

# **Cobalt Drinking Water System**

## **2022 Annual Summary Report**



Prepared by the Ontario Clean Water Agency  
On behalf of the Town of Cobalt



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## OVERVIEW

Municipalities throughout Ontario are required to comply with Ontario Regulation 170/03 made under the *Safe Drinking Water Act*, 2002. The Act was passed following recommendations made by Commissioner O'Conner after the Walkerton Inquiry. The Act's purpose is to protect human health through the control and regulation of drinking-water systems. O. Reg. 170/03 regulates drinking water testing, use of licensed laboratories, treatment requirements and reporting requirements.

Section 11 of O. Reg. 170/03 requires the owner to produce an Annual Report which must include the following:

1. Description of system and chemical(s) used
2. Summary of any adverse water quality reports and corrective actions
3. Summary of all required testing
4. Description of any major expenses incurred to install, repair or replace equipment

This Annual Report must be completed by February 28 of each year.

Schedule 22 of the regulation requires that a Summary Report for Municipalities be prepared which must be presented and accepted by Council by March 31 of each year for the preceding calendar year reporting period.

The report must list the requirements of the Act, its regulations, the system's Drinking Water Works Permit (DWWP), Municipal Drinking Water Licence (MDWL), Certificate of Approval (if applicable), and any Provincial Officer Order the system failed to meet during the reporting period. The report must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.

The *Safe Drinking Water Act*, 2002 and the drinking water regulations can be viewed at the following website: <http://www.e-laws.gov.on.ca>.

To enable the Owner to assess the rated capacity of their system to meet existing and future planned water uses, the following information is also required in the report.

1. A summary of the quantities and flow rates of water supplied during the reporting period, including the monthly average and the maximum daily flows.
2. A comparison of the summary to the rated capacity and flow rates approved in the systems approval, drinking water works permit or municipal drinking water licence or a written agreement if the system is receiving all its water from another system under an agreement.

The two reports have been combined and presented to council as the Cobalt Drinking Water System 2022 Annual Summary Report.

## 1.0 INTRODUCTION

<b>Drinking-Water System Name:</b>	<b>COBALT DRINKING WATER SYSTEM</b>
<b>Drinking-Water System No.:</b>	220000362
<b>Drinking-Water System Owner:</b>	The Corporation of the Town of Cobalt
<b>Drinking-Water System Category:</b>	Large Municipal, Residential System
<b>Municipal Drinking Water Licence No.:</b>	206-101 (Issue 5 - April 28, 2021)
<b>Drinking Water Work Permit No.:</b>	206-201 (Issue 4 - April 28, 2021)
<b>Permit to Take Water No.:</b>	6462-BB9RFA (Issued May 1, 2019)
<b>Period being reported on:</b>	January 1, 2022 to December 31, 2022

**Does your Drinking Water System serve more than 10,000 people?** No

**Is your annual report available to the public at no charge on a web site on the Internet?** No

**Location where Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.**

Town of Cobalt Municipal Office  
18 Silver Street, Cobalt  
ON POJ 1C0

Township of Coleman Municipal Office  
937907 Marsh bay Road, Coleman  
ON POJ 1C0

### ***Drinking Water Systems that receive drinking water from the Cobalt Drinking Water System***

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>
Cobalt Drinking Water System	220000362
Coleman Distribution System	260074321

### ***The Annual Report was provided to all connected Drinking Water System owners***

The Ontario Clean Water Agency prepared the 2022 Annual Summary Report for the Cobalt Drinking Water System and provided a copy to the Town of Cobalt and the Township of Coleman.

### ***System users are notified that the Annual Report is available through:***

- Public Access/Notice at Municipal Office

## **2.0 DESCRIPTION OF THE DRINKING WATER SYSTEM**

The Cobalt Drinking Water System is owned by the Corporation of the Town of Cobalt and consists of a Class 2 water treatment subsystem and a Class 1 water distribution subsystem that services the Town of Cobalt and Coleman Township. The System serves a population of approximately 1350 residents including the connected population in the Coleman Township Distribution System.

### ***Raw Water Supply***

The raw water is taken from a protected water body, Sasaginaga Lake and directed to the high lift pumping station located about 500 meters West of Pyrite Street in Cobalt. The intake structure is located 191 meters into the lake, at a depth of 7.5 meters. The raw water is monitored for pH, temperature and turbidity.

### ***Water Treatment***

The Cobalt water treatment facility is a direct filtration facility with two treatment trains operating in parallel, and each consisting of a pre-contact tank, where coagulation is undertaken, and two dual media pressure filters.

The low lift pumping station consists of two submersible highlift suction pumps (one duty and one standby), a wet well, a flow meter and two pre-contact vessels, each having a volume of 3.6 cubic meters. The pumps feed four pressurized dual media sand/anthracite filters. A parallel UV irradiation system is used to achieve most of the required primary disinfection.

Chlorine gas is injected into the water following the UV system treatment using two booster pumps and two manually controlled v-chlorination feed units capable of providing 45 kilograms/day of chlorine. The chlorine is added to meet the remaining primary disinfection requirements and maintain the required secondary disinfection within the distribution systems.

The water then goes into an 8.527 m diameter and 10.869 m high glassed fused to steel standpipe, having a total volume of 621 m<sup>3</sup>. Two submersible high lift pumps (one duty and one standby) pump water from the standpipe to the Cobalt and Coleman Distribution Systems and to the Cobalt Water Tower.

The treated water is monitored for pH, free chlorine residual and turbidity using continuous on-line analyzers. The plant is protected with alarms and a stand-by generator in the event of power loss.

### ***Water Storage***

There is a 1400 cubic meter elevated water storage tank located on Ferland Avenue in Cobalt. The tank is 15 m in diameter and 43.4 m high. Re-chlorination equipment is connected at the water tower to provide secondary disinfection if required.

### ***Waste Management***

Residue management consists of one 2400 mm diameter duplex Grey Water Pumping Station with two submersible non-clog pumps rated at 16 L/s that pump to the sanitary sewer system.

### ***Emergency Power***

A 180 kW standby diesel generator with a transfer switch is available outside the water plant in the event of a power loss

### ***Distribution Systems***

The Cobalt Distribution System is comprised of PVC water mains and includes 89 hydrants, 139 valves and approximately 615 service connections.

The Coleman Distribution System consists of 48 service connections of which 46 are in use, serving an estimated 90 residents. The distribution system includes 18 fire hydrants and 21 valves. All service connections are equipped with water meters.

### 3.0 LIST OF ALL WATER TREATMENT CHEMICALS USED

- Poly Aluminum Chlorine (PAC) - high performance coagulant used for flocculation
- Sodium Hydroxide (Caustic Soda) - pH and alkalinity adjustment of the finished water
- Chlorine Gas - disinfection
- Sodium Hypochlorite - disinfection re-chlorination at the Cobalt Water Tower

### 4.0 SIGNIFICANT EXPENSES INCURRED

- Emergency repairs to SCADA system after lightening hit the water plant
- New chemical tank for caustic
- New controller for chlorine gas
- Water treatment chemicals

### 5.0 DETAILS OF NOTICES REPORTED & SUBMITTED TO THE SPILLS ACTION CENTER

#### Incident #1: Category 2 Watermain Repair / Loss of Pressure / BWA

<b>AWQI #</b>	<b>158368</b>
<b>Date</b>	May 13, 2022
<b>Details</b>	Watermain break in front of 48 Grandview. Service line between main and curb stop broken. Main shut off at two nearest valve to aid in repairs. Loss of pressure for three users. Main closed at 08:30am.
<b>Corrective Action</b>	The watermain was repaired, water was turned on and the affected area was flushed. A set of three samples was taken on May 13 from the three affected residences and a second set was taken more than 24 hours later on May 14.  All samples were clear of total coliforms and E.coli and the Boil Water Advisory was lifted around 13:00 hrs on May 15 by the health unit.

#### Incident #2: Category 2 Watermain Repair / Loss of Pressure / BWA

<b>AWQI #</b>	<b>159083</b>
<b>Date</b>	July 11, 2022
<b>Details</b>	Watermain break in front of arena at the start of Hudson Bay Rd. Entire road isolated, approximately 15 homes with no water.
<b>Corrective Action</b>	BWA issued for all of Hudson Bay Road. The Town of Cobalt Public Works operators repaired the watermain break and then flushed the affected area.  Two sets of samples taken 24 hours apart and all sample results came back clear of E.coli and total coliform and the Boil Water Advisory was lifted.

### Incident #3: Category 2 Watermain Repair / Loss of Pressure / BWA

<b>AWQI #</b>	<b>159598</b>
<b>Date</b>	August 18, 2022
<b>Details</b>	August 18 - at approximately 9:30 AM, a watermain break was discovered on Lang Street and the water was shut off to conduct repairs. The resulted in complete loss of pressure to 6 homes (between Watson Place and Laird Avenue and Fasken St. to Laird Avenue).
<b>Corrective Action</b>	<p>After the repair was complete, the pressure was restored and the area was flushed. Two sets of 3 bacteriological samples were collected (upstream, downstream and at the site of the break) on August 18th and 19th 2022. Sample results indicated no total coliforms or E.coli (lab reports attached).</p> <p>BWA was lifted on Sunday, August 21, 2022 at approximately 8:30 AM when the lifted notices were hand delivered to the affected residents. The notice was also made available on the town's Facebook on Sunday morning, August 21st at 3:24 AM.</p> <p>Resolution submitted on August 22, 2022.</p>

### Incident #4: Category 2 Watermain Repair / Loss of Pressure / BWA

<b>AWQI #</b>	<b>159779</b>
<b>Date</b>	August 30, 2022
<b>Details</b>	Water break between the main and curb stop in front of 50 Galena St. A small section of the distribution system was isolated in order to repair the break, which resulted in a loss of pressure to 6 residences on Galena St.
<b>Corrective Action</b>	<p>The Timiskaming Health Unit issued a Boil Water Advisory for these residences. The watermain was repaired, the pressure was restored and the affected area was flushed. Two sets of 3 bacteriological samples were collected (upstream, downstream and at the site of the break) on August 30th and 31st 2022. Sample results indicated no total coliforms or E.coli (lab reports attached).</p> <p>BWA was lifted on September 2, 2022 by the Health Unit.</p>

### Incident #5: Lead Exceedance

<b>AWQI #</b>	<b>160069</b>
<b>Date</b>	September 21, 2022
<b>Details</b>	<p>Lead result for sample taken at Hydrant #53 on Lang St on September 13, 2022 was 18.1 ug/mL, which is an exceedance of the limit of 10 ug/mL.</p> <p>Possible Cause: Sample was collected during distribution flushing.</p>
<b>Corrective Action</b>	Re-samples collected at the location of the exceedance, upstream and downstream.

## Incident #6: Category 2 Watermain Repair / Loss of Pressure / BWA

<b>AWQI #</b>	<b>160310</b>
<b>Date</b>	October 13, 2022
<b>Details</b>	At approximately 12:35 hrs the water was turned off to a section of Silver Street so that a service line could be repaired.
<b>Corrective Action</b>	<p>Boil Water Advisory issued to affected businesses; 14, 16, 18, 22, 24, 28, 29, 30, 33, 36 and 38 Silver Street; affected users were notified via door to door handouts.</p> <p>The service line was repaired and disinfected. The water was then turned back on and the affected area was flushed. Two sets of three samples were collected at 18 Silver St (downstream), 24 Silver St (upstream) and 38 Silver St (location) on October 13th and 14th, 24 - 48 hours apart.</p> <p>All results were clear of total coliforms and E.coli.</p> <p>The Health Unit was notified and provided with analytical reports for the two sets of samples and they lifted the BWA on October 15, 2022.</p>

## 6.0 MICROBIOLOGICAL TESTING

Sample Type	No. of Samples	<i>E. coli</i> Results (min to max)	Total Coliform Results (min to max)	# of HPC Samples	HPC Results (min to max)
Raw	52	<2 to NDOGT	<2 to NDOGT	N/A	N/A
Treated	52	0 to 0	0 to 0	52	<10 to 30
Distribution	162	0 to 0	0 to 0	57	<10 to 140

Maximum Allowable Concentration (MAC) for treated and distribution samples: *E. coli* = 0 Counts/100 mL and Total Coliforms = 0 Counts/100 mL

"<" denotes less than the laboratory's method detection limit.

NDOGT = No Data, Overgrown with Target

**Note:** One microbiological sample is collected and tested each week from the raw and treated water supply. A total of three microbiological samples are collected and tested each week from the Cobalt distribution system.

## 7.0 OPERATIONAL TESTING

### *Continuous Monitoring in the Treatment Process*

Parameter	No. of Samples	Range of Results (min to max)	Unit of Measure	Standard
<b>Turbidity</b> (filter 1)	8760	0.004 to 10	NTU	1.0 (for more than 15 minutes)
<b>Turbidity</b> (filter 2)	8760	0.005 to 4.9		
<b>Turbidity</b> (filter 3)	8760	0.03 to 10		
<b>Turbidity</b> (filter 4)	8760	0.04 to 9.56		
<b>Free Chlorine</b>	8760	0.89 to 2.87	mg/L	N/A

Notes: For continuous monitors 8760 is used as the number of samples.

Effective backwash procedures, including filter to waste are in place to ensure that the effluent turbidity requirements are met all times. Thus, the maximum result of 10 NTU on Filter 1 and 2 is not representative of the water entering the clearwell.



### Summary of Chlorine Residuals in the Distribution System

Parameter	No. of Samples	Range of Results (min to max)	Unit of Measure	Standard
Free Chlorine	400	0.40 to 2.16	mg/L	0.05

Notes: A total of seven operational checks for chlorine residual in the distribution system are collected each week. Four (4) samples are tested one day and three (3) on a second day. The sample sets are collected at least 48-hours apart and samples collected on the same day are from different locations.

### Summary of Nitrate & Nitrite Results from the Water Treatment Plant

Date of Sample	Nitrate Result Value (mg/L)	Nitrite Result Value (mg/L)	Exceedance
January 10	<0.1	<0.01	No
April 11	0.1	<0.01	No
July 11	<0.1	<0.01	No
October 17	<0.1	<0.01	No

Maximum Acceptable Concentration (MAC) for Nitrate = 10 mg/L

MAC for Nitrite = 1.0 mg/L

### Summary of Total Trihalomethane Results from the Distribution System

Date of Sample	Result Value (ug/L)	Four Quarter Running Average	Exceedance
January 10	38	42.55	No
April 11	31.1	39.8	No
July 11	33.9	38.25	No
October 17	30.2	33.3	No

Maximum Acceptable Concentration (MAC) = 100 ug/L (Four Quarter Running Average)

### Summary of Total Haloacetic Acid Results from the Distribution System

Date of Sample	Result Value (ug/L)	Four Quarter Running Average	Exceedance
January 10	43	51.5	No
April 11	19	40.5	No
July 11	61	42	No
October 17	48	42.75	No

Maximum Acceptable Concentration (MAC) = 80ug/L (Four Quarter Running Average)

### Summary of Most Recent Lead, pH & Alkalinity Results from the Distribution System

Sample Date	# of Samples	Field pH (min to max)	Alkalinity (mg/L) (min to max)	Lead (ug/L) (min to max)	Exceedance
March 15, 2022	2	6.89 to 7.01	61 to 61	<0.1 to 0.2	No
September 13, 2022	2	7.18 to 7.32	56 to 56	0.3 to <b>18.1</b>	Yes
September 21, 2022	2	7.19 to 7.2	61 to 61	<0.1 to <0.1	No

MAC for Lead -10 ug/L

Note: The system is required to test for total alkalinity and pH in two distribution samples collected during the period of December 15 to April 15 and two distribution samples during the period of June 15 to October 15. This testing is required in every 12-month period with lead testing in every third 12-month period. Next round of lead sampling is scheduled for 2025.

**Summary of Schedule 23 Inorganic Results from the Water Treatment Plant**

Sample Date: October 17, 2022

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Antimony	<0.5	ug/L	6	No
Arsenic	<1.0	ug/L	10	No
Barium	5.0	ug/L	1000	No
Boron	<2.0	ug/L	5000	No
Cadmium	<0.1	ug/L	5	No
Chromium	<1.0	ug/L	50	No
Mercury	<0.1	ug/L	1	No
Selenium	0.3	ug/L	50	No
Uranium	<1.0	ug/L	20	No

Note: Sample required every 12 months

**Summary of Schedule 24 Organic Results from the Water Treatment Plant**

Sample Date: October 17, 2022

Parameter	Result Value	Unit of Measure	Standard	Exceedance
1,1-Dichloroethylene	< 0.3	ug/L	14	No
1,2-Dichlorobenzene	< 0.2	ug/L	200	No
1,2-Dichloroethane	< 0.2	ug/L	5	No
1,4-Dichlorobenzene	< 0.3	ug/L	5	No
2,3,4,6-Tetrachlorophenol	< 0.3	ug/L	100	No
2,4,6-Trichlorophenol	< 0.2	ug/L	100	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	< 0.358	ug/L	100	No
2-4 Dichlorophenol	< 0.2	ug/L	900	No
Alachlor	< 0.238	ug/L	5	No
Atrazine + N-dealkylated metabolites	< 0.5	ug/L	5	No
Azinphos-methyl	< 0.178	ug/L	20	No
Benzene	< 0.1	ug/L	1	No
Benzo(a)pyrene	< 0.01	ug/L	0	No
Bromoxynil	< 0.0956	ug/L	5	No
Carbaryl	< 2	ug/L	90	No
Carbofuran	< 4	ug/L	90	No
Carbon Tetrachloride	< 0.2	ug/L	2	No
Chlorobenzene	< 0.5	ug/L	80	No
Chlorpyrifos	< 0.178	ug/L	90	No
Diazinon	< 0.178	ug/L	20	No
Dicamba	< 0.0836	ug/L	120	No
Dichloromethane	< 1	ug/L	50	No
Diclofop-methyl	< 0.119	ug/L	9	No
Dimethoate	< 0.178	ug/L	20	No
Diquat	< 0.2	ug/L	70	No
Diuron	< 10	ug/L	150	No
Glyphosate	< 20	ug/L	280	No
Malathion	< 0.178	ug/L	190	No

**Summary of Schedule 24 Organic Results from the Water Treatment Plant**

Sample Date: October 17, 2022

Parameter	Result Value	Unit of Measure	Standard	Exceedance
MCPA	< 5.97	ug/L	230	N/A
Metolachlor	< 0.119	ug/L	50	No
Metribuzin	< 0.119	ug/L	80	No
Paraquat	< 0.2	ug/L	10	No
Pentachlorophenol	< 0.3	ug/L	3	No
Phorate	< 0.119	ug/L	60	No
Picloram	< 0.0836	ug/L	2	No
Prometryne	< 0.0594	ug/L	1	No
Simazine	< 0.178	ug/L	10	No
Terbufos	< 0.119	ug/L	1	No
Tetrachloroethylene	< 0.3	ug/L	10	No
Total PCB's	< 0.06	ug/L	190	No
Triallate	< 0.119	ug/L	5	No
Trichloroethylene	< 0.2	ug/L	5	No
Trifluralin	< 0.119	ug/L	45	No
Vinyl Chloride	< 0.1	ug/L	1	No

**Note:** Sample required every 12 months

**Most Recent Sodium Data Sampled at the Water Treatment Plant**

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
April 6, 2020	1	5.75	mg/L	20	No

**Note:** Sample required every 60 months. Next sampling scheduled for April 2025

**Most Recent Fluoride Data Sampled at the Water Treatment Plant**

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
April 6, 2020	1	< 0.5	mg/L	1.5	No

**Note:** Sample required every 60 months. Next sampling scheduled for April 2025

**Inorganic or Organic Test Results that Exceeded Half the Standard**

No inorganic or organic parameter(s) listed in Schedule 23 and 24 of Ontario Regulation 170/03 exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standard (O. Reg. 169/03) during the reporting period.

**Summary of Additional Testing Performed in Accordance with a Legal Instrument.**

- Schedule C, Section 1.6 of Municipal Drinking Water Licence #206-101 requires the UV disinfection system to maintain a continuous pass-through UV dose of at least 40 mJ/cm<sup>2</sup>.

**Summary of UV Monitoring**

Unit	Range of Results (min to max)	Unit of Measure	Standard
UV 1	0 to 199.9	mJ/cm <sup>2</sup>	40
UV 2	0 to 199.9	mJ/cm <sup>2</sup>	40

Note: Zero results occur when the plant is not producing water and the units are off. The UV units will alarm and automatically shut down if the dose falls to 40mJ/cm<sup>2</sup>. **Flow through the UV is not to exceed 46 L/s**

- Schedule D, Section 2.2 of Municipal Drinking Water Licence #206-101 requires that;  
When the standpipe is off line, the free chlorine residual shall be continuously monitored at the plant discharge, and a grab sample shall be taken and tested for free chlorine residual weekly from the Cobalt and Coleman watermain at a point near the first or second consumer.

**Summary of Chlorine Residual Monitoring at the First Consumer**

Range of Results - Minimum to Maximum					
Cobalt WTP	Coleman Distribution	Correlation Difference	Cobalt Distribution	Correlation Difference	Unit of Measure
The standpipe was on-line for the duration of 2022 and this sampling was not required.					

**8.0 REQUIREMENTS THE SYSTEM FAILED TO MEET**

Details regarding requirements the system failed to meet due to Adverse Water Quality Incidents are provided in section 5.0 “Details on Notices Submitted and Reported to Spills Action Centre”.

**The Non-Compliances listed below were identified in the October 2022 MECP Inspection Report.**

**1. Director Notification & Form 2 ‘Record of Minor Modifications’ – Not Completed**

<b>Legislation</b>	<b>Conditions 2.4 and 4.5 of Schedule B of DWWP No. 206-201</b>
<b>Requirement(s) the System Failed to Meet</b>	<p><b>The owner had not ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.</b></p> <p>As part of the plant upgrades that were completed in 2019/2020, the number of chemical storage tanks used for both the coagulant/polymer and the ph/alkalinity injection systems was changed from two (2) to one (1).</p> <p>However, this change was not indicated on the Schedule C: 'Authorization to Alter the Drinking Water System' and neither a Director Notification or Form 2 'Record of Minor Modifications' were completed. This is a violation of conditions 2.4 and 4.5 of Schedule B of DWWP No. 206-201.</p> <p>Since the site visit for this inspection, a Director Notification and a Form 2</p>

	'Record of Minor Modifications', dated August 11, 2022, were provided to the inspector.
<b>Corrective Action</b>	The new tanks were supposed to have been included in the upgrades approved in the Schedule C issued 2018 for upgrades completed in 2019-2020. The error had not been noticed previously.  OCWA PCT completed/submitted a Form and Director's Notification.
<b>Status</b>	Resolved

## 2. Director Notification & Form 2 'Record of Minor Modifications' – Form Not Prepared for Inspection

<b>Legislation</b>	<b>Conditions 2.4 and 4.5 of Schedule B of DWWP No. 206-201</b>
<b>Requirement(s) the System Failed to Meet</b>	<b>The owner/operating authority was not in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.</b>  Refer to previous non-compliance:  1. Director Notification & Form 2 'Record of Minor Modifications' – Not Completed
<b>Corrective Action</b>	Refer to previous non-compliance:  1. Director Notification & Form 2 'Record of Minor Modifications' – Not Completed
<b>Status</b>	Resolved

## 3. 72 Hour Reviews of Continuous Monitoring Equipment – Incomplete

<b>Legislation</b>	<b>Section 6-5(1)(3) of O. Reg. 170/03</b>
<b>Requirement(s) the System Failed to Meet</b>	<b>Operators were not examining continuous monitoring test results or they were not examining the results within 72 hours of the test.</b>  Section 6-5(1)(3) requires that, if a drinking water system uses continuous monitoring equipment for sampling and testing that is required under this Regulation, test results must be examined, within 72 hours after the tests are conducted.  During the inspection period, this 72 hour period was exceeded on four occasions, with no data review recorded between; - Friday, September 10, 2021 at 9:00am to Monday, September 13, 2021 at 10:00am, - Friday, November 19, 2021 at 11:00am to Monday, November 22, 2021 at 1:00pm, - Friday, January 7, 2022 at 12:50pm to Monday, January 10, 2022 at 1:00pm, and - Friday, April 15, 2022 at 2:45pm to Monday, April 18, 2022 at 3:00pm
<b>Corrective Action</b>	Three of the four times reviews were missed by the public works operators because they were directed by their manager to complete other tasks first.



	OCWA explained the importance and requirement of the 72 hour review to the Public Works manager at the time, and the issue was resolved. OCWA has been completing the 72 hour review since April 1st, 2022.
<b>Status</b>	Resolved

## 9.0 SUMMARY OF FLOW RATES AND QUANTITIES

The following tables and graphs indicate the quantities and flow rates of water taken and produced during the reporting period, including monthly average flows, maximum daily flows and the total monthly volumes. A comparison of the water data is made to the rated capacity and flow rates specified in the system's Permit to Take Water and the Municipal Drinking Water License.

**Table A: 2022 - Monthly Summary of Water Takings from the Source (Sasaginaga Lake)**

Regulated by Permit to Take Water (PTTW) #6462-BB9RFA (Issued May 1, 2019)

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Year to Date</i>
<i>Total Volume (m<sup>3</sup>)</i>	45,797	45,864	51,069	52,875	54,564	52,819	59,123	54,855	41,927	42,505	42,433	43,856	587,687
<i>Average Volume (m<sup>3</sup>/d)</i>	1,477	1,638	1,647	1,763	1,760	1,761	1,907	1,770	1,398	1,371	1,414	1,415	1,610
<i>Maximum Volume (m<sup>3</sup>/d)</i>	1,645	1,866	2,201	2,023	2,104	1,990	2,296	2,290	1,799	1,685	1,835	1,637	2,296
<i>PTTW - Maximum Allowable Volume (m<sup>3</sup>/day)</i>	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974
<i>Maximum Flow Rate (L/min)</i>	1,937	2,284	2,498	2,557	2,552	2,390	2,501	2,233	2,164	1,999	2,014	2,344	2,557
<i>PTTW - Maximum Allowable Flow Rate (L/min)</i>	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760	2,760

**Table B: 2022 - Monthly Summary of Treated Water Supplied to the Distribution System**

Regulated by Municipal Drinking Water Licence (MDWL) #206-101 - Issue 5 (Issued April 28, 2021)

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Year to Date</i>
<i>Total Volume (m<sup>3</sup>)</i>	38,946	39,108	43,691	44,178	44,894	43,595	50,105	48,458	37,492	34,655	34,096	36,706	495,925
<i>Average Volume (m<sup>3</sup>/d)</i>	1,256	1,397	1,409	1,473	1,448	1,453	1,616	1,563	1,250	1,118	1,137	1,184	1,359
<i>Maximum Volume (m<sup>3</sup>/d)</i>	1,416	1,684	1,970	1,666	1,622	1,785	1,925	1,968	1,677	1,268	1,362	1,327	1,970
<i>MDWL - Rated Capacity (m<sup>3</sup>/day)</i>	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974	3,974
<i>% Rated Capacity</i>	36	42	50	42	41	45	48	50	42	32	34	33	34 avg

**Flow Monitoring**

Municipal Drinking Water Licence (MDWL) #206-101 requires the owner to install a sufficient number of flow measuring devices to permit the continuous measurement and recording of:

- the flow rate and daily volume of water conveyed from the treatment system to the distribution system,
- the flow rate and daily volume of water conveyed into the treatment system.

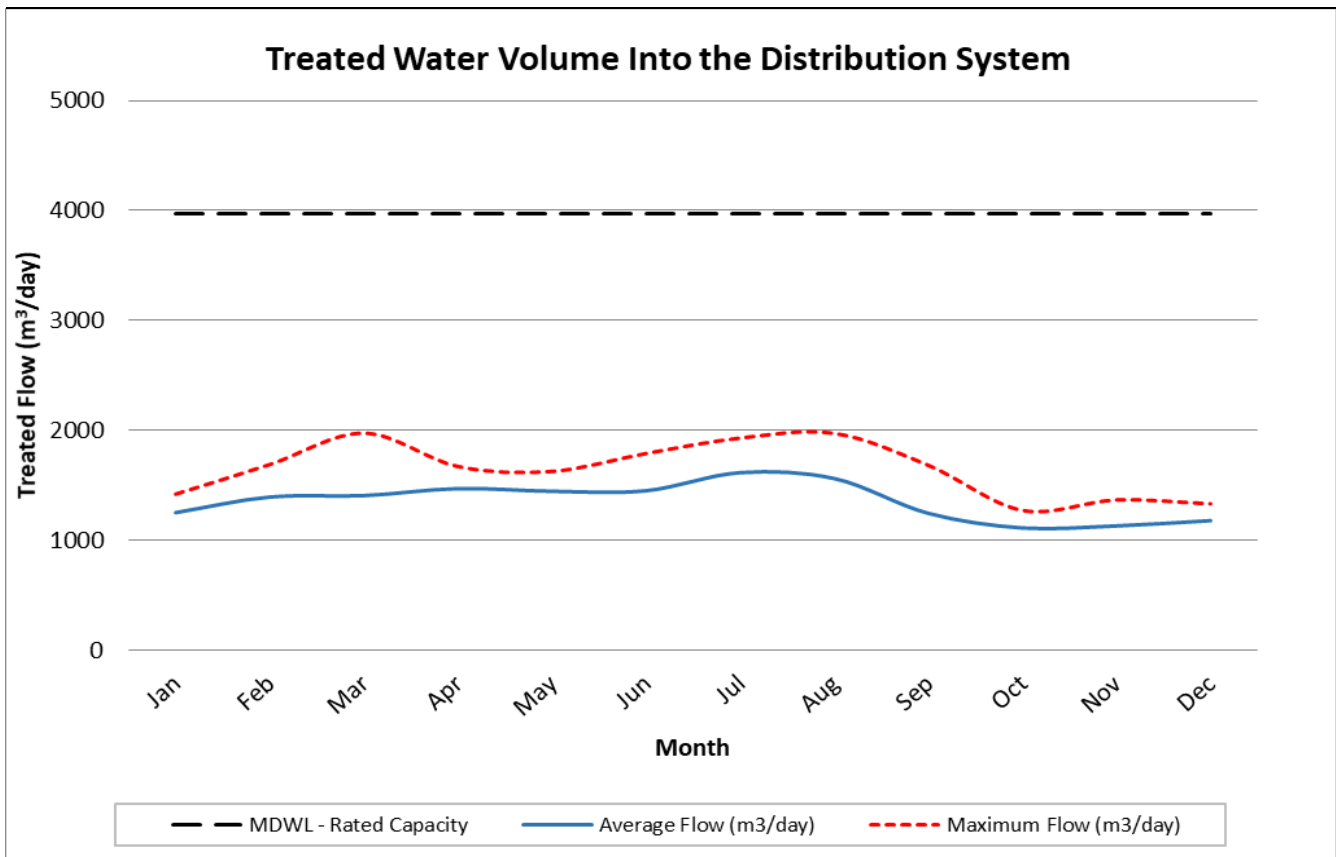
The Cobalt drinking water system has a total of four flow meters; one to monitor raw water entering the treatment plant, one to monitor treated water entering the distribution system, one to measure backwashes and another to measure waste water. Flow metering devices were calibrated in accordance to manufacturers’ specifications on an annual basis and are operating as required.

**Comparison & Summary of the Rated Capacity & Flow Rates**

The system’s Permit to Take Water #6462-BB9RFA allows the plant to withdraw a maximum volume of 3,974 cubic meters from Sasaginaga Lake each day. A review of the raw water flow data indicates that the system did not exceed this limit having a maximum volume of 2,296 m<sup>3</sup>.

The Permit also allows a maximum flow rate of 2,760 L/minute which was not exceeded either; the maximum flow rate was 2,557 L/min.

Schedule C, Section 1.1 of MDWL No. 206-101 states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed a maximum flow of 3,974 m<sup>3</sup> on any calendar day. The Cobalt DWS complied with this limit having a recorded maximum volume of 1,970 m<sup>3</sup>/day, which is 50 % of the rated capacity.



**Figure 1: Daily Volumes of Treated Water into the Distribution System.** A comparison of the rate specified in the system’s Municipal Drinking Water Licence to the average and maximum volumes entering the treatment system.



**Table C: 2022 - Monthly Consumption**

Month	Total (m3)	Usage (m3)		% Used By	
		Cobalt	Coleman	Cobalt	Coleman
January	38,946	38,458	488	98.7	1.3
February	39,108	38,686	421	98.9	1.1
March	43,691	42,591	1,100	97.5	2.5
April	44,178	42,683	1,496	96.6	3.4
May	44,894	43,387	1,508	96.6	3.4
June	43,595	41,119	2,476	94.3	5.7
July	50,105	48,302	1,804	96.4	3.6
August	48,458	46,730	1,729	96.4	3.6
September	37,492	36,345	1,147	96.9	3.1
October	34,655	34,033	622	98.2	1.8
November	34,096	33,247	849	97.5	2.5
December	36,706	35,702	1,004	97.3	2.7
<b>TOTALS</b>	<b>495,925</b>	<b>481,283</b>	<b>14,643</b>	<b>97.0</b>	<b>3.0</b>

**Summary of System Performance**

Rated Capacity of the Plant (MDWL)	3,974 m <sup>3</sup> /day	
Average Daily Flow for 2022	1,359 m <sup>3</sup> /day	34 % of the rated capacity
Maximum Daily Flow for 2022	1,970 m <sup>3</sup> /day	50 % of the rated capacity
Total Treated Water Produced in 2022	495,925 m <sup>3</sup>	

**10.0 CONCLUSION**

The Cobalt DWS was able to operate in accordance with the terms and conditions of the Permit to Take Water, and in accordance with the rated capacity of the Municipal Drinking Water License while meeting the community’s demand for water use.

All Adverse Water Quality Incidents were reported to the Spills Action Center and the corrective actions were completed as required and any non-compliances that were identified were resolved as soon as possible.