



KICKING HORSE MOUNTAIN RESORT

MAIN WATER SYSTEM

Facility Number 12-098-00152

2024 ANNUAL WATER REPORT TO INTERIOR HEALTH

Date of Issue:

This report was produced on behalf of the Kicking Horse Mountain Utility Corporation
Ltd. by
Travis Jobin, Utility Manager
Charles Laumet, Utility Operator 1

Kicking Horse Mountain Resort, 1500 Kicking Horse Trail, PO Box 839, Golden, BC, V0A
1H0



Potable Water System Operations Summary

The KHMUC potable water system continued to serve the KHMR village in 2024. Much of our system is approaching the 25 year mark. Some of the major components are in need of replacing and upgrading.

Operator Certification

- Utility Manager: Travis Jobin (WD2, WWT3, EOCP cert # 7640)
Continued to act as the lead operator
- Utility Operator: Charles Laumet (WD1, WWT1, EOCP cert # 1001818)
- Utility Laborer: Chris Symes (not certified) *resigned in April 2024*
- Utility Laborer: Tabias Frisky (OIT)

Long Term Plans for System Improvements

Long term plans for system improvements are dependent on the rate of expansion of the resort. We are nearly at the allotted capacity for water in the village.

Capacity will be increased by adding Well 13 to our system. We are currently working with engineers on a design.

In an Email on Feb 13, 2024, Subject: Conditions on Permit, Interior Health DWO Jennifer Beverley has tasked KHMUC with investigating secondary disinfection for distribution system. When well 13 is added to the system it is likely we will be installing chlorine disinfection treatment.



Events in 2023

Jan 11 - Jennifer Beverley visited our system. Unfortunately it was too cold to ski to the wells so we just visited the Eagles Eye Restaurant.

Feb - March - Drought condition, followed start up procedure of well 7 to keep up with demand. Additional samples were taken to confirm mixed water did not have exceedances of Manganese/Antimony or Uranium

Jun 22 - Found and repair leak on a Air Release Valve at Purcell Woods Close. We Enacted Boil Water Notice , Followed emergency procedure , Re Sampled (ARV).

Jul 2 - Found and repair leak on a house service at 1606 Purcell Wood Drive , Enacted Boil Water Notice , Followed emergency procedure , Re Sampled (Service connection)

Oct 4 – 6 - 1 TC fail, followed emergency procedure, resampled.

Nov 13 - EOCP Exams : TJ Passed WDII , CL Passed WDI , TF Passed OIT

Planned Activities for 2025

The existing SCADA system has failed. The PLC is still controlling the Wells but the HMI is not functioning. KHMUC is currently reviewing a proposal drafted by XenonCyber Dynamics Inc. to introduce a new SCADA for the water system as well as upgrading the current PLCs.

KHMUC will be replacing the Magnetic Flowmeters for the Water Distribution System

KHMUC will contract and assist Mearls Machineworks in the second quarter of 2025 to service all the PRVs in the village, and will also be replacing some of the ARVs that were damaged by frost.

KHMUC will conduct a cleaning of the reservoir.

As directed by the 2023 Interior Health inspection by Jennifer Beverley, KHMUC will address the items listed in the condition of the permit, aiming to complete them within their specified deadlines.

KHMUC will perform Hydrant Maintenance and testing with Sprouse Fire & Safety



Water Quality Monitoring Program

Weekly samples were taken and tested for Total Coliform and E. Coli. Samples were processed at ALS Environmental in Calgary AB. Samples were collected at the Wastewater Treatment Plant and the Admin building.

	WWTP	ADMIN
Jan-2	<1	<1
Jan-8	<1	<1
Jan-18	<1	<1
Jan-23	<1	<1
Jan-30	<1	<1
Feb-6	<1	<1
Feb-7	<1	<1
Feb-20	<1	<1
Feb-29	<1	<1
Mar-6	<1	<1
Mar-11	<1	<1
Mar-12	<1	
Mar-18	<1	<1
Mar-27	<1	<1
Apr-2	<1	<1
Apr-9	<1	<1
Apr-16	<1	<1
Apr-23	<1	<1
May-1	<1	<1
May-6	<1	<1
May-14	<1	<1
May-21	<1	<1
May-27	<1	<1
Jun-3	<1	<1
Jun-12	<1	<1
Jun-20	<1	<1
Jul-2	<1	<1
Jul-10	<1	<1
Jul-16	<1	<1

	WWTP	ADMIN
Jul-23	<1	<1
Jul-30	<1	<1
Aug-6	<1	<1
Aug-12	<1	<1
Aug-20	<1	<1
Aug-26	<1	<1
Sep-3	<1	<1
Sep-12	<1	<1
Sep-16	<1	<1
Sep-23	<1	<1
Oct-1	TC=1	<1
Oct-6	<1	<1
Oct-7	<1	<1
Oct-16	<1	<1
Oct-21	<1	<1
Oct-30	<1	<1
Nov-4	<1	<1
Nov-14	<1	<1
Nov-18	<1	<1
Nov-25	<1	<1
Dec-2	<1	<1
Dec-9	<1	<1
Dec-16	<1	<1

Legend
 <1 <1 Total Coliform, <1 E.Coli
 TC=1 1 Total Coliform

Source Monitoring - Wells 3, 4, 7

Well 7

Analytical Results Evaluation

Clear sample AT				WELL 7	---	---	---	---	---	---
Sampling date/time				06-Feb-2024	---	---	---	---	---	---
Sub-Items				Water	---	---	---	---	---	---
Sample	CAS Number	Method/Unit	Unit	CO2027408-001	---	---	---	---	---	---
Physical Tests										
Turbidity	---	2121/CO	NTU	0.84	---	---	---	---	---	---
Microbiological Tests										
Coliforms, total	---	5010/CO	MPN/100 mL	<1	---	---	---	---	---	---
Heterotrophic plate count (HPC)	---	803-HPCC	MPN/100 mL	50	---	---	---	---	---	---
Coliforms, Escherichia coli (E. coli)	---	2181/CO	MPN/100 mL	<1	---	---	---	---	---	---
Total Metals										
Aluminum, total	7429-90-1	8421/CO	mg/L	0.0064	---	---	---	---	---	---
Antimony, total	7440-26-3	2420/CO	mg/L	0.00223	---	---	---	---	---	---
Arsenic, total	7440-38-2	8420/CO	mg/L	0.00163	---	---	---	---	---	---
Barium, total	7440-39-3	7420/CO	mg/L	0.148	---	---	---	---	---	---
Beryllium, total	7440-41-7	2420/CO	mg/L	<0.000020	---	---	---	---	---	---
Bismuth, total	7440-49-8	2420/CO	mg/L	<0.000000	---	---	---	---	---	---
Boron, total	7440-42-8	2420/CO	mg/L	<0.010	---	---	---	---	---	---
Cadmium, total	7440-45-8	2420/CO	mg/L	0.0000380	---	---	---	---	---	---
Calcium, total	7440-70-2	8420/CO	mg/L	83.8	---	---	---	---	---	---
Cesium, total	7440-46-2	8420/CO	mg/L	0.000020	---	---	---	---	---	---
Chromium, total	7440-47-3	2420/CO	mg/L	<0.00010	---	---	---	---	---	---
Cobalt, total	7440-48-4	8420/CO	mg/L	0.00008	---	---	---	---	---	---
Copper, total	7440-50-8	2420/CO	mg/L	0.00144	---	---	---	---	---	---
Iron, total	7439-89-8	2420/CO	mg/L	0.142	---	---	---	---	---	---
Lead, total	7439-82-1	7420/CO	mg/L	0.000020	---	---	---	---	---	---
Lithium, total	7439-95-2	8420/CO	mg/L	0.0020	---	---	---	---	---	---
Magnesium, total	7439-95-4	2420/CO	mg/L	16.9	---	---	---	---	---	---
Manganese, total	7439-96-4	8420/CO	mg/L	0.0736	---	---	---	---	---	---
Molybdenum, total	7439-96-7	8420/CO	mg/L	0.0030	---	---	---	---	---	---
Nickel, total	7440-02-0	2420/CO	mg/L	0.00352	---	---	---	---	---	---

Mixed Water with well 7 on duty

Analytical Results

Analyte	Method/Lab	LOR	Unit	Client sample ID		CDWS AO	CDWS BAC	CDWS DG	--	--	--						
				Sub-Matrix: Water	Sampling date/time												
<table border="1"> <tr> <td>Sub-Matrix: Water</td> <td>Client sample ID</td> <td>WW7P</td> </tr> <tr> <td>(Matrix: Water)</td> <td>Sampling date/time</td> <td>12-Aug-2024 10:45</td> </tr> </table>												Sub-Matrix: Water	Client sample ID	WW7P	(Matrix: Water)	Sampling date/time	12-Aug-2024 10:45
Sub-Matrix: Water	Client sample ID	WW7P															
(Matrix: Water)	Sampling date/time	12-Aug-2024 10:45															
CG2411269-001																	
Physical Tests																	
Turbidity	912100	0.15	NTU	0.27		1 NTU	--	--	--	--	--						
Microbiological Tests																	
Coliforms, total	901000	1	MPN/100mL	<1		1 MPN/100mL	--	--	--	--	--						
Heterotrophic plate count (HPC)	901040000	1	MPN/100mL	16		--	--	--	--	--	--						
Coliforms, Escherichia coli (E. coli)	901000	1	MPN/100mL	<1		1 MPN/100mL	--	--	--	--	--						
Total Metals																	
Aluminum, total	942010	0.0030	mg/L	<0.0030		--	2.9 mg/L	0.1 mg/L	--	--	--						
Antimony, total	942010	0.0010	mg/L	0.00148		--	0.006 mg/L	--	--	--	--						
Arsenic, total	942000	0.0010	mg/L	0.00020		--	0.011 mg/L	--	--	--	--						
Boron, total	942010	0.0010	mg/L	0.0796		--	2 mg/L	--	--	--	--						
Bromine, total	942010	0.010	mg/L	<0.010		--	0 mg/L	--	--	--	--						
Calcium, total	942000	0.000000	mg/L	0.000000		--	0.007 mg/L	--	--	--	--						
Calcium, total	942000	0.001	mg/L	41.0		--	--	--	--	--	--						
Chromium, total	942010	0.0005	mg/L	<0.00050		--	0.05 mg/L	--	--	--	--						
Copper, total	942000	0.0010	mg/L	0.00536		1 mg/L	2 mg/L	--	--	--	--						
Iron, total	942000	0.010	mg/L	0.032		0.3 mg/L	--	--	--	--	--						
Lead, total	942010	0.000050	mg/L	<0.000050		--	0.005 mg/L	--	--	--	--						
Magnesium, total	942010	0.0020	mg/L	16.5		--	--	--	--	--	--						
Manganese, total	942000	0.0010	mg/L	0.0120		0.02 mg/L	0.12 mg/L	--	--	--	--						
Molybdenum, total	942010	0.000030	mg/L	0.0007		--	--	--	--	--	--						
Phosphorus, total	942010	0.010	mg/L	<0.010		--	--	--	--	--	--						
Potassium, total	942000	0.050	mg/L	0.077		--	--	--	--	--	--						
Selenium, total	942010	0.000050	mg/L	0.00401		--	0.05 mg/L	--	--	--	--						
Sodium, total	942010	0.010	mg/L	3.97		200 mg/L	--	--	--	--	--						
Silver, total	942010	0.0020	mg/L	0.445		--	1 mg/L	--	--	--	--						
Uranium, total	942000	0.000010	mg/L	0.0112		--	0.02 mg/L	--	--	--	--						
Zinc, total	942010	0.0030	mg/L	0.0040		1 mg/L	--	--	--	--	--						

Additional seasonal sampling

Analytical Results

CG2411269-001

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: WELL 3 -
Client sampling date / time: 12-Aug-2024 11:50

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Total Metals								
Antimony, total	7440-36-0	0.00368	0.00010	mg/L	E420/CG	16-Aug-2024	18-Aug-2024	1599798
Manganese, total	7439-96-5	0.00305	0.00010	mg/L	E420/CG	16-Aug-2024	18-Aug-2024	1599798
Uranium, total	7440-61-1	0.0168	0.000010	mg/L	E420/CG	16-Aug-2024	18-Aug-2024	1599798

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

CG2411269-002

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: WELL 4
Client sampling date / time: 12-Aug-2024 12:00

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Total Metals								
Antimony, total	7440-36-0	0.00180	0.00010	mg/L	E420/CG	16-Aug-2024	18-Aug-2024	1599798
Manganese, total	7439-96-5	0.00477	0.00010	mg/L	E420/CG	16-Aug-2024	18-Aug-2024	1599798
Uranium, total	7440-61-1	0.00928	0.000010	mg/L	E420/CG	16-Aug-2024	18-Aug-2024	1599798

Analytical Results

CG2415547-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: WELL 3

Client sampling date / time: 21-Oct-2024 10:05

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Total Metals								
Antimony, total	7440-36-0	0.00375	0.00010	mg/L	E420CG	27-Oct-2024	28-Oct-2024	1733307
Manganese, total	7439-96-5	0.00288	0.00010	mg/L	E420CG	27-Oct-2024	28-Oct-2024	1733307
Uranium, total	7440-61-1	0.0167	0.000010	mg/L	E420CG	27-Oct-2024	28-Oct-2024	1733307

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

CG2415547-002

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: WELL 4

Client sampling date / time: 21-Oct-2024 09:50

Analyte	CAS Number	Result	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Total Metals								
Antimony, total	7440-36-0	0.00196	0.00010	mg/L	E420CG	27-Oct-2024	28-Oct-2024	1733307
Manganese, total	7439-96-5	0.00470	0.00010	mg/L	E420CG	27-Oct-2024	28-Oct-2024	1733307
Uranium, total	7440-61-1	0.00964	0.000010	mg/L	E420CG	27-Oct-2024	28-Oct-2024	1733307