

**DRINKING WATER SYSTEM ANNUAL REPORT**

**Reporting Period:** January 1<sup>st</sup> to December 31<sup>st</sup>, 2024 (year)

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**Water System** Cowichan River - Horseshoe Bend Group Site

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**Water System Owner** BC Parks

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**Primary Contact Name** (Operator or Manager) Fred King

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**Phone Number** (Operator or Manager) 250 539-0161

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**E-mail** (Operator or Manager) k2parks@shaw.ca

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**DESCRIBE YOUR WATER SUPPLY SYSTEM**

**What is the Source(s) of Raw Water?**

Deep Well     
  Shallow Well     
  Surface Water     
  Other

If other, specify details:

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**Does the Drinking Water System have Primary Disinfection?**       Yes       No

Chlorination     
  Ultraviolet Light     
  Ozone     
  Other

If other, specify details:

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**Does the Drinking Water System have Secondary Disinfection?**       Yes       No

Chlorination     
  Other

If other, specify details:

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**Does the Drinking Water System have Filtration?**       Yes       No

Check all boxes that apply

Cartridge Filter(s)     
  Carbon Filter     
  Sand Filtration     
  Reverse Osmosis     
  Other

If other, specify details:

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**PUBLIC REPORTING**

**Emergency Response & Contingency Plan (ERCP)**

**Is your ERCP up to Date?**       Yes       No

**How do you Inform the System Users of the ERCP?**

Hand Delivered     
  Bulletin Board     
  Newspaper     
  Utility Bill Insert     
  Website

Other (specify details) Contractor - K2 Park Services

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**Drinking Water System Annual Report**

**How do you Inform the System Users of the Annual Report?**

Hand Delivered     
  Bulletin Board     
  Newspaper     
  Utility Bill Insert     
  Website

Other (specify details) V.I.H.A. web site

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**COMPLIANCE WITH OPERATING PERMIT**

*List the conditions of your Operating Permit (Contact the DWO for a copy if needed):*

EOCP credits current

*Are you in compliance with your Operating Permit?*  Yes  No

**BACTERIOLOGICAL TESTING AND DRINKING WATER PROTECTION REGULATION WATER QUALITY STANDARDS**

*How many bacteriological samples were collected during this reporting period?* 14

*What is the minimum required sampling frequency for this system? (#samples/month)* 2/month

Additional sampling details:

*Was the minimum required sampling frequency achieved?*  Yes  No

Comments:

*Bacteriological summary attached to this report?*  Yes  No

*If no, how do the users of the system view the results?*

**WATER QUALITY STANDARDS FOR POTABLE WATER**

<i>Parameter:</i>	<i>Standard:</i>	<i>Did this system meet standard?</i>	
Escherichia coli (for all samples)	No detectable <i>Escherichia coli</i> per 100ml	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Total Coliform Bacteria (if only 1 sample collected in a 30 day period)	No detectable total coliform bacteria per 100ml	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Total Coliform Bacteria (if more than 1 sample collected in a 30 day period)	No more than 10% of samples contain total coliform bacteria, <b>and</b> No sample has more than 10 total coliform bacteria per 100ml	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

*If the system did not meet any of above Drinking Water Protection Regulation standards, record the results in the table below; attach additional sheets if necessary.*

Date	TC/100ml	E.coli/100ml	Reason	Corrective Action

**CHEMICAL SAMPLING COMPLETED DURING THIS REPORTING PERIOD**

**Was any chemical sampling conducted during reporting period?**  Yes

**If no, when were the last chemical samples conducted for this system? (date)**  Don't know

**If yes, attach a list of the chemical results - see attachment**

**If any water samples did not meet the Guidelines for Canadian Drinking Water Quality, record the results in the table below; attach additional sheets if necessary.**

**Next scheduled full chemical test (date)** 2029

Parameter	Result	Corrective Action / Treatment / Comments

**ADDITIONAL TESTING**

**Does the system have analyzers for continuous monitoring?**  Yes  No

**If yes, check all boxes that apply:**

Chlorine  Turbidity  Other (details)

**Are the results available on request?**

**If any additional testing or sampling was conducted, record results in the table below; attach additional sheets if necessary.**

Additional Testing & Reason for Sampling	Corrective Action Taken

**WATER QUALITY COMPLAINTS**

**Were there any water quality complaints in this reporting period? (e.g. taste, odour, colour etc.)**  Yes  No

**If yes, complete the table below; attach additional sheets if necessary.**

Date	Water Quality Complaint	Corrective Action / Treatment

**OPERATIONAL PROBLEMS**

*Were there any operational problems during this reporting period? (e.g. insufficient water supply, malfunction of disinfection equipment, line breaks, elevated turbidity etc.).*  Yes  No

*If yes, complete the table below; attach additional sheets if necessary.*

Incident Date	Type of Operational Problem	Corrective Action Taken

**MAJOR UPGRADES/REPAIRS & EXPENSES**

*Were there any major upgrades/repairs or any major costs incurred during this reporting period?*  Yes  No

*If yes, complete the table below; attach additional sheets if necessary.*

Major Upgrades/Expenses	Details
Improvements required by DWO	
Additions/changes to system	
Purchase or install new equipment	
Equipment repair or replacement	
Annual maintenance of system	Well shocked at Spring start up of Operating Season.
Specialist report	
Other	

**FUTURE IMPROVEMENTS**

*Are there any plans for future improvements?*  Yes  No

*If yes, complete the table below; attach additional sheets if necessary.*

Future Upgrades or Improvements	Estimated Date of Completion
Drill wells deeper to avoid turbidity levels - BC Parks	TBA

<p><b>November 15, 2024</b> DATE COMPLETED:</p>	<p>Debbie King COMPLETED BY:</p>
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K2 Park Services Ltd. (BC Parks)  
\*B Fred or Debbie King  
Site 3, Comp 9  
Galiano Island, BC  
VON 1P0

TEL: (877) 559-2115  
k2parks@shaw.ca

24May24 1:48p  
Source: FWS  
Type of Sample: Water  
No. of Samples: 1  
Arrival temp.: 9.0C  
PD B1172 2405I

W180712

Sample: Cowichan River Prov Park

<u>Site Code</u>	<u>Date</u>	<u>Time</u>	<u>CFU/100 ml</u> <u>TC</u>	<u>CFU/100 ml</u> <u>T-NC</u>	<u>CFU/100 ml</u> <u>FC</u>	<u>CFU/100 ml</u> <u>F-NC</u>	<u>CFU/100 mL</u> <u>E.coli</u>
handpump @ Horseshoe Bend Group Site	24May24	0	0	0	0	0	

WATER DISTRICT SCREEN

<u>Sample</u>	<u>Date</u>	<u>Time</u>	<u>Lactose</u> <u>Fermentors</u>	<u>Coliforms</u> <u>Total</u>	<u>Fecal</u>	<u>E.coli</u>	<u>Total</u> <u>Aeromonas</u>
handpump @ Horseshoe Bend Group Site	24May24		ND	ND	ND	ND	ND

<u>Sample</u>	<u>Date</u>	<u>Time</u>	<u>Sulfur Reducing/</u> <u>Iron Bacteria</u>	<u>Yeast/Fungi</u>	<u>TPC *</u>
handpump @ Horseshoe Bend Group Site	24May24		ND / ND	ND / ND	13344

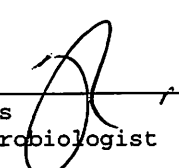
\* all counts are colony forming units per milli-litre

TC = total coliform bacteria    FC = fecal coliform bacteria (aka Thermotolerant Coliforms)  
NC = non-coliform bacteria    ND = none detected  
TPC = total plate count- spread plate method - 35C/48hr TGEA FDA/BAM 9th ed, Oct 2020  
CFU = colony forming units

Results may be adversely affected if samples are submitted to the laboratory more than 24 to 30 hours after collection.

E. coli = Escherichia coli, FDA/BAM 9th ed, Oct 2020  
Bergy's Manual of Systematic Bacteriology vol 1, AOAC 1984; J.Clin.Micro.,  
J.Intern.System.Bact.

- see following page for chemistry results -

  
W. Riggs  
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24May24 1:48p  
Source: FWS  
Type of Sample: Water  
No. of Samples: 1  
Arrival temp.: 9.0C  
PD B1172 2405I

W180712 pg2

TEL: (877) 559-2115  
k2parks@shaw.ca

Sample: Cowichan River Prov Park - handpump @ Horseshoe Bend Group Site 24May24

<u>ELEMENTS</u>		<u>SAMPLE</u>	<u>UNITS</u>	<u>Maximum Limits In Drinking Water*</u>
1) Aluminium	Al	0.166	mg/L	no limit listed
2) Antimony	Sb	<0.500	ug/L	6.00 ug/L
3) Arsenic	As	<0.500	ug/L	10.0 ug/L
4) Barium	Ba	0.410	mg/L	2.00 mg/L
5) Beryllium	Be	<0.003	mg/L	no limit listed
6) Boron	B	0.867	mg/L	5.00 mg/L
7) Cadmium	Cd	<0.010	ug/L	7.00 ug/L
8) Calcium	Ca	36.2	mg/L	200 mg/L
9) Chromium	Cr	<0.003	mg/L	0.050 mg/L
10) Cobalt	Co	<0.005	mg/L	no limit listed
11) Copper	Cu	0.011	mg/L	1.00 mg/L
12) Gold	Au	<0.040	mg/L	no limit listed
13) Iron	Fe	0.288	mg/L	0.300 mg/L
14) Lanthanum	La	<0.020	mg/L	no limit listed
15) Lead	Pb	2.34	ug/L	5.00 ug/L
16) Magnesium	Mg	2.93	mg/L	50.0 mg/L
17) Manganese	Mn	0.034	mg/L	0.120 MAC 0.020 AO
18) Mercury	Hg	<0.010	ug/L	1.00 ug/L
19) Molybdenum	Mo	<0.005	mg/L	no limit listed
20) Nickel	Ni	0.008	mg/L	no limit listed
21) Phosphorus	P	<0.010	mg/L	no limit listed
22) Potassium	K	1.58	mg/L	no limit listed
23) Scandium	Sc	<0.050	mg/L	no limit listed
24) Selenium	Se	<0.500	ug/L	5.0 ug/L
25) Silicon	Si	10.6	mg/L	no limit listed
26) Silver	Ag	<0.010	mg/L	no limit listed
27) Sodium	Na	367	mg/L	200 mg/L
28) Strontium	Sr	4.20	mg/L	no limit listed
29) Tin	Sn	<0.020	mg/L	no limit listed
30) Titanium	Ti	<0.010	mg/L	no limit listed
31) Tungsten	W	<0.050	mg/L	no limit listed
32) Vanadium	V	<0.010	mg/L	no limit listed
33) Zinc	Zn	0.008	mg/L	5.00 mg/L
Hardness (mg/L CaCO3)		102	mg/L	75-150 mg/L = mod.hard
pH		7.49	units	7.0 to 10.5

\* As per Canadian or B.C. Health Act Safe Drinking Water Regulation BC Reg 230/92, & 390 Sch 120, 2001. Task Force of the Canadian Council of Resource and Environment Ministers - Guidelines for Canadian Drinking Water Quality, 2024.

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Analytical Chemist

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H. Hartmann  
Sr. Analytical Chemist

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24May24 1:48p  
 Source: FWS  
 Type of Sample: Water  
 No. of Samples: 1

W180712 pg3

TEL: (877) 559-2115  
 k2parks@shaw.ca

Arrival temp.: 9.0C  
 PD B1172 2405I

Sample: Cowichan River Prov Park - handpump @ Horseshoe Bend Group Site 24May24

<u>SAMPLE</u>	<u>DATE</u>	<u>TIME</u>	<u>Alkalinity</u> <u>(mg/L)</u>	<u>NH<sub>3</sub>-N</u> <u>(ug/L)</u>	<u>Cl<sup>-</sup></u> <u>(mg/L)</u>	<u>Colour</u> <u>(TCU)</u>	<u>E.C.</u> <u>(uS/cm)</u>
handpump @ Horseshoe Bend Group Site			110	0.201	412	2.20	1598
Lab Blank			ND	ND	ND	ND	ND
So			0.100	0.254	0.015	0.300	
REF. VALUE			100	10.0	10.0	5.00	147
STD n 2SD			96.1 ± 5.65	9.68 ± 0.688	9.88 ± 0.659	4.87 ± 3.78	142 ± 12.0

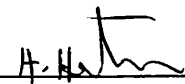
<u>SAMPLE</u>	<u>DATE</u>	<u>TIME</u>	<u>CORROSIVITY</u> <u>(Is @20C)</u>	<u>F<sup>-</sup></u> <u>(mg/L)</u>	<u>S<sup>2-</sup></u> <u>(ug/L)</u>	<u>TKN</u> <u>(mg/L)</u>	<u>NO<sub>3</sub>-N</u> <u>(ug/L)</u>
handpump @ Horseshoe Bend Group Site			-0.297	ND	ND	0.300	ND
Lab Blank				ND	ND	ND	ND
So				0.007	0.007	0.012	0.160
REF. VALUE				1.00	50.0	1.00	10.0
STD ± 2SD				0.966 ± 0.078	48.2 ± 0.412	0.981 ± 0.059	10.7 ± 0.599

<u>SAMPLE</u>	<u>DATE</u>	<u>TIME</u>	<u>NO<sub>2</sub>-N</u> <u>(ug/L)</u>	<u>SO<sub>4</sub><sup>2-</sup></u> <u>(mg/L)</u>	<u>T.O.C.</u> <u>(mg/L)</u>	<u>T&amp;L</u> <u>(mg/L)</u>	<u>TDS</u> <u>(mg/L)</u>
handpump @ Horseshoe Bend Group Site			ND	4.33	4.32	ND	927
Lab Blank			ND	ND	ND	ND	ND
So			0.300	0.075	0.300	0.070	0.010
REF. VALUE			10.0	10.0	10.0	1.00	200
STD ± 2SD			9.55 ± 5.88	9.88 ± 0.640	9.81 ± 0.750	1.07 ± 0.056	190 ± 14.0

<u>SAMPLE</u>	<u>DATE</u>	<u>TIME</u>	<u>Turbidity</u> <u>(NTU)</u>	<u>UVT</u> <u>(%)</u>
handpump @ Horseshoe Bend Group Site			1.53	89.1
Lab Blank			ND	ND
So			0.015	0.003
REF. VALUE			0.500	90.0
STD ± 2SD			0.520 ± 0.044	90.1 ± 0.02

SD = standard deviation; REF VALUE = primary or secondary reference material  
 STD = secondary standard calibrated to primary standard reference material  
 So = standard deviation at zero analyte concentration; method detection limit  
 is generally considered to be 3x So value  
 ND = none detected n/a = not applicable

\_\_\_\_\_  
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