	28	< 5	< 5
Titanium	ug/L as Ti	< 5	4	< 5	< 5		< 5	28	< 5	< 5
Uranium	ug/L as U	< 0.1	4	< 0.1	< 0.1	20 MAC	< 0.1	28	< 0.1	< 0.1
Vanadium	ug/L as V	< 5	4	< 5	< 5		< 5	28	< 5	< 5
Zinc	ug/L as Zn	8.4	4	< 5	11.3	≤ 5000 AO	< 5	28	< 5	21.3
Zirconium	ug/L as Zr	< 0.1	4	< 0.1	< 0.1		< 0.1	28	< 0.1	< 0.5
Microbial Parameters										
Indicator Bacteria										
Coliform, Total	Coliforms/100 mL	175	14	55	53000		125	214	< 1	A 4300
<i>E. coli</i>	<i>E.coli</i> /100 mL	1.5	16	< 1	20		< 1	221	< 1	29
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	Last analyzed in 2014				No Guideline Required	820	31	40	A 1950
Chlorophyll										
Chlorophyll A	ug/L	2.9	15	0.93	10.7		3.51	145	0.295	10.4
Parasites										
No MAC Established										
<i>Cryptosporidium</i> , Total oocysts	oocysts/100 L	< 0.1	2	< 0.1	< 0.1	Zero detection desirable	< 1	6	< 0.1	< 1
<i>Giardia</i> , Total cysts	cysts/100 L	< 0.1	2	< 0.1	< 0.1	Zero detection desirable	< 1	6	< 0.1	< 1

Table 2

Table 2: 2023 Summary of Treated Water Test Results, Wilderness Mountain Water System										
PARAMETER		2023 ANALYTICAL RESULTS				CANADIAN GUIDELINES	2013-2022 ANALYTICAL RESULTS			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range		≤ = Less than or equal to	Median	Samples Analyzed	Range	
				Minimum	Maximum				Minimum	Maximum
mg/L = parts per million ug/L = parts per billion										
Physical Parameters										
Colour, True	TCU	15.5	6	11	24	≤ 15 AO	10	57	5	19
Hardness as CaCO3	mg/L	17.2	7	15.8	17.5		15.75	18	13.6	18.1
pH	pH units	7.06	14	6.9	8.5	7.0 - 10.5 AO	7.02	70	6.45	9.1
Total Organic Carbon	mg/L	4.1	4	3.7	4.5		3.85	13	2.5	8.7
Turbidity, lab tests	NTU	0.65	18	0.45	1.8	1 MAC and ≤ 5 AO	0.66	339	0.17	3.3
Water Temperature	degrees C	9	128	3.9	20.6	≤ 15 AO	11.35	1126	1.8	20.5
Microbial Parameters										
Indicator Bacteria										
Coliform, Total	CFU/100 mL	< 1	56	< 1	2	0 MAC	< 1	475	< 1	330
<i>E. coli</i>	CFU/100 mL	< 1	56	< 1	< 1	0 MAC	< 1	475	< 1	40
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	7500	7	1100	22000	No Guideline Required	1885	50	40	G 20000
Disinfectants										
Disinfectants										
Chlorine, Total Residual	mg/L as Cl ₂	1.505	140	0	3.61	No Guideline Required	1.34	1188	0	5.2
Monochloramine, Field - 1 Station	mg/L	2.935	16	1.17	3.45		2.28	65	0.17	3.29
Disinfection By-Products (ND means Not Detected by analytical method used)										
Trihalomethanes (THMs)										
Bromodichloromethane (BDCM)	ug/L	< 1	4	< 1	< 1		< 1	48	< 0.2	17
Bromoform (BRFM)	ug/L	< 1	4	< 1	< 1		< 1	48	< 0.1	< 2
Chloroform (CHLF)	ug/L	1.8	4	1	2.9		2.6	48	< 1	110
Chlorodibromomethane (DBCM)	ug/L	< 1	4	< 1	< 1		< 1	48	< 0.1	< 3
Total Trihalomethanes (TTHM)	ug/L	1.8	4	1	2.9	100 MAC	2.45	48	< 1	130
Haloacetic Acids (HAAs)										
Haloacetic Acids (*5 Total, HAA5)	ug/L	12	2	12	12	80 MAC	8	42	0.75	69
Metals (ND means Not Detected by analytical method used)										
Aluminum	ug/L as Al	17.1	7	5.6	28	2900 MAC / 100 OG	27.4	18	4.5	62.1
Antimony	ug/L as Sb	< 0.5	7	< 0.5	< 0.5	6 MAC	< 0.5	18	< 0.5	< 0.5
Arsenic	ug/L as As	< 0.1	7	< 0.1	0.12	10 MAC	< 0.1	18	< 0.1	0.14
Barium	ug/L as Ba	2.2	7	1.6	2.6	1000 MAC	1.7	18	< 1	2.6
Beryllium	ug/L as Be	< 0.1	7	< 0.1	< 0.1		< 0.1	18	< 0.1	< 0.1
Bismuth	ug/L as Bi	< 1	7	< 1	< 1		< 1	18	< 1	< 1
Boron	ug/L as B	< 50	7	< 50	< 50	5000 MAC	< 50	18	< 50	< 50
Cadmium	ug/L as Cd	< 0.01	7	< 0.01	< 0.01	5 MAC	< 0.01	18	< 0.01	< 0.01
Calcium	mg/L as Ca	3.73	7	3.35	3.93	No Guideline Required	3.355	18	2.93	3.89
Chromium	ug/L as Cr	< 1	7	< 1	< 1	50 MAC	< 1	18	< 1	< 1
Cobalt	ug/L as Co	< 0.2	7	< 0.2	< 0.2		< 0.2	18	< 0.2	< 0.5
Copper	ug/L as Cu	15	7	8.15	24.5	2000 MAC / ≤ 1000 AO	10.15	18	3.57	92.7
Iron	ug/L as Fe	219	7	49.7	383	≤ 300 AO	119	18	52	573
Lead	ug/L as Pb	0.44	7	0.25	0.65	5 MAC	0.395	18	0.2	0.99
Lithium	ug/L as Li	< 2	7	< 2	< 2		< 2	14	< 2	< 5
Magnesium	mg/L as Mg	1.85	7	1.76	1.96	No Guideline Required	1.735	18	1.52	2.07
Manganese	ug/L as Mn	72.7	7	8	167	120 MAC / ≤ 20 AO	32.45	18	8.8	208
Mercury	ug/L as Hg	< 0.0019	4	< 0.0019	< 0.0019		< 0.0019	15	< 0.0019	0.0032
Molybdenum	ug/L as Mo	< 1	7	< 1	< 1		< 1	18	< 1	< 1
Nickel	ug/L as Ni	< 1	7	< 1	< 1		< 1	18	< 1	< 1
Potassium	mg/L as K	0.347	7	0.339	0.397		0.3375	18	0.241	0.388
Selenium	ug/L as Se	< 0.1	7	< 0.1	< 0.1	50 MAC	< 0.1	18	< 0.1	< 0.1
Silicon	mg/L as Si	1480	7	805	2190		1960	18	408	2860
Silver	ug/L as Ag	< 0.02	7	< 0.02	< 0.02	No Guideline Required	< 0.02	18	< 0.02	< 0.02
Sodium	mg/L as Na	9.66	7	9.31	10.7	≤ 200 AO	9.52	18	7.22	11.4
Strontium	ug/L as Sr	15.2	7	14.3	16	7000 MAC	14.25	18	12.3	16.4
Sulfur	mg/L as S	< 3	7	< 3	< 3		< 3	18	< 3	4.6
Thallium	ug/L as Tl	< 0.01	7	< 0.01	< 0.01		< 0.01	18	< 0.01	< 0.05
Tin	ug/L as Sn	< 5	7	< 5	< 5		< 5	18	< 5	< 5
Titanium	ug/L as Ti	< 5	7	< 5	< 5		< 5	18	< 5	< 5
Uranium	ug/L as U	< 0.1	7	< 0.1	< 0.1	20 MAC	< 0.1	18	< 0.1	< 0.1
Vanadium	ug/L as V	< 5	7	< 5	< 5		< 5	18	< 5	< 5
Zinc	ug/L as Zn	< 5	7	< 5	8.7	≤ 5000 AO	< 5	18	< 5	18.6
Zirconium	ug/L as Zr	< 0.1	7	< 0.1	< 0.1		< 0.1	18	< 0.1	< 0.5

CAPITAL REGIONAL DISTRICT

WILDERNESS MOUNTAIN WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2023

	2023	2022
Revenue		
Transfers from government	61,900	61,900
User Charges	73,467	73,467
Water Sales	17,760	17,757
Fees and Charges	241	341
Other revenue from own sources:		
Interest earnings	40	53
Transfer from Operating Reserve Fund	6,460	10,000
Other revenue	115	81
Total Revenue	159,983	163,599
Expenses		
General government services	6,683	6,048
Contract for services	11,912	9,193
CRD Labour and Operating costs	79,179	72,451
Debt Servicing Costs	25,779	23,648
Other expenses	39,430	47,864
Total Expenses	162,983	159,204
Net revenue (expenses)	(3,000)	4,395
Transfers to own funds:		
Capital Reserve Fund	-	-
Operating Reserve Fund	-	4,395
Annual surplus/(deficit)	(3,000)	-
Accumulated surplus/(deficit), beginning of year	-	-
Accumulated surplus/(deficit), end of year	\$ (3,000)	-

CAPITAL REGIONAL DISTRICT

WILDERNESS MOUNTAIN WATER Statement of Reserve Balances (Unaudited) For the Year Ended December 31, 2023

	Capital Reserve	
	2023	2022
Beginning Balance	43,553	47,351
Transfer from Operating Budget	-	-
Transfer from Completed Capital Projects	1,859	-
Transfer to Capital Projects	(998)	(5,000)
Interest Income	2,099	1,202
Ending Balance	46,513	43,553

	Operating Reserve	
	2023	2022
Beginning Balance	6,277	11,613
Transfer from Operating Budget	-	4,395
Transfer to Operating Budget	(6,460)	(10,000)
Interest Income	236	269
Ending Balance	53	6,277

**REPORT TO WILDERNESS MOUNTAIN WATER SERVICE COMMISSION
MEETING OF MONDAY, JUNE 24, 2024**

SUBJECT Capital Project Status Reports and Operational Updates – June 2024

ISSUE SUMMARY

To provide the Wilderness Mountain Water Service Commission with capital project status reports and operational updates.

BACKGROUND

The Wilderness Mountain Water System is located near the top of Mount Matheson in East Sooke on Vancouver Island in the Juan de Fuca Electoral Area and provides drinking water to approximately 74 customers. Capital Regional District (CRD) Integrated Water Services is responsible for the overall operation of the water system with day-to-day operation, maintenance, design and construction of water system facilities provided by the CRD Infrastructure Engineering and Operations Divisions. The quality of drinking water provided to customers in the Wilderness Mountain Water System is overseen by the CRD Water Quality Section.

CAPITAL PROJECT UPDATE

24-01 | Wooden Intake Platform Replacement

Project Description: Replacement of the existing water intake platform.

Project Rationale: The existing intake platform is deteriorating and considered a hazard. Replacement is required for continued safe operation and maintenance activities.

Project Update and Milestones:

Milestone	Completion Date
Invitation to Quote	Q2 2024 (Pending)
Site Visits with Contractors	Q2 2024
Budget Approval	March 2024

OPERATIONAL UPDATE

The following provides a summary of Operational activities completed since February 2024:

- February 13: Dam inspections and site safety inspections
- March 16: Site safety inspections
- March 19: Dam inspections
- April 4: Reset UV Fault on UV#1
- April 10: Troubleshoot booster pump discharge check valve
- April 11: Replace booster pump discharge check valve
- April 15: Site safety inspections
- April 16: Dam inspections
- May 13: UV Fault Reset
- May 14: Dam inspections and site safety inspections

RECOMMENDATION

There is no recommendation. This report is for information only.

Submitted by:	Shayne Irg, P.Eng., Senior Manager, Water Infrastructure Operations
Concurrence:	Joseph Marr, P.Eng., Senior Manager, Infrastructure Engineering
Concurrence:	Alicia Fraser, P.Eng., General Manager, Integrated Water Services