



Making a difference...together

**WILDERNESS MOUNTAIN WATER SERVICE COMMISSION**  
Notice of Meeting on **Monday, June 12, 2023 at 9:30 a.m.**  
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.

D. Pepino (Chair)      M. Lechowicz (Vice-Chair)      L. Cutler      A. Wickheim (Electoral Area Director)

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**AGENDA**

**1. APPROVAL OF AGENDA**

**2. ADOPTION OF MINUTES .....3**

*Recommendation: That the minutes of the February 6, 2023 meeting be adopted.*

**3. CHAIR’S REMARKS**

**4. 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](mailto:iwsadministration@crd.bc.ca).*

*Requests must be received no later than 4:30 p.m. two calendar days prior to the meeting.*

**5. SENIOR MANAGER’S REPORT**

- Electoral Areas Water Conservation Bylaw No. 1, 2022 (Bylaw No. 4492) – Update

**6. COMMITTEE BUSINESS**

**6.1. 2022 Annual Report.....8**

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

**6.2. Project and Operations Update .....17**

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

**6.3. 2024 Budget Discussion [verbal]**

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*To ensure quorum, advise [IWSAdministration@crd.bc.ca](mailto:IWSAdministration@crd.bc.ca) if you cannot attend.*

**Wilderness Mountain Water Service Commission  
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**7. CORRESPONDENCE**

**7.1. Letter from Island Health – Wilderness Mountain Water System (CRD) – 706 Cains  
Way, Sooke BC .....24**

**8. NEW BUSINESS**

**9. ADJOURNMENT**

**Next Meeting:** Friday, November 10, 2023 at 9:30 am



Making a difference...together

**MINUTES OF A MEETING OF THE Wilderness Mountain Water Service Commission, held Monday, February 6, 2023 at 9:30 a.m., In the Goldstream Meeting Room, 479 Island Highway, Victoria, BC**

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**PRESENT: Commissioners:** D. Pepino (Chair); M. Lechowicz (Vice Chair); A. Wickheim (Electoral Area Director); L. Cutler  
**Staff:** S. Irg, Senior Manager, Water Infrastructure Operations; T. Duthie, Manager, Administrative Services; M. Risvold, Committee and Administrative Clerk (Recorder)

The meeting was called to order at 9:30.

**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, 2023.

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, 2023 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, 2023.

L. Cutler nominated M. Lechowicz. M. Lechowicz 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, 2023 by acclamation.

**3. APPROVAL OF AGENDA**

The following items were added to the agenda:

- Report from McElhanney was added to item 10.3
- Preparation of 2024 Budget – Capital Project Priorities was added to item 11.1

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

**CARRIED**

#### 4. ADOPTION OF MINUTES

Item 3 of the minutes from November 21, 2022 were amended to read:  
“The following documents are on file and are available upon request by contacting  
IWSAdministration@crd.bc.ca”

**MOVED** by L. Cutler, **SECONDED** by M. Lechowicz,  
That the minutes of the November 21, 2022 meeting be adopted as amended.

**CARRIED**

**MOVED** by L. Cutler, **SECONDED** by M. Lechowicz,  
That the minutes of the November 28, 2022 meeting be adopted.

**CARRIED**

#### 5. CHAIR'S REMARKS

The Chair provided the following remarks:

“I want to introduce the meaning of “Objective” as defined in the Cambridge dictionary:

Objective – something that you aim to do or achieve.

As WMWS Commissioners, our objective was to deliver for our small community “the Highest Quality water, at the lowest possible costs, through continuous improvement”. We have been pretty consistent in that objective, and that should be readily apparent through our supplied analysis, and CRD meeting minutes over the last few years.

I have received today's agenda at 4:13 PM on Friday Feb 3, 2023. This meets the CRD guideline for advance notice. What it does not deliver is the opportunity for serious review from a Commissioner who might not have the skills nor time needed to adequately prepare to represent their constituents at the meeting on a Monday morning first AM. Luckily WMWS members have the skills and time needed to adequately prepare.

In that preparation, I have uncovered a number of details that individually might not mean much but taken collectively forces me to ask myself, is the CRD Objective really “making a difference....together”?

From our detailed research on the Local Government Act, VIHA's SWTO documentation, the Community documents starting in the early 2000's, through to today's agenda and correspondence that I reviewed, I come to a totally different objective for the CRD which is:

“CRD do what we want, when we want, regardless of your input, to maximize our financial gain”

Your objective for today is to change my mind.”

#### 6. PRESENTATIONS/DELEGATIONS

There were none.

## **7. SENIOR MANAGER'S REPORT**

The Senior Manager advised the water system is running quite well and the turbidity for most of January was 0.7 NTU. There are currently no issues.

## **8. COMMISSION BUSINESS**

### **8.1. Project and Operations Update**

S. Irg provided the capital projects and operational update and responded to the following questions:

- Which dams were included in the dam maintenance. Staff advised all three dams were part of the maintenance.
- If staff have had a discussion with the person living in their trailer near the lower dam. Staff advised it was not noted in the inspections and will have it checked in the next inspection.

### **8.2. Referral From Electoral Areas Committee – Electoral Areas Water Conservation Bylaw No. 1, 2022 (Bylaw No. 4492)**

S. Irg introduced the Electoral Areas Water Conservation Bylaw.

The committee provided the following feedback:

- Advised Wilderness Mountain is a compact tightly integrated community without wells that is mutually dependent on the water system.
- Does not wish to support the salary and operating cost for the enforcement effort, nor grant restricted access to private properties.
- There are no functioning water meters in the system or no concrete evidence of a claim in court.
- Document is written in obscure legalese phrasing and emphasizes what can't be done to the detriment of what is allowed under stage 1, 2 and 3. Unclear how to integrate cistern water with drinking water. Feels a communications officer is needed.
- Bylaw is not plain English, and bylaw needs to be reworked.
- Bylaw is a double negative and badly written.
- Finds the bylaw restrictive regarding planting trees.
- No water meters to monitor the water flows.
- Commission feedback is that the bylaw is not a go unless it is substantially modified.

Discussion ensued.

## **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 on Monday, February 6, Monday, June 12 and a date to be determined in November to approve the Operating and Capital Budget. Meetings will commence at 9:30 am unless otherwise determined.

Staff responded to the following questions:

- Can the Chair provide input on agenda items. Staff advised the Chair's input is welcome and can be provided to the Senior Manager prior to the meeting.
- Whether there is budget for additional meetings. Staff advised additional meetings can be requested at the call of the Chair and will confirm if there are any additional costs to the service for holding additional meetings.

Discussion ensued regarding holding a fourth meeting to specifically discuss the budget.

## **10. CORRESPONDENCE**

### **10.1. WMWS – Cover Letter Final Report: Associated Engineering December 2022**

Staff advised the letter was provided to Island Health (IH). The commission provided the following points and discussion ensued:

- Appreciates this was brought to Associated Engineering (AE).
- Not content with AE's response regarding manganese.
- Where a claim can be made against AE. Staff advised CRD will not be providing a complaint. Commission members can make complaints as individuals.
- The commission felt that how AE reviewed the commission's analysis was unprofessional.
- Feels there are qualified professionals with RPBio designations who would be well suited to complete the research.
- Feels a large portion of the effort went towards the dissolved air filtration (DAF). Staff advised the original contract did not include the intake. After a meeting with the Commission and AE, a floating intake was provided as an option.
- The Commission would like a low-cost upgrade for treatment under \$250,000.

### **10.2. Associated Engineering to Island Health Letter: Manganese clarification**

There was no discussion.

### **10.3. Wilderness Mountain Update to Island Health Letter February 2023**

There was no discussion.

## **11. NEW BUSINESS**

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

That CRD-IWS staff should formally report the WMWSC's dissatisfaction with the work performed under the contract awarded to Associated Engineering for the project entitled "*Wilderness Mountain Water Service Commission Treatment Concept Updates*" and

That from start to finish of the project Associated Engineering did not engage effectively with the WMWSC, and

That the two written critiques of Associated Engineering's draft report previously submitted to CRD-IWS staff by the WMWSC be filed as a matter of record for deficient supplier performance, and

**Wilderness Mountain Water Service Commission  
Minutes – February 6, 2023**

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That the WMWSC considers the final report submitted by Associated Engineering to be poor value for the monies we invested on behalf of the WMWS Community.

**CARRIED**  
**Opposed: Wickheim**

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

That the CRD-IWS staff responsible for preparing the November 2023 proposal for the 2024 WMWSC budget should strive to develop a budget proposal in support of project 23-01 (Water Treatment Plant Upgrade) to specifically assess the merit and feasibility of installing a floating intake in Wilfred Reservoir:

1. That would involve contracting appropriately qualified professionals (i.e. RPBio certification with expertise in limnology) to undertake a study along the lines proposed by the WMWSC in February 2022 entitled “*A proposal to evaluate the potential utility of an offshore intake for the WMWS Treatment Plant*”, and
2. That ensured meaningful consultation and involvement of the WMWSC at all stages of the project from procurement through completion of the final report.

**CARRIED**

Discussion ensued regarding:

- The Commission requesting a subsequent meeting in June to provide costs, priorities and preference of where funds should go
- Community Works Funds
- Obtaining a professional with an RPBio designation to assist with the study

Staff will provide a cost estimate to the commission to hire a professional with an RPBio designation. The commission will provide language to staff to use to obtain costs from other companies.

## 12. ADJOURNMENT

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

That the February 6, 2023 meeting be adjourned at 10:52.

**CARRIED**

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**CHAIR**

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**SECRETARY**

# Wilderness Mountain Water System

## 2022 Annual Report



### Introduction

This report provides a summary of the Wilderness Mountain Water Service for 2022 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 2022.

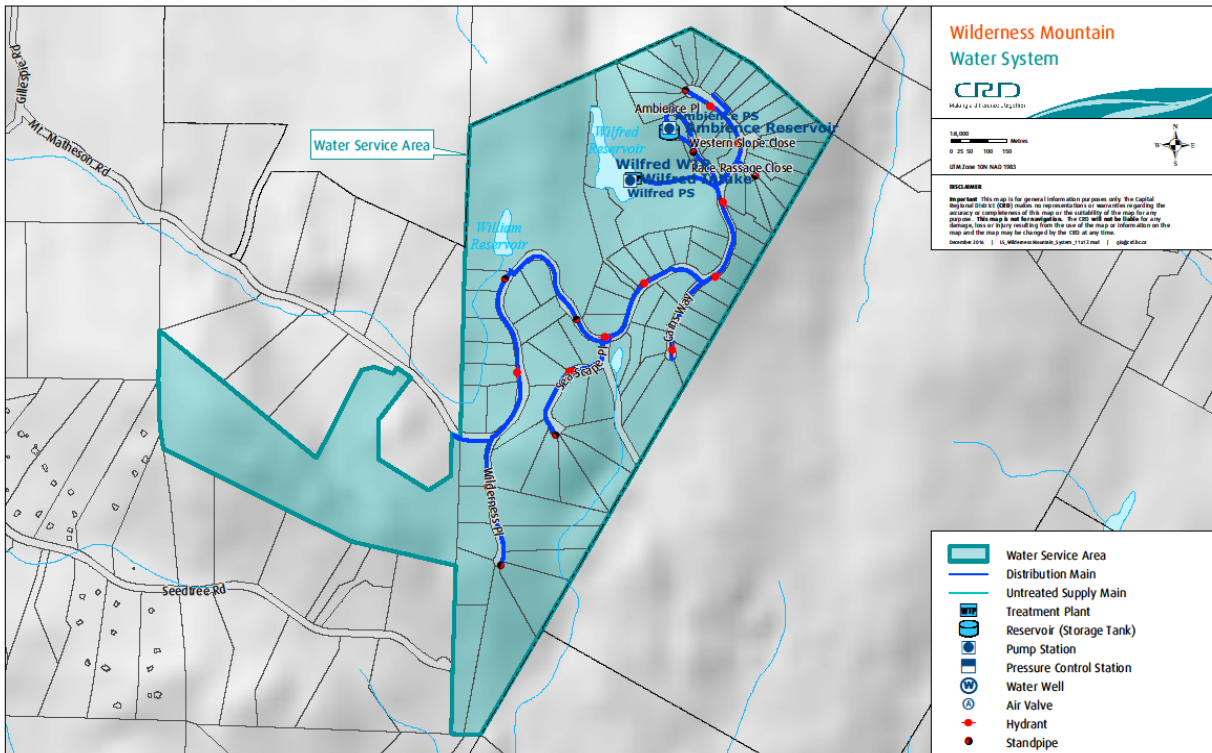


Figure 1: Map of the Wilderness Mountain Water Service Area

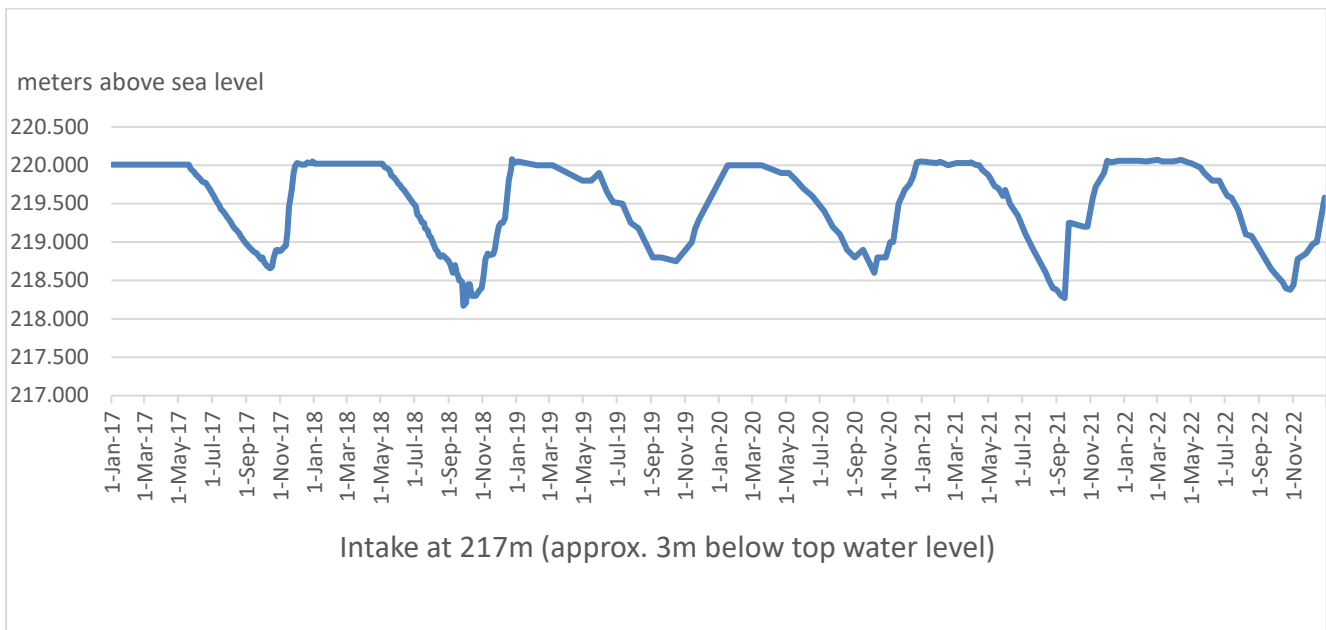


The Wilderness Mountain water system is primarily comprised of:

- 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

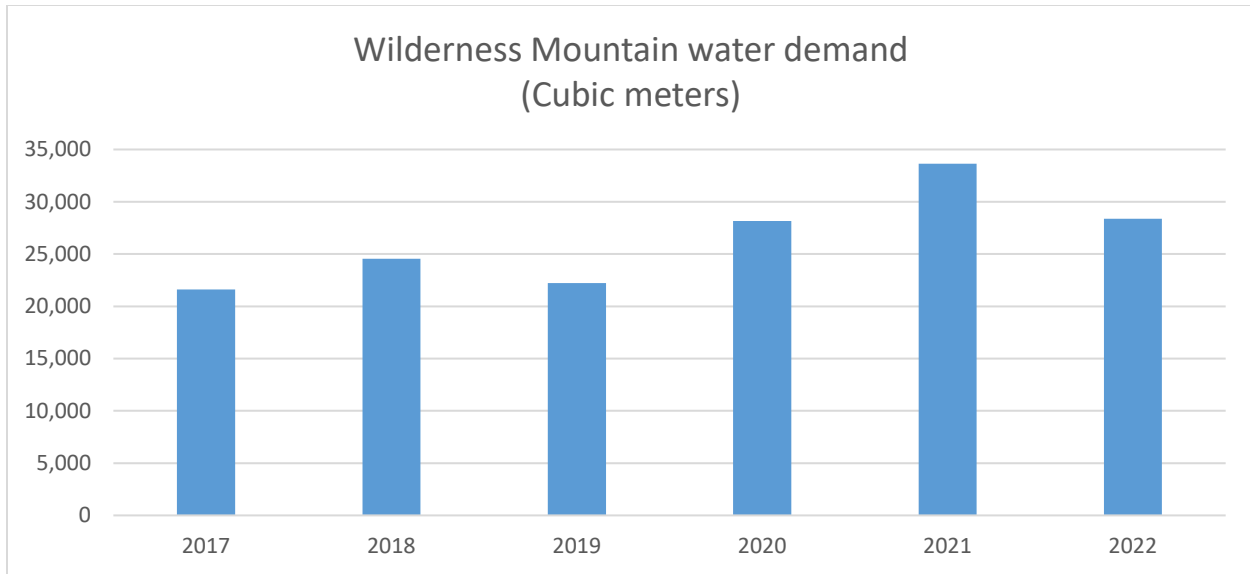
The raw water supply level in Wilfred Reservoir is shown in Figure 2. The lake level was at its lowest point in October. The reservoir reached full volume in January 2022.



**Figure 2: Wilfred Reservoir Water Level 2017-2022**

### Water Usage

The volume used by the community, or the water demand, is illustrated in Figure 3. The demand in 2022 was 16% lower than in 2021 and within 1% the five year average.



**Figure 3: Wilderness Mountain Water Demand (cubic meters) 2016-2022**

### Drinking Water Quality

The Wilderness Mountain Water System was on a boil water advisory (BWA) for 78 days in 2022 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 16, 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 2022:

#### Raw Water:

- In September, the raw water exhibited a higher 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 2022 and neither were detected.

- The raw water was tested for metals in February, May, September 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 0.8 Nephelometric Turbidity Unit (NTU) and therefore lower than in 2021. The maximum turbidity was 1.6 NTU (July and August). Most raw water turbidity spikes coincided with algal and/or zooplankton blooms in Wilfred Reservoir.
- The raw water was soft (median hardness 14.15 mg/L CaCO<sub>3</sub>).
- The pH was slightly acidic (median pH 6.84), slightly lower than in previous years.
- The median total organic carbon (TOC) concentration was moderately high at 3.85 mg/L, which is in line with results pre-2021.

#### Treated Water:

- The treated water was bacteriologically safe to drink outside the 78 day BWA from July 20 to October 5. No *E. coli* bacteria were found in the treated water and only one of 90 bacteriological samples tested positive for total coliform bacteria throughout the year (July 20: 1 CFU/100mL in the North Cell of the distribution reservoir).
- The treated water turbidity was periodically above the GCDWQ turbidity limit of 1.0 NTU in particular during summer and fall. This led to the aforementioned prolonged BWA.
- Manganese concentrations exceeded the aesthetic objective in the treated water during most parts of the year. One treated water sample from November was 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 discolouration 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 2.48 mg/L.

Table 1 and 2 below provide a summary of the 2022 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:

- Cleaning and inspection of concrete tanks
- Flushing of distribution system
- Maintenance of all 10 fire hydrants
- Replacement of intake pump at Wilfred Reservoir
- Replacement of UV sensors at Treatment Plant
- Monthly dam inspections and dam maintenance

## Capital Project Updates – 2022

- Source Water Protection Plan Report – Complete
- Water Treatment Plant Conceptual Design Report – Complete

## Financial Report

Please refer to the attached 2022 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 added to any surplus or deficit carry forward from the prior year, yielding an Accumulated Surplus (or deficit) that is carried forward to the following year.

2023 service budget with no increase recommended by the Commission resulted in removal of funding for cyclical maintenance and planned Water Treatment upgrades, which is not sustainable for future years. The service is experiencing ongoing drinking water quality issues, which requires system cyclical maintenance and capital upgrades to provide additional treatment in order 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., Acting Senior Manager, Infrastructure Engineering
	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
	Rianna Lachance, BCom, CPA, CA, Senior Manager, Financial Services
Concurrence:	Ian Jesney, P.Eng., Acting General Manager, Integrated Water Services
	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services

Attachment: 2022 Statement of Operations and Reserve Balances

For questions related to this Annual Report please email [IWSAdministration@crd.bc.ca](mailto:IWSAdministration@crd.bc.ca)

Table 1

Table 1: 2022 Summary of Raw Water Test Results, Wilderness Mountain Water System										
PARAMETER		2022 ANALYTICAL RESULTS				CANADIAN GUIDELINES	2012 - 2021 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										
<b>Physical Parameters</b> (ND means Not Detected by analytical method used)										
Alkalinity, Total	mg/L	Not tested in 2022					8.78	26	7.28	13.3
Carbon, Dissolved Organic	mg/L as C	3.3	2	2.5	4		3.8	25	1.91	5.4
Carbon, Total Organic	mg/L as C	3.85	4	3.1	4.4	Guideline Archived	4	28	2.96	8.8
Colour, True	TCU	19	6	14	25	≤15 AO	14.5	71	7	26
Conductivity @ 25 C	uS/cm	Not tested in 2022					75.5	30	67.7	92.7
Hardness as CaCO <sub>3</sub>	mg/L	14.15	4	13.4	15.8	No Guideline Required	16.3	32	11.1	20.6
pH	pH units	6.84	14	6.4	7.14	7.0 - 10.5 AO	6.91	59	6.14	8.1
Total Suspended Solids	mg/L	5.2	1	5.2	5.2		1.4	19	0.2	7.2
Total Solids	mg/L	42	1	42	40		50	19	42	88
Turbidity, lab tests	NTU	0.8	33	0.35	1.6		0.95	398	0.4	5.8
Ultraviolet Absorption, 5 cm	Abs.@254 nm	Last tested in 2015					0.415	17	0.345	0.659
Ultraviolet Transmittance	%	72.2	5	69.9	78.3		76.8	17	72.7	82.1
Water Temperature	degrees C	13.3	21	4.4	20.2	≤15 AO	11	384	3.5	21.2
<b>Non-Metallic Inorganic Chemicals</b> (ND means Not Detected by analytical method used)										
Ammonia, Total	ug/L as N	20	2	< 15	25		< 15	20	< 15	71
Bromide	ug/L as Br	0.042	1	0.042	0.042		19.35	17	< 0.03	50
Chloride	mg/L as Cl	10	1	10	10	≤ 250 AO	11	9	11	14
Cyanide	mg/L as Cn	< 0.0005	1	< 0.0005	< 0.0005	0.2 MAC	0.00065	9	< 0.0005	0.0164
Fluoride	mg/L as F	< 0.05	1	< 0.05	< 0.05	1.5 MAC	< 0.05	9	< 0.05	< 0.05
Nitrogen, Nitrate	ug/L as N	28	2	26	30		< 20	19	< 0.45	37
Nitrogen, Nitrite	ug/L as N	< 5	2	< 5	< 5		< 5	18	< 0.3	< 5
Nitrogen, Total	ug/L as N	236	2	205	267		193.08	20	84	263
Phosphate, Total	ug/L as P	4.45	2	3.1	< 0.0005		6.12	20	< 1	71
Silica	mg/L as SiO <sub>2</sub>	4.55	2	3.6	5.5		4.9	17	< 0.5	5.28
Silicon	mg/L as Si	1980	4	1400	2920		1715	24	380	2610
Sulphate	mg/L as SO <sub>4</sub>	4.5	3	4	6.6	≤ 500 AO	6.615	20	4.9	19
Sulphide	mg/L as H <sub>2</sub> S	0.0037	1	0.0037	0.0037	≤ 0.05 AO	< 0.0018	1	< 0.0018	< 0.0018
Sulphur	mg/L as S	< 3	4	< 3	< 3		< 3	25	< 3	5.94
<b>Metals</b> (ND means Not Detected by analytical method used)										
Aluminum	ug/L as Al	25.5	4	9.8	64.9	2900 MAC / 100 OG	26.2	24	7.8	81.5
Antimony	ug/L as Sb	< 0.5	4	< 0.5	< 0.5	6 MAC	< 0.5	24	< 0.5	< 0.5
Arsenic	ug/L as As	0.11	4	< 0.1	0.13	10 MAC	< 0.1	24	< 0.1	0.15
Barium	ug/L as Ba	2	4	1.5	2.7	1000 MAC	1.9	24	< 1	2.7
Beryllium	ug/L as Be	< 0.1	4	< 0.1	2.7		< 0.1	24	< 0.1	< 0.1
Bismuth	ug/L as Bi	< 1	4	< 1	< 1		< 1	24	< 1	< 1
Boron	ug/L as B	< 50	4	< 50	< 50	5000 MAC	< 50	24	< 50	< 50
Cadmium	ug/L as Cd	< 0.01	4	< 0.01	< 0.01	5 MAC	< 0.01	24	< 0.01	0.117
Calcium	mg/L as Ca	3.095	4	2.9	3.53	No Guideline Required	3.425	24	2.91	4.56
Chromium	ug/L as Cr	< 1	4	< 1	< 1	50 MAC	< 1	24	< 1	< 1
Cobalt	ug/L as Co	0.225	4	< 0.2	0.28		< 0.2	24	< 0.2	< 0.5
Copper	ug/L as Cu	3.165	4	2.53	4.47	2000 MAC / ≤ 1000 AO	3.135	24	1.95	14.6
Iron	ug/L as Fe	281.5	4	166	754	≤ 300 AO	165	24	111	643
Lead	ug/L as Pb	0.235	4	< 0.2	0.24	5 MAC	0.55	24	< 0.2	1.01
Lithium	ug/L as Li	< 2	4	< 2	< 2		< 2	15	< 2	5
Magnesium	mg/L as Mg	1.545	4	1.48	1.69	No Guideline Required	1.775	24	1.56	2.24
Manganese	ug/L as Mn	64.65	4	36.4	240	120 MAC / ≤ 20 AO	53.35	24	23.7	167
Mercury	ug/L as Hg	< 0.0019	4	< 0.0019	< 0.0019		< 0.002	21	< 0.0019	< 0.05
Molybdenum	ug/L as Mo	< 1	4	< 1	< 1		< 1	24	< 1	< 1
Nickel	ug/L as Ni	< 1	4	< 1	< 1		< 1	24	< 1	5.2
Potassium	mg/L as K	0.313	4	0.274	0.379		0.32	24	0.249	0.381
Selenium	ug/L as Se	< 0.1	4	< 0.1	< 0.1	50 MAC	< 0.1	24	< 0.1	0.12
Silver	ug/L as Ag	< 0.02	4	< 0.02	< 0.02	No Guideline Required	< 0.02	24	< 0.02	< 0.02
Sodium	mg/L as Na	6.54	4	6.18	6.74	≤ 200 AO	6.945	24	6.25	10.9
Strontium	ug/L as Sr	13.1	4	12.2	14.1	7000 MAC	14.45	24	12.8	16.1
Thallium	ug/L as Tl	< 0.01	4	< 0.01	< 0.01		< 0.01	24	< 0.01	< 0.05
Tin	ug/L as Sn	< 5	4	< 5	< 5		< 5	24	< 5	< 5
Titanium	ug/L as Ti	< 5	4	< 5	< 5		< 5	24	< 5	< 5
Uranium	ug/L as U	< 0.1	4	< 0.1	< 0.1	20 MAC	< 0.1	24	< 0.1	< 0.1
Vanadium	ug/L as V	< 5	4	< 5	< 5		< 5	24	< 5	< 5
Zinc	ug/L as Zn	6.55	4	< 5	7.8	≤ 5000 AO	< 5	24	< 5	18.6
Zirconium	ug/L as Zr	< 0.1	4	< 0.1	0.11		< 0.1	24	< 0.1	< 0.5
<b>Microbial Parameters</b>										
<b>Indicator Bacteria</b>										
Coliform, Total	Coliforms/100 mL	26.5	14	4	280		109.5	230	< 1	4300
<i>E. coli</i>	<i>E.coli</i> /100 mL	< 1	18	< 1	12		< 2	233	< 1	40
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	Last analyzed in 2014				No Guideline Required	920	54	40	5800
<b>Chlorophyll</b>										
Chlorophyll, Total	ug/L	2.865	16	< 0.26	8.22		5.08	25	0.728	14.6
<b>Parasites</b>						No MAC Established				
<i>Cryptosporidium</i> , Total oocysts	oocysts/100 L	< 0.1	2	< 0.1	< 0.1	Zero detection desirable	< 1	21	< 1	< 1
<i>Giardia</i> , Total cysts	cysts/100 L	< 0.1	2	< 0.1	< 0.1	Zero detection desirable	< 1	21	< 1	< 1

Table 2

Table 2: 2022 Summary of Treated Water Test Results, Wilderness Mountain Water System										
PARAMETER		2022 ANALYTICAL RESULTS				CANADIAN GUIDELINES	2012-2021 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										
<b>Physical Parameters</b>										
Colour, True	TCU	13	5	10	19	≤ 15 AO	13	67	3	18
Conductivity @ 25 C	uS/cm	Not tested in 2022					92.1	28	84.2	100.3
Hardness as CaCO3	mg/L	13.9	4	13.6	16.4		16.05	14	13.9	18.1
pH	pH units	6.97	12	6.79	7.8	7.0 - 10.5 AO	7.07	62	6.44	9.1
Total Organic Carbon	mg/L	3.75	4	3.2	4.3		3.85	8	2.5	8.7
Turbidity, lab tests	NTU	0.75	26	0.35	1.5	1 MAC and ≤ 5 AO	0.7	419	0.17	3.6
Water Temperature	degrees C	8.8	119	4	20.1	≤ 15 AO	11.05	1922	1.8	21.1
<b>Microbial Parameters</b>										
<b>Indicator Bacteria</b>										
Coliform, Total	CFU/100 mL	< 1	90	< 1	1	0 MAC	< 1	196	< 1	16
<i>E. coli</i>	CFU/100 mL	< 1	90	< 1	< 1	0 MAC	< 1	868	< 1	< 1
Hetero. Plate Count, 28C (7 day)	CFU/1 mL	22000	1	22000	22000	No Guideline Required	870	112	<10	20000
<b>Disinfectants</b>										
<b>Disinfectants</b>										
Chlorine, Total Residual	mg/L as Cl <sub>2</sub>	2.48	21	0.28	3.76	No Guideline Required	2.15	95	0.03	3.35
Monochloramine, Field - 1 Station	mg/L	2.43	16	1.24	3.29		2.13	54	0.17	2.98
<b>Disinfection By-Products (ND means Not Detected by analytical method used)</b>										
<b>Trihalomethanes (THMs)</b>										
Bromodichloromethane (BDCM)	ug/L	< 1	4	< 1	< 1		< 1	57	< 1	26
Bromoform (BRFM)	ug/L	< 1	4	< 1	< 1		< 1	57	< 0.1	< 2
Chloroform (CHLF)	ug/L	1.85	4	1.1	2.7		1.5	57	<0.1	3.1
Chlorodibromomethane (DBCM)	ug/L	< 1	4	< 1	< 1		< 1	57	<0.1	3.1
Total Trihalomethanes (TTHM)	ug/L	1.85	4	1.1	2.7	100 MAC	3.6	57	< 1	160
<b>Haloacetic Acids (HAAs)</b>										
Haloacetic Acids (*5 Total, HAA5)	ug/L	10.8	4	5.2	17	80 MAC	10	51	0.75	88
<b>Metals (ND means Not Detected by analytical method used)</b>										
Aluminum	ug/L as Al	20.75	4	7.1	59.4	2900 MAC / 100 OG	28.9	14	4.5	62.1
Antimony	ug/L as Sb	< 0.5	4	< 0.5	< 0.5	6 MAC	< 0.5	14	< 0.5	< 0.5
Arsenic	ug/L as As	0.115	4	< 0.1	0.14	10 MAC	< 0.1	14	< 0.1	0.14
Barium	ug/L as Ba	1.95	4	1.3	2.6	1000 MAC	1.6	14	< 1	2.6
Beryllium	ug/L as Be	< 0.1	4	< 0.1	< 0.1		< 0.1	14	< 0.1	< 0.1
Bismuth	ug/L as Bi	< 1	4	< 1	< 1		< 1	14	< 1	< 1
Boron	ug/L as B	< 50	4	< 50	< 50	5000 MAC	< 50	14	< 50	< 50
Cadmium	ug/L as Cd	< 0.01	4	< 0.01	< 0.01	5 MAC	< 0.01	14	< 0.01	< 0.01
Calcium	mg/L as Ca	3.045	4	2.93	3.8	No Guideline Required	3.44	14	2.93	3.89
Chromium	ug/L as Cr	< 1	4	< 1	< 1	50 MAC	< 1	14	< 1	< 1
Cobalt	ug/L as Co	< 0.2	4	< 0.2	0.22		< 0.2	14	< 0.2	0.5
Copper	ug/L as Cu	12.61	4	8.08	22.3	2000 MAC / ≤ 1000 AO	10.65	14	3.57	92.7
Iron	ug/L as Fe	267.5	4	91.7	518	≤ 300 AO	109.5	14	52	902
Lead	ug/L as Pb	0.365	4	0.27	0.47	5 MAC	0.4	14	0.2	0.99
Lithium	ug/L as Li	< 2	4	< 2	< 2		< 2	10	< 2	< 5
Magnesium	mg/L as Mg	1.535	4	1.52	1.68	No Guideline Required	1.79	14	1.6	2.07
Manganese	ug/L as Mn	49.7	4	8.8	208	120 MAC / ≤ 20 AO	29.3	14	11.9	364
Mercury	ug/L as Hg	< 0.0019	4	< 0.0019	< 0.0019		< 0.0019	11	< 0.0019	0.0032
Molybdenum	ug/L as Mo	< 1	4	< 1	< 1		< 1	14	< 1	< 1
Nickel	ug/L as Ni	< 1	4	< 1	< 1		< 1	14	< 1	< 1
Potassium	mg/L as K	0.316	4	0.272	0.362		0.341	14	0.241	0.423
Selenium	ug/L as Se	< 0.1	4	< 0.1	< 0.1	50 MAC	< 0.1	14	< 0.1	< 0.1
Silicon	mg/L as Si	1935	4	1320	2860		2015	14	408	2640
Silver	ug/L as Ag	< 0.02	4	< 0.02	< 0.02	No Guideline Required	< 0.02	14	< 0.02	< 0.02
Sodium	mg/L as Na	9.3	4	8.73	9.55	≤ 200 AO	9.59	14	8.3	11.4
Strontium	ug/L as Sr	12.85	4	12.3	14.9	7000 MAC	14.3	14	13	17.2
Sulfur	mg/L as S	< 3	4	< 3	< 3		< 3	14	< 3	4.6
Thallium	ug/L as Tl	< 0.01	4	< 0.01	< 0.01		< 0.01	14	< 0.01	< 0.05
Tin	ug/L as Sn	< 5	4	< 5	< 5		< 5	14	< 5	< 5
Titanium	ug/L as Ti	< 5	4	< 5	< 5		< 5	14	< 5	< 5
Uranium	ug/L as U	< 0.1	4	< 0.1	< 0.1	20 MAC	< 0.1	14	< 0.1	< 0.1
Vanadium	ug/L as V	< 5	4	< 5	< 5		< 5	14	< 5	< 5
Zinc	ug/L as Zn	< 5	4	< 5	5.7	≤ 5000 AO	< 5	14	< 5	21.3
Zirconium	ug/L as Zr	< 0.1	4	< 0.1	< 0.1		< 0.1	14	< 0.1	< 0.5

## CAPITAL REGIONAL DISTRICT

### WILDERNESS MOUNTAIN WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2022

	2022	2021
<b>Revenue</b>		
Transfers from government	61,900	59,520
User Charges	73,467	70,239
Water Sales	17,757	17,760
Fees and Charges	341	256
Other revenue from own sources:		
Interest earnings	53	60
Transfer from Operating Reserve Fund	10,000	-
Other revenue	81	61
<b>Total Revenue</b>	<b>163,599</b>	<b>147,896</b>
<b>Expenses</b>		
General government services	6,048	5,607
Contract for services	9,193	2,436
CRD Labour and Operating costs	72,451	68,625
Debt Servicing Costs	23,648	23,648
Other expenses	47,864	40,630
<b>Total Expenses</b>	<b>159,204</b>	<b>140,946</b>
<b>Net revenue (expenses)</b>	<b>4,395</b>	<b>6,950</b>
Transfers to own funds:		
Capital Reserve Fund	-	-
Operating Reserve Fund	4,395	9,882
<b>Annual surplus/(deficit)</b>	<b>-</b>	<b>(2,932)</b>
Accumulated surplus/(deficit), beginning of year	-	2,932
<b>Accumulated surplus/(deficit), end of year</b>	<b>\$ -</b>	<b>-</b>

## CAPITAL REGIONAL DISTRICT

### WILDERNESS MOUNTAIN WATER Statement of Reserve Balances (Unaudited) For the Year Ended December 31, 2022

	Capital Reserve	
	2022	2021
<b>Beginning Balance</b>	47,351	50,130
Transfer from Operating Budget	-	-
Transfer from Completed Capital Projects	-	-
Transfer to Capital Projects	(5,000)	(3,500)
Interest Income	1,202	721
<b>Ending Balance</b>	<b>43,553</b>	<b>47,351</b>

	Operating Reserve	
	2022	2021
<b>Beginning Balance</b>	11,613	1,657
Transfer from Operating Budget	4,395	9,882
Transfer to Operating Budget	(10,000)	-
Interest Income	269	74
<b>Ending Balance</b>	<b>6,277</b>	<b>11,613</b>





Making a difference...together

**REPORT TO WILDERNESS MOUNTAIN WATER SERVICE COMMISSION  
MEETING OF MONDAY, JUNE 12, 2023**

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**SUBJECT**     **Capital Project Status Reports and Operational Updates – June 2023**

**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**

There are currently no capital projects.

**OPERATIONAL UPDATE**

- February 14: Dam inspections and site safety inspections
- March 14: Dam inspections and site safety inspections
- March 21: Resurfacing of wooden platform at Wilfred Reservoir
- April 14: Dam inspections and site safety inspections
- April 17: Service line repair to 612 Sea Scape Place
- April 19: Installed new UV power supply on reactor no. 3 due to failure
- May 9: Dam inspections and site safety inspections
- May 12: Structural Engineer inspection of wooden platform at Wilfred Reservoir

**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., Acting Senior Manager, Infrastructure Engineering
Concurrence:	Ian Jesney, P.Eng., Acting General Manager, Integrated Water Services
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services

Appendix A: Stantec Technical Memo



## Technical Memo

To: Shayne Irg, P. Eng.  
CRD – Water Infrastructure Operations  
Project/File: 111720144

From: Bryan Gallagher  
Stantec Consulting Ltd.  
Date: May 19, 2023

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### Background

The Capital Regional District (CRD) has engaged Stantec to provide structural assessment services for an existing timber platform at Wilderness Mountain in East Sooke. The timber platform is located behind a water treatment building and is primarily used to support an intake pipe and to provide access to view a water level meter for the local reservoir. The platform is composed of the following:

- A wood deck platform (main portion 10'-2" x 16'-6")
- A Steel and PVC support frame
- Supporting concrete block foundation.

The scope of Stantec's work was limited to the assessment of the structural integrity of the timber platform and evaluating its safety for occasional staff use. The age of the platform was not provided for this assessment. It is estimated that the structure is 25+ years of age. There is evidence of localized deck failure, and the CRD has added plywood over the existing deck boards as a short-term safety repair.

Stantec Structural Engineer Bryan Gallagher and Structural Designer Ignatius Ong attended the site on May 12, 2023. While on site Bryan and Ignatius completed a detailed review of the above water portion of the platform and completed a limited review of the below deck structure (due to limited access).

**Reference: Wilderness Mountain Platform – Structural Assessment**

### Wood Deck Platform – Condition and Recommendations

The wood platform consists of wood decking supported on timber stringers. The timber stringers are supported at the abutment (which appears to be supported off of the exposed rock shore) and a steel support at the approximate mid-point of the platform.

The steel support structure appears to be a ~6" diameter steel pipe connected to concrete support blocks resting on the lakebed. There are also steel knee braces (on the lake side of the pipe support) that appear to transition to a smaller diameter PVC pipe (refer to Figure 4 in the Appendix). This construction is non-standard, and the limited access made it difficult to verify the reasoning/ purpose of this construction. At the edge of the platform, the deck noticeably deflects approximately 1" under the weight of 1 person indicating a larger problem with the structure than just the deteriorated decking.

Stantec had the following review comments and recommendations related to the platform:

- The railings on all sides consist of 2x4 boards with verts spaced at every 5 ft. These railings have reached the end of their service life and should be replaced.
- The wood decking has reached the end of its service life. It is anticipated that the wood stringers are also at end of life. It is recommended to remove the deck and railings to expose the stringers and sub-structure. The exposed structure can then be reviewed to determine what portions of the structure are fit for re-use.
- The original sub-structure including the submerged concrete support blocks and the steel frame appear to be in good condition, however, further review is recommended after the removal of the wood deck to verify and confirm the structural integrity of these elements.
- Until the structural concerns can be addressed it is recommended that only one staff member be on the platform at a time and that they wear a personal floatation device while on the platform.

Please contact the undersigned if you have any questions about the findings in this report.

Regards,

**STANTEC CONSULTING LTD.**

**Bryan Gallagher** P. Eng.  
 Senior Associate, Structural Engineer  
 Phone: (250) 885-9361  
 bryan.gallagher@stantec.com



Design with community in mind

Reference: Wilderness Mountain Platform – Structural Assessment

Picture Appendix:

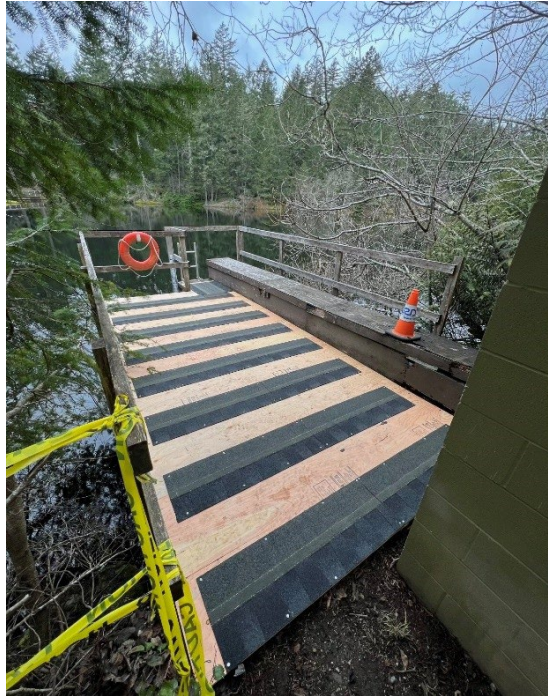


Figure 1: General View



Figure 2: Underside of Deck Looking Towards the Lake – Steel Vertical Support Connecting to Wood Beam.

Design with community in mind

Reference: Wilderness Mountain Platform – Structural Assessment

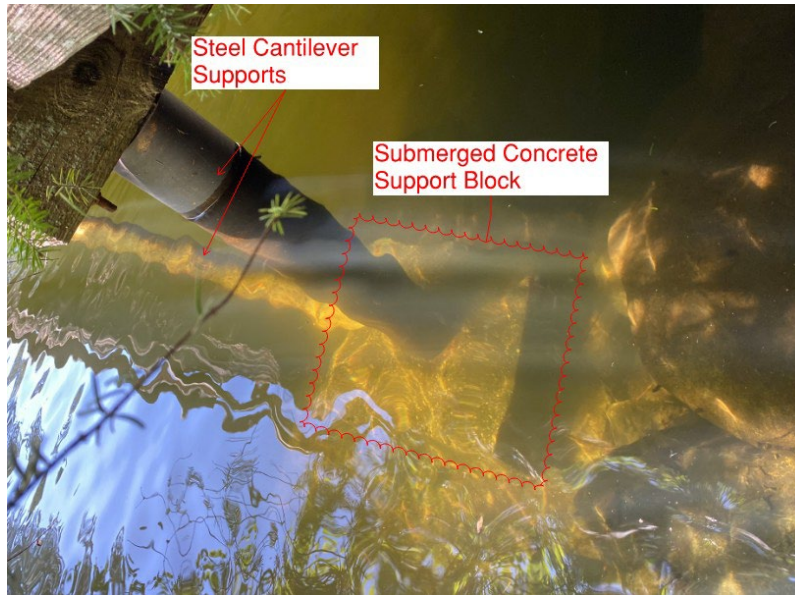


Figure 3: Concrete Support Block and Steel Supports – Appear to be in Good Condition.



Figure 4: Underside of Deck at Abutment Location.

Design with community in mind

Reference: Wilderness Mountain Platform – Structural Assessment



Figure 5: Existing PVC Support Transitioning to Steel Knee Brace.



Figure 6: Insulated Casing and Deck Perimeter Severely Deteriorated.

Reference: Wilderness Mountain Platform – Structural Assessment



Figure 7: Wood Deck and Railing in Poor Condition.



May 17, 2023

Ian Jesney  
Acting General Manager  
Integrated Water Services – CRD Water  
479 Island Highway  
Victoria, BC V9B 1H7

Dear Mr. Jesney:

**Re: Wilderness Mountain Water System (CRD) – 706 Cains Way, Sooke, BC**

This letter is in response to your letter of February 1, 2023, in regards to the status of the Wilderness Mountain Water System. As indicated in that letter, the Capital Regional District (CRD) has been unable to meet the timelines proposed in the January 20, 2022, letter to achieve the Drinking Water Treatment Objectives (microbiological) for Surface Water Treatment Objectives (SWTO) in British Columbia.

Section 6 of the BC Drinking Water Protection Act establishes that the “supplier must provide, to the users served by its water supply system, drinking water from the water supply system that (a) is potable water, and (b) meets any additional requirements established by the regulations or by its operating permit”.

It is our perspective that the CRD is not consistently providing users of the Wilderness Mountain Water System with potable water.

Previous to this correspondence, two separate independent third-party professional consultants (WSP & AE) have submitted reports identifying that the current treatment/disinfection does not meet the provincial SWTO requirements and that a filtration exemption/deferral is not likely an option as per the requirements of Section 4.3 of the SWTO, which identifies when a surface water system can operate without filtration. We agree with this assessment.

As requested, we can also confirm that the filtration exemption/deferral for this system was removed on July 19, 2017. The removal of this filtration exemption/deferral was initially based on the inability to provide the level of disinfection required and two turbidity events in 2016 which led to two boil water notices (BWNs). Since then, turbidity events and resulting BWNs have become more prolonged, with a total of 17 days in 2019, 29 days in 2020, 224 days during two events in 2021, and 77 days in 2022.

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**Gateway Village Health Unit**

201 - 771 Vernon Avenue | Victoria, BC V8X 5A7  
Email: [Gateway\\_office@viha.ca](mailto:Gateway_office@viha.ca)

Tel: 250.519.3401 | Fax: 250.519.3402  
[www.islandhealth.ca](http://www.islandhealth.ca)



Wilderness Mountain Water System – 706 Cains Way, Sooke, BC  
May 17, 2023

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Page 2 of 2

Plans for compliance with the treatment objectives have been requested by this office on numerous previous occasions; however, to date, compliance has not been achieved. The conceptual design report from AE (December 2022) identifies an option that may be considered compliant with SWTO, however would require an assessment by a Public Health Engineer (PHE) as part of a submission for a construction permit application.

As the operating permit conditions require updating, we are proposing the following conditions and associated timelines:

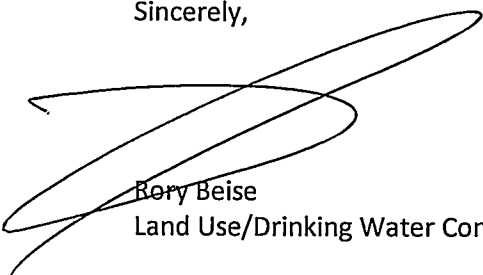
1. SWTO Implementation plan and completion dates by June 30, 2023. The implementation plan and dates will be used to update the operating permit conditions in order to ensure that compliance is being achieved.
2. Achieve compliance with SWTO by June 30, 2024.

Please respond in writing within 30 days of receiving this notice if you wish to comment on the proposed changes to your permit. Your comments will be considered before a final decision is made. Be advised that, short of judicial review, this is your only opportunity to influence the outcome of this process. Changes to the terms and conditions of an operating permit are not subject to reconsideration or review under Section 39.1 of the *Drinking Water Protection Act*.

Failure to meet these timelines may result in further progressive enforcement action such as Orders, fines, or court injunctions.

Please let us know if you have any questions about these matters.

Sincerely,



Bory Beise  
Land Use/Drinking Water Consultant

RB/rb

cc: Dr. Murray Fyfe, Medical Health Officer  
Dr. Michael Benusic, Medical Health Officer  
Craig Nowakowski, Supervisor Environmental Health  
Tim Hibbs, Drinking Water Officer