



MOUNTAINS OF OPPORTUNITY

CRANBROOK

City of Cranbrook **2023 Annual Water Report**



INTRODUCTION

This report is to provide citizens and visitors of the City of Cranbrook with information regarding the drinking water system and meets the requirements of the *Drinking Water Protection Regulation*, Section 11. The report will summarize the water quality, and future projects for the drinking water system.

WATER QUALITY *(see appendix for full report)*

Water quality is monitored 24 hours a day using the City's Supervisory Control and Data Acquisition (SCADA) system. Samples are also taken weekly throughout the water distribution system and analyzed by M.B. Laboratories Ltd.

During the summer months watershed catchments that lead to the Phillips reservoir are monitored using the SCADA and collecting samples monthly.

OPERATIONS

14 certified operators operate the water and wastewater systems for the city. In 2023 a total of 74 repairs were completed on the drinking water system.

FUTURE PROJECTS

The City is planning on several projects over the next several years that will provide more resiliency to the City's drinking water system. In 2024 the City was awarded a grant to assist with the disinfection of the drinking water and staff are in the initial planning stages of constructing a new ultraviolet (UV) disinfection facility. The new facility is planned to be operational in 2027.

APPENDICE

2023 water quality report for the Phillips Reservoir.

Water System Data Report Filter Summary

Organization: City of Cranbrook
User Name: Jason Perrault
Water System: City of Cranbrook
Report Name: Annual Water Quality Report - 2023
Report Description: As per Section 11 of the BC Water Protection Act/Regulation as mandated by the IHA Drinking Water Officer as part of the Conditions on Permit for the City of Cranbrook.
Report Template Name: Annual Water Quality Report
Collection Date Range: 01/01/2023 - 12/31/2023 (mm/dd/yyyy)
Reading Types: Analyte Report by Sampling Point
Reading Types: Lab Data Transfer
Calculate Exceedances: Apply Measurement Criteria
Show Records for Exceedances Only: Yes
Suppress Lists with no Records: No
Treatment of ND Results with Detection Limits in Reports Statistics: Non-Detect (results are ignored in average statistics)
Treatment of OR Results with Detection Limits in Reports Statistics: Over-Range (results are ignored in average statistics)
Grouped By: Sampling Point, List by: Analyte + Reading Type
Sort Records By: Collection Date

Facility: Phillips Reservoir; Phillips Reservoir - Plant
Sampling Point: Phillips Reservoir RAW PRIORITY (16-2-SR, 30666)

Aeromonas spp.(Lab Data Transfer) Criteria Lab/User Name

# samples:	49	min:	0 CFU/100ml
# detects:	49	max:	800 CFU/100ml
# non-detects:	0	Geometric Mean:	35.8 CFU/100ml (based on 49 numerical results)
# of Exceedences:	0	med:	28.0 CFU/100ml (based on 49 numerical results)

Alkalinity (total, as CaCO3)(Lab Data Transfer) Criteria Lab/User Name

# samples:	53	min:	105 mg/L
# detects:	53	max:	160 mg/L
# non-detects:	0	avg:	135 mg/L (based on 53 numerical results)
# of Exceedences:	0	med:	140 mg/L (based on 53 numerical results)

Aluminum (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	0.110 mg/L
# detects:	3	max:	0.188 mg/L
# non-detects:	0	avg:	0.150 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	0.152 mg/L (based on 3 numerical results)

Ammonia (total, as N)(Lab Data Transfer) Criteria Lab/User Name

# samples:	53	min:	1.50 ug/L
# detects:	46	max:	205 ug/L
# non-detects:	7	avg:	49.21 ug/L (based on 46 numerical results)
# of Exceedences:	0	med:	18.60 ug/L (based on 46 numerical results)

Antimony (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)



Arsenic (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Barium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	0.026 mg/L
# detects:	3	max:	0.034 mg/L
# non-detects:	0	avg:	0.031 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	0.032 mg/L (based on 3 numerical results)

Beryllium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Boron (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	0.397 mg/L
# detects:	3	max:	0.578 mg/L
# non-detects:	0	avg:	0.506 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	0.542 mg/L (based on 3 numerical results)

Cadmium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Calcium (total)(Lab Data Transfer) Criteria Lab/User Name



# samples:	3	min:	19.5 mg/L
# detects:	3	max:	41.3 mg/L
# non-detects:	0	avg:	29.8 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	28.6 mg/L (based on 3 numerical results)

Chromium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Cobalt (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Colour(Lab Data Transfer) Criteria Lab/User Name

* 01/31/2023 09:25 315 TCU <=15 AO MB Labs

# samples:	53	min:	1.06 TCU
# detects:	52	max:	315 TCU
# non-detects:	1	avg:	9.51 TCU (based on 52 numerical results)
# of Exceedences:	1	med:	3.44 TCU (based on 52 numerical results)

Conductivity(Lab Data Transfer) Criteria Lab/User Name

# samples:	53	min:	110 uS/cm
# detects:	53	max:	255 uS/cm
# non-detects:	0	avg:	209 uS/cm (based on 53 numerical results)
# of Exceedences:	0	med:	217 uS/cm (based on 53 numerical results)

Copper (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
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# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Cryptosporidium spp. (total, confirmed)(Lab Data Transfer) Criteria Lab/User Name

# samples:	6	min:	n/a
# detects:	0	max:	n/a
# non-detects:	6	Geometric Mean:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Escherichia coli / E. coli (counts)(Lab Data Transfer) Criteria Lab/User Name

* 05/16/2023 09:20	2 counts/100ml	<=0, P	Microbiological Standard	MB Labs
* 10/30/2023 08:40	2 counts/100ml	<=0, P	Microbiological Standard	MB Labs

# samples:	48	min:	0 counts/100ml
# detects:	48	max:	2 counts/100ml
# non-detects:	0	Geometric Mean:	1 counts/100ml (based on 48 numerical results)
# of Exceedences:	2	med:	0 counts/100ml (based on 48 numerical results)

Giardia spp. (total, confirmed)(Lab Data Transfer) Criteria Lab/User Name

# samples:	6	min:	2.6 counts/100L
# detects:	1	max:	2.6 counts/100L
# non-detects:	5	Geometric Mean:	2.6 counts/100L (based on 1 numerical results)
# of Exceedences:	0	med:	2.6 counts/100L (based on 1 numerical results)

Gold (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)



Hardness (total, as CaCO3)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	78.0 mg/L
# detects:	3	max:	138 mg/L
# non-detects:	0	avg:	106.3 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	103.0 mg/L (based on 3 numerical results)

Iron (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	0.022 mg/L
# detects:	3	max:	0.170 mg/L
# non-detects:	0	avg:	0.098 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	0.102 mg/L (based on 3 numerical results)

Lanthanum (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Lead (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Magnesium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	7.12 mg/L
# detects:	3	max:	8.48 mg/L
# non-detects:	0	avg:	7.79 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	7.76 mg/L (based on 3 numerical results)



Manganese (total)(Lab Data Transfer)		Criteria	Lab/User Name
* 05/01/2023 09:40	0.138 mg/L	<=0.12 MAC	MB Labs
* 09/05/2023 09:05	0.148 mg/L	<=0.12 MAC	MB Labs

# samples:	53	min:	0.005 mg/L
# detects:	52	max:	0.148 mg/L
# non-detects:	1	avg:	0.032 mg/L (based on 52 numerical results)
# of Exceedences:	2	med:	0.020 mg/L (based on 52 numerical results)

Mercury (total)(Lab Data Transfer)		Criteria	Lab/User Name
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# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Molybdenum (total)(Lab Data Transfer)		Criteria	Lab/User Name
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# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Mould (total)(Lab Data Transfer)		Criteria	Lab/User Name
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# samples:	53	min:	0 counts/ml
# detects:	52	max:	16.0 counts/ml
# non-detects:	1	Geometric Mean:	0.98 counts/ml (based on 52 numerical results)
# of Exceedences:	0	med:	0.00 counts/ml (based on 52 numerical results)

Nickel (total)(Lab Data Transfer)		Criteria	Lab/User Name
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# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Nitrate (as N)(Lab Data Transfer)	Criteria	Lab/User Name
* 12/27/2023 09:45	62.4 mg/L	<=10 MAC MB Labs

# samples:	53	min:	0.00150 mg/L
# detects:	40	max:	62.4 mg/L
# non-detects:	13	avg:	1.58554 mg/L (based on 40 numerical results)
# of Exceedences:	1	med:	0.02375 mg/L (based on 40 numerical results)

Nitrite (as N)(Lab Data Transfer)	Criteria	Lab/User Name
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# samples:	53	min:	0.000400 mg/L
# detects:	21	max:	0.117 mg/L
# non-detects:	32	avg:	0.012670 mg/L (based on 21 numerical results)
# of Exceedences:	0	med:	0.005400 mg/L (based on 21 numerical results)

o-Phosphate (as P)(Lab Data Transfer)	Criteria	Lab/User Name
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# samples:	53	min:	1.40 ug/L
# detects:	53	max:	8.20 ug/L
# non-detects:	0	avg:	4.38 ug/L (based on 53 numerical results)
# of Exceedences:	0	med:	4.40 ug/L (based on 53 numerical results)

pH(Lab Data Transfer)	Criteria	Lab/User Name
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# samples:	53	min:	7.00
# detects:	53	max:	10.2
# non-detects:	0	avg:	7.62 (based on 53 numerical results)
# of Exceedences:	0	med:	7.57 (based on 53 numerical results)

Phosphate (total, as P)(Lab Data Transfer)	Criteria	Lab/User Name
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# samples:	53	min:	3.70 ug/L
# detects:	53	max:	9,400 ug/L
# non-detects:	0	avg:	460.26 ug/L (based on 53 numerical results)
# of Exceedences:	0	med:	8.00 ug/L (based on 53 numerical results)



Potassium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	0.380 mg/L
# detects:	3	max:	0.700 mg/L
# non-detects:	0	avg:	0.580 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	0.660 mg/L (based on 3 numerical results)

Scandium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Selenium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Silicon (total, as Si)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	4.61 mg/L
# detects:	3	max:	5.51 mg/L
# non-detects:	0	avg:	5.02 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	4.95 mg/L (based on 3 numerical results)

Silver (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Sodium (total)(Lab Data Transfer) Criteria Lab/User Name

# non-detects:	1	avg:	122.0 mg/L (based on 52 numerical results)
# of Exceedences:	0	med:	126.5 mg/L (based on 52 numerical results)

Total Kjeldahl Nitrogen / TKN(Lab Data Transfer) Criteria Lab/User Name

# samples:	53	min:	0.010 mg/L
# detects:	53	max:	0.243 mg/L
# non-detects:	0	avg:	0.108 mg/L (based on 53 numerical results)
# of Exceedences:	0	med:	0.099 mg/L (based on 53 numerical results)

Total Organic Carbon / TOC(Lab Data Transfer) Criteria Lab/User Name

# samples:	53	min:	0.880 mg/L
# detects:	49	max:	21.2 mg/L
# non-detects:	4	avg:	6.429 mg/L (based on 49 numerical results)
# of Exceedences:	0	med:	5.600 mg/L (based on 49 numerical results)

Total Suspended Solids / TSS(Lab Data Transfer) Criteria Lab/User Name

* 01/16/2023 09:05	10.7 mg/L	>=0, <=10	User-Defined	MB Labs
* 02/13/2023 09:15	12.0 mg/L	>=0, <=10	User-Defined	MB Labs
* 02/23/2023 09:35	23.0 mg/L	>=0, <=10	User-Defined	MB Labs
* 07/10/2023 09:10	42.0 mg/L	>=0, <=10	User-Defined	MB Labs
* 07/24/2023 09:50	12.0 mg/L	>=0, <=10	User-Defined	MB Labs
* 09/18/2023 09:45	17.0 mg/L	>=0, <=10	User-Defined	MB Labs
* 10/30/2023 08:40	11.0 mg/L	>=0, <=10	User-Defined	MB Labs

# samples:	53	min:	1.00 mg/L
# detects:	40	max:	42.0 mg/L
# non-detects:	13	avg:	6.01 mg/L (based on 40 numerical results)
# of Exceedences:	7	med:	3.34 mg/L (based on 40 numerical results)

Tungsten (total)(Lab Data Transfer) Criteria Lab/User Name



# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Turbidity(Lab Data Transfer)		Criteria	Lab/User Name
* 03/27/2023 09:30	1.04 NTU	<=1, OR	User-Defined MB Labs
* 05/01/2023 09:40	2.59 NTU	<=1, OR	User-Defined MB Labs
* 05/08/2023 08:45	1.52 NTU	<=1, OR	User-Defined MB Labs
* 05/16/2023 09:20	1.14 NTU	<=1, OR	User-Defined MB Labs
* 05/24/2023 12:53	1.30 NTU	<=1, OR	User-Defined MB Labs
* 09/05/2023 09:05	2.15 NTU	<=1, OR	User-Defined MB Labs
* 11/27/2023 10:10	1.14 NTU	<=1, OR	User-Defined MB Labs

# samples:	53	min:	0.480 NTU
# detects:	53	max:	2.59 NTU
# non-detects:	0	avg:	0.844 NTU (based on 53 numerical results)
# of Exceedences:	7	med:	0.770 NTU (based on 53 numerical results)
		95th percentile:	1.709 NTU

Uranium (total)(Lab Data Transfer) **Criteria** **Lab/User Name**

# samples:	0	min:	n/a
# detects:	0	max:	n/a
# non-detects:	0	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

UV transmittance(Lab Data Transfer) **Criteria** **Lab/User Name**

# samples:	53	min:	83.2 %
# detects:	53	max:	95.1 %
# non-detects:	0	avg:	90.8 % (based on 53 numerical results)
# of Exceedences:	0	med:	91.8 % (based on 53 numerical results)



Vanadium (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	n/a
# detects:	0	max:	n/a
# non-detects:	3	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0	med:	n/a (based on 0 numerical results)

Zinc (total)(Lab Data Transfer) Criteria Lab/User Name

# samples:	3	min:	0.004 mg/L
# detects:	3	max:	0.023 mg/L
# non-detects:	0	avg:	0.012 mg/L (based on 3 numerical results)
# of Exceedences:	0	med:	0.008 mg/L (based on 3 numerical results)

Result Legend:

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no, TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

- < means less than lower detection limit shown
- > means greater than upper detection limit shown
- « means detected & less than number shown
- » means detected & greater than number shown

* Indicates Criteria is exceeded

