

Alpine Village/Pirates Glen Drinking Water System

Waterworks # 220011154
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The Municipality of Trent Lakes

Reporting Period of January 1st – December 31st, 2023

Issued: February 22, 2024

Revision: 0

Operating Authority:



This report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22

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Report Availability

This system does not serve more than 10,000 residence and the annual reports will be available to residents at The Municipality of Trent Lakes Office and copies will provided free of charge if requested. The Municipality of Trent Lakes Office is located at 760 Peterborough County Road 36 Trent Lakes Ontario, KOM 1AO. A copy of the annual report is also available on the Municipality of Trent Lakes www.trentlakes.ca.

Compliance Report Card

Drinking Water System Number: 220011154

Drinking Water System Name: Alpine Village/Pirates Glen WTP

Drinking Water System Owner: Municipality of Trent Lakes

Drinking Water System Category: Large Municipal Residential

Period Being Reported: January 1, 2023 - December 31, 2023

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	September 21, 2022	2022/2023 MECP Unannounced Focused Inspection, 100% rating
AWQI's	2	January 23, 2023 June 2, 2023	Sodium Monthly filter performance
Number of Non-Compliances	0		
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Alpine Village/Pirates Glen Water Treatment Plant is supplied with two wells. Well 1 is non-GUDI and Well 2 is GUDI. Well 2 was offline for part of the reporting year and returned to service on May 20, 2023. Well 1 was offline due to well pump failure from May 20 – September 21, 2023.

Treatment

The treatment system consists of the following:

- Sodium hypochlorite feed system with two metering pumps
- One continuous treated water free chlorine residual analyzer
- Three continuous online turbidity analyzers
- 5 micron cartridge pre-filter
- 1 micron cartridge filters (two filter trains)
- Clearwell with two interconnected underground tanks
- Three Magnetic flow meters: one per well and one for treated water
- Three Centrifugal High Lift Pumps
- Six Hydropneumatic Pressure Vessels
- Standby power generator

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Jan 23, 2023	161207	Treated Water	Sodium	Treated water sodium result exceeded 20 mg/L with result of 25.5 mg/L.	O. Reg 170 Schedule 13-8	Resample and retest

Jun 2, 2023	162081	Filter effluent	Monthly filter turbidity	May 2023 filter performance result was >0.2 NTU 75.5% of the time. GUDI Well 2 placed into service on May 20, 2023 after Well 1 (secure groundwater well) pump failed. Placing Well 2 into service initiated the requirement to meet filter turbidity requirement >0.2 NTU 95% off the time in a month	O. Reg 170 Schedule 1-4	Filter turbidity above 0.2 May 20-23, when analyzer was cleaned on May 23 and a large amount of scale removed from the analyzer. After cleaning, filter NTU on average 0.03 NTU. As there were only 11 operating days in the month for this well there was not sufficient time to balance out the >0.2 NTU values.
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Non-Compliance

Legislation	Requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliance issues identified during this period				

Non-Compliance Identified in a Ministry Inspection:

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliances identified in a Ministry Inspection during this period.				

Flows

The Alpine Village/Pirates Glen Drinking Water System is operating below the rated capacity.

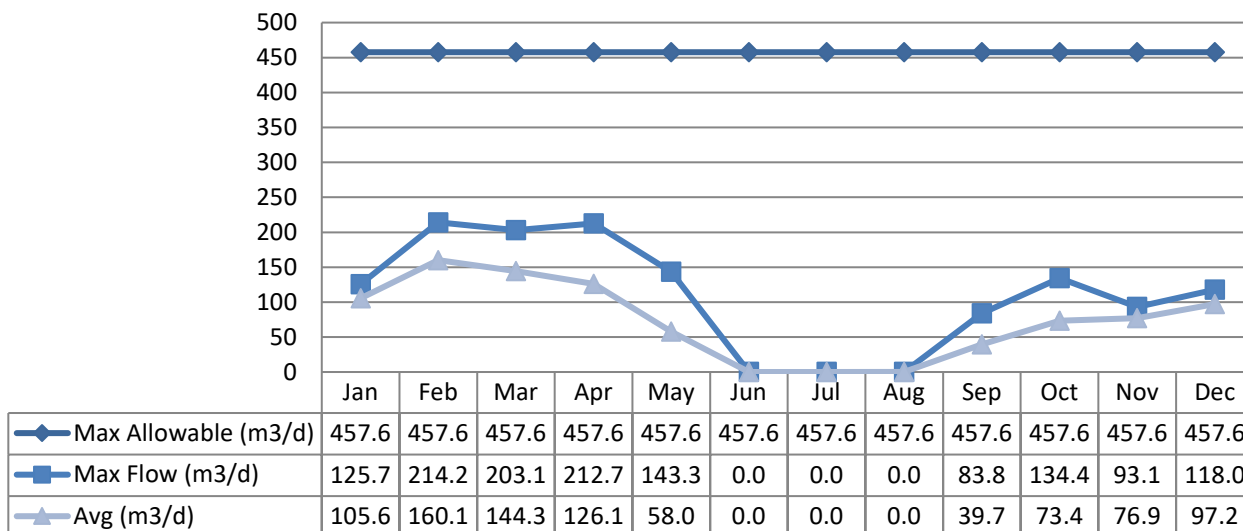
Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water (PTTW). 2023

Raw Flow Data was submitted to the Ministry of the Environment, Conservation and Parks electronically under permit #6572-8SRKP7. The confirmation and a copy of the data that was submitted are attached in Appendix A.

Total Monthly Flows (m3/d)

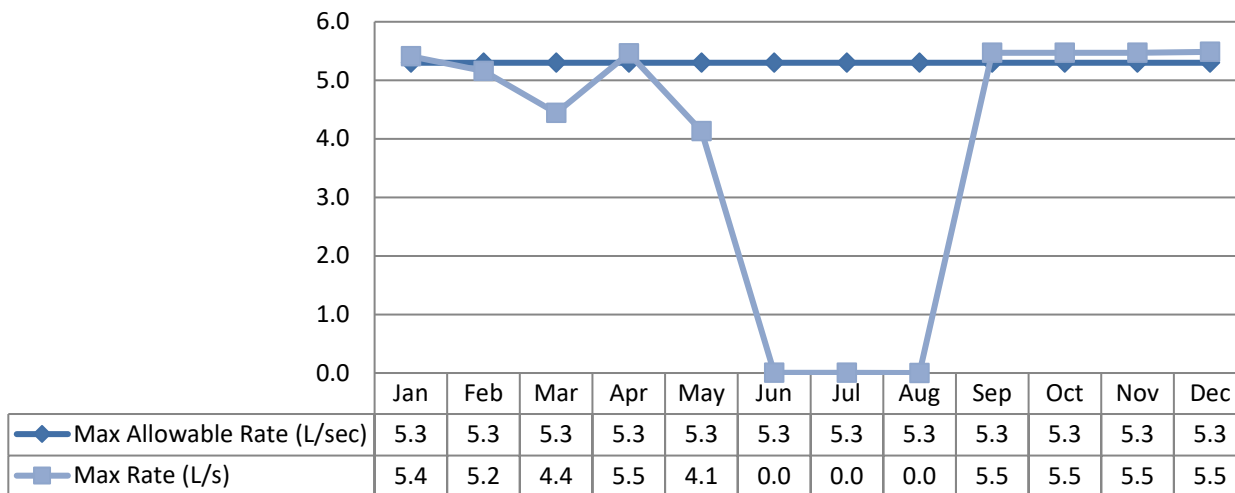
Max Allowable PTTW- Well #1



Note: Well 1 was offline due to well pump failure from May 20 – September 21, 2023.

Monthly Rated Flows (L/s)

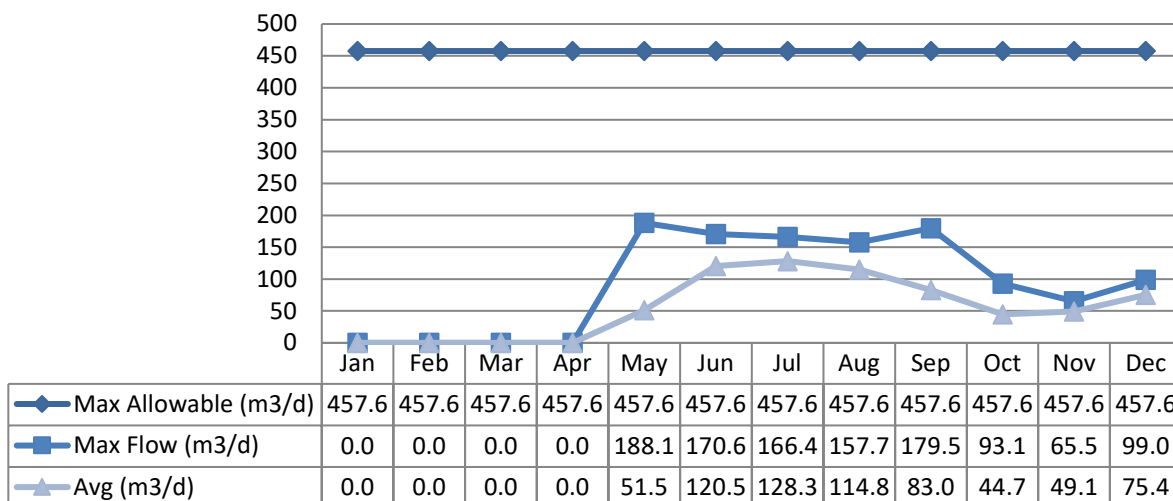
Max allowable rate – PTTW- Well #1



Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) but the exceedances were short in duration. The scheduled Flow Meter calibration was in April.

Total Monthly Flows (m3/d)

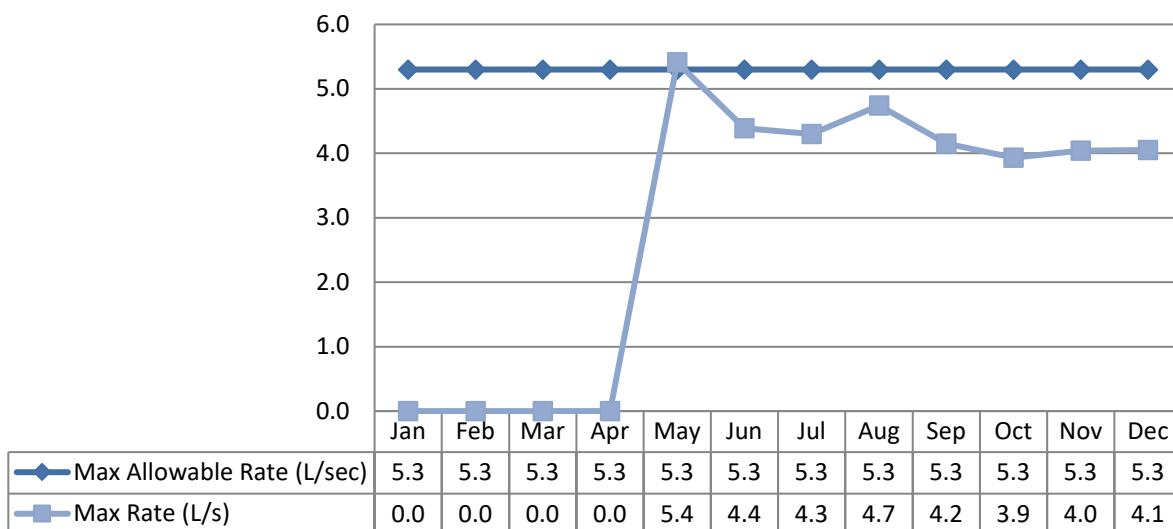
Max Allowable PTTW- Well #2



Note: Well 2 was offline for part of the reporting year and returned to service on May 20, 2023

Monthly Rated Flows (L/s)

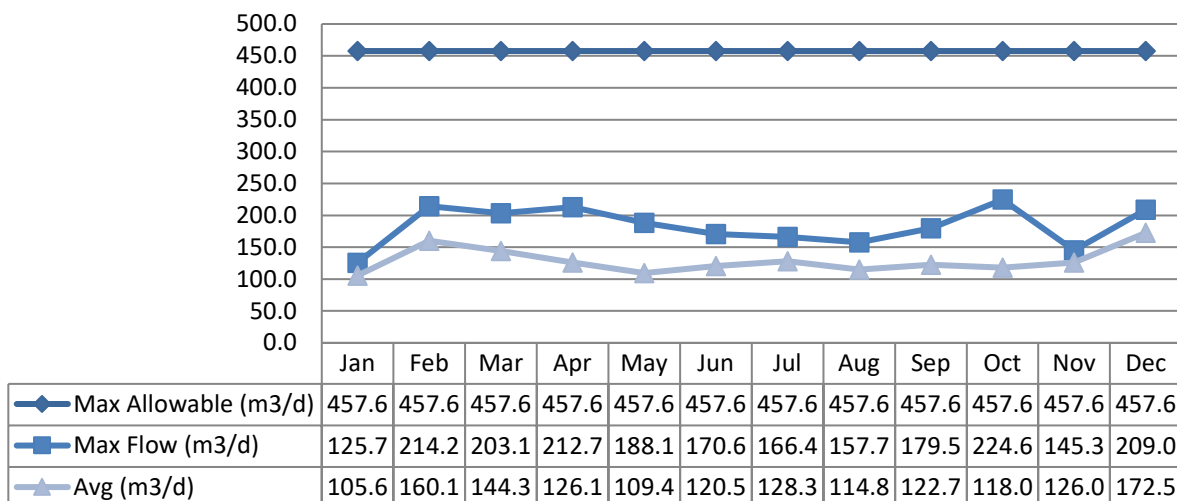
Max allowable rate – PTTW- Well #2



Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) but the exceedance was short in duration, and occurred in the process of bringing Well 2 online.

Total Monthly Flows (m3/d)

Max Allowable PTTW- Total Raw

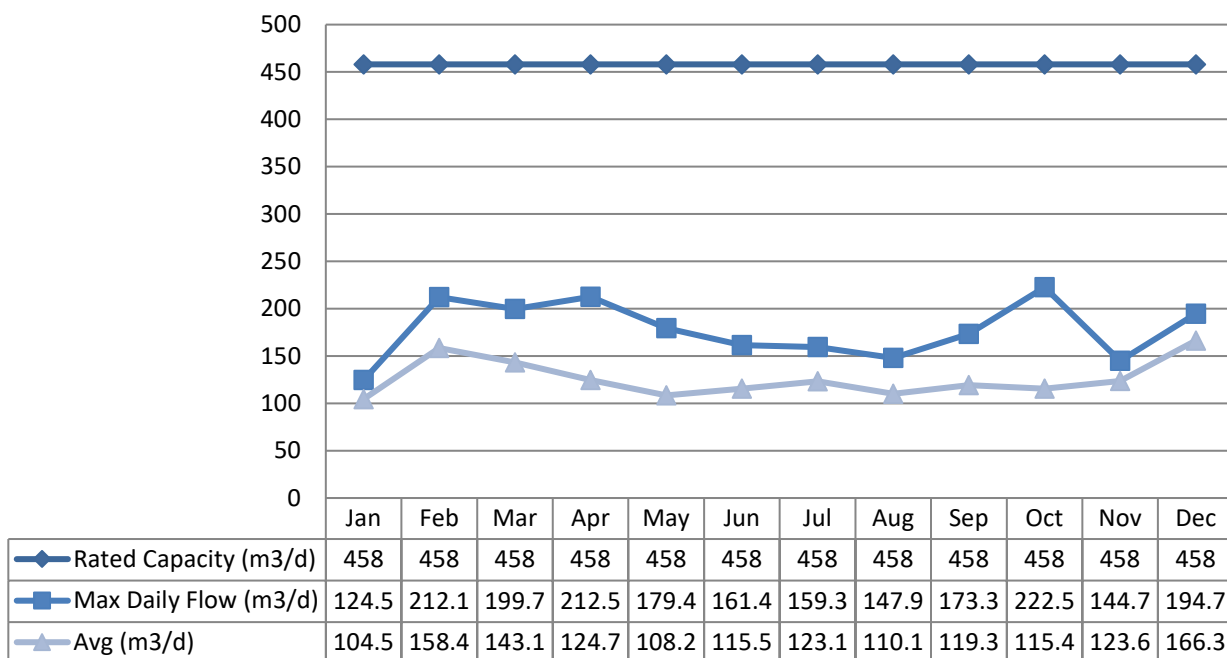


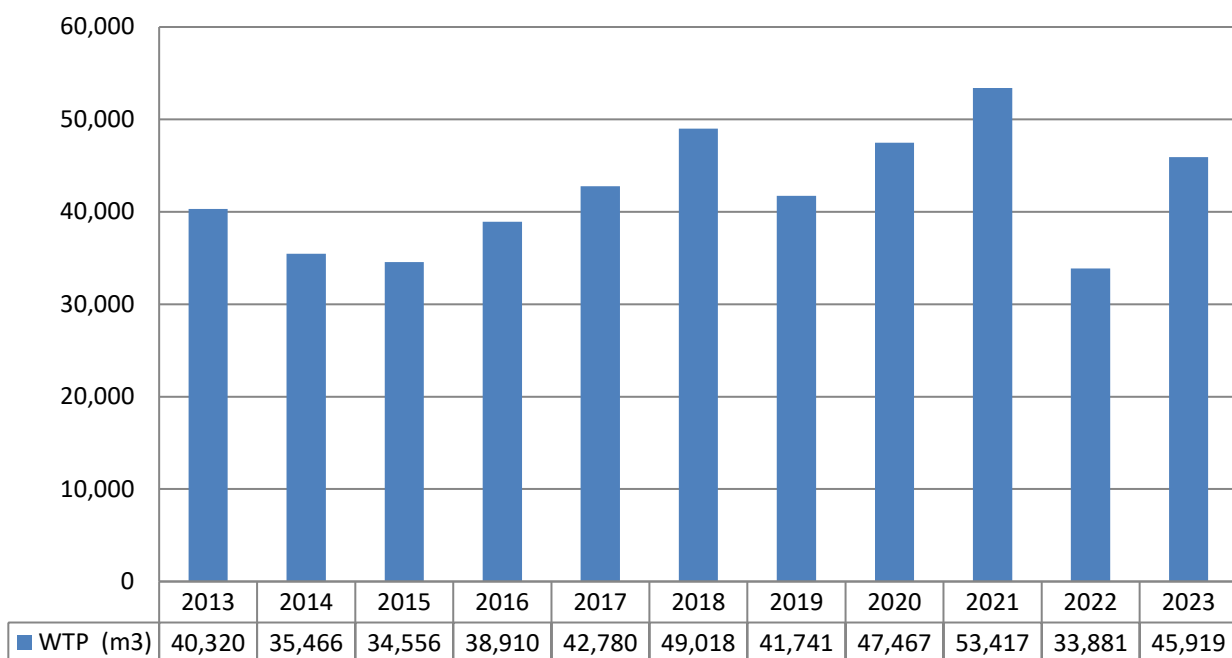
Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence.

Monthly Rated Flows

Rated Capacity – MDWL



Annual Total Flow ComparisonTotal Annual m³**Regulatory Sample Results Summary**Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		Range of HPC Results	
		Min	Max	Min	Max	Min	Max
Raw Well 1	46	0	0	0	3		
Raw Well 2 (GUDI)	33	0	3	0	13		
Treated	52	0	0	0	0	0	2000
Distribution	156	0	0	0	0	0	2

Note: Well 1 was offline due to well pump failure from May 20 – September 21, 2023.

Note: Well 2 was offline for part of the reporting year and returned to service on May 20, 2023

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity Well 1 (NTU)	17	0.09	0.35
Turbidity Well 2 (NTU)	13	0.12	0.42

Turbidity Filter 1	8760	0.00	2.00
Turbidity Filter 2	8760	0.00	2.00
Chlorine (mg/L)	8760	0	2.00

Note: Record the unit of measure if it is **not** milligrams per litre.

Note: For continuous monitors 8760 is used as the number of samples. Spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O.Reg 170/03

Inorganic Parameters

These parameters are tested as a requirement under 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required under 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O.Reg 169/03
- MDL = Method Detection Limit

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L)	2022/01/10	<MDL 0.6	6.0	No	No
Antimony: Sb (ug/L)	2023/01/16	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L)	2023/01/16	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L)	2023/01/16	70.6	1000.0	No	No
Boron: B (ug/L)	2023/01/16	222.0	5000.0	No	No
Cadmium: Cd (ug/L)	2023/01/16	0.004	5.0	No	No
Chromium: Cr (ug/L)	2023/01/16	0.19	50.0	No	No
Mercury: Hg (ug/L)	2023/01/16	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L)	2023/01/16	0.08	50.0	No	No
Additional Inorganics					
Fluoride (mg/L)	2023/01/16	0.91	1.5	No	Yes
Nitrite (mg/L)	2023/01/16	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2023/04/17	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2023/07/10	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2023/10/10	<MDL 0.003	1.0	No	No
Nitrate (mg/L)	2023/01/16	0.65	10.0	No	No
Nitrate (mg/L)	2023/04/17	0.821	10.0	No	No
Nitrate (mg/L)	2023/07/10	1.62	10.0	No	No
Nitrate (mg/L)	2023/10/10	1.3	10.0	No	No
Sodium: Na (mg/L)	2023/01/24	26.3	20*	Yes	Yes
Uranium: U (ug/L)	2023/01/16	15.8	20.0	No	Yes
Uranium: U (ug/L)	2023/04/17	16.8	20.0	No	Yes

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Uranium: U (ug/L)	2023/07/10	0.31**	20.0	No	No
Uranium: U (ug/L)	2023/10/10	10.2	20.0	No	Yes

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

**The July 2023 Quarterly uranium sample window occurred while Well 1 was offline due to well pump failure. Well 1 historically has had higher uranium levels than Well 2.

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O. Reg. 170/03. This system is under reduced sampling and no plumbing samples were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	2	2	270	273		
pH	2	2	7.09	7.12		
Lead (ug/l)	2	2	0.09	0.38	10	0

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03

Organic Parameters

These parameters are tested annually as a requirement under O. Reg. 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L)	2023/01/16	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L)	2023/01/16	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L)	2023/01/16	<MDL 0.05	20.0	No	No
Benzene (ug/L)	2023/01/16	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L)	2023/01/16	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L)	2023/01/16	<MDL 0.33	5.0	No	No
Carbaryl (ug/L)	2023/01/16	<MDL 0.05	90.0	No	No
Carbofuran (ug/L)	2023/01/16	<MDL 0.01	90.0	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbon Tetrachloride (ug/L)	2023/01/16	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L)	2023/01/16	<MDL 0.02	90.0	No	No
Diazinon (ug/L)	2023/01/16	<MDL 0.02	20.0	No	No
Dicamba (ug/L)	2023/01/16	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L)	2023/01/16	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L)	2023/01/16	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L)	2023/01/16	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L)	2023/01/16	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2023/01/16	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L)	2023/01/16	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2023/01/16	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L)	2023/01/16	<MDL 0.4	9.0	No	No
Dimethoate (ug/L)	2023/01/16	<MDL 0.06	20.0	No	No
Diquat (ug/L)	2023/01/16	<MDL 1.0	70.0	No	No
Diuron (ug/L)	2023/01/16	<MDL 0.03	150.0	No	No
Glyphosate (ug/L)	2023/01/16	<MDL 1.0	280.0	No	No
Malathion (ug/L)	2023/01/16	<MDL 0.02	190.0	No	No
Metolachlor (ug/L)	2023/01/16	<MDL 0.01	50.0	No	No
Metribuzin (ug/L)	2023/01/16	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)	2023/01/16	<MDL 0.3	80.0	No	No
Paraquat (ug/L)	2023/01/16	<MDL 1.0	10.0	No	No
PCB (ug/L)	2023/01/16	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L)	2023/01/16	<MDL 0.15	60.0	No	No
Phorate (ug/L)	2023/01/16	<MDL 0.01	2.0	No	No
Picloram (ug/L)	2023/01/16	<MDL 1.0	190.0	No	No
Prometryne (ug/L)	2023/01/16	<MDL 0.03	1.0	No	No
Simazine (ug/L)	2023/01/16	<MDL 0.01	10.0	No	No
Terbufos (ug/L)	2023/01/16	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L)	2023/01/16	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L)	2023/01/16	<MDL 0.2	100.0	No	No
Triallate (ug/L)	2023/01/16	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L)	2023/01/16	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L)	2023/01/16	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)	2023/01/16	<MDL 0.12	100.0	No	No
Trifluralin (ug/L)	2023/01/16	<MDL 0.02	45.0	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Vinyl Chloride (ug/L)	2023/01/16	<MDL 0.17	1.0	No	No

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Method Detection Limit

Distribution Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Trihalomethane: Total (ug/L) Annual Average	2023	9.7	100.0	No	No
HAA Total (ug/L) Annual Average	2023	5.3	80.0	No	No

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Method Detection Limit

Additional Legislated Samples

Additional Samples required under O. Reg. 170/03 Schedule 13: Chemical Sampling and Testing.

Parameter	Location	No. of Samples Collected	Range of Results	
			Minimum	Maximum
Uranium: U (ug/L)	Treated	4	0.31	16.8

Major Maintenance Summary incurred to install, repair or replace required equipment

WO #	Description
3661913	211 Pirate's Glen, Curb Stop and Water Box Replacement

Appendix A

WTRS Submission Confirmation



Client Name: THE CORPORATION OF THE MUNICIPALITY OF TRENT LAKES Reporting Year: 2023 Service: PTTW Permit Number: P-300-1163168997 Permit Version: 1.0 New or Updated Submission: NEW

Site Name: Alpine Village/Pirates Glen Drinking Water System

Source ID: 500000624802 Source Name: Well 1 Source Type: Well

UTM(Zone/Easting/Northing): 17/700650.0/4939275.0 Method of Determination: Metered Unit of Measure: Litre

Description: Well 1 Purpose Category: Public administration Specific Category: Municipal Supply Activity: Water Supply

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	90540.0	126410.0	203080.0	185370.0	79580.0					75020.0	67640.0	72840.0
2	93050.0	119530.0	160580.0	184280.0	74850.0					79950.0	66500.0	91810.0
3	84810.0	129970.0	116990.0	181880.0	79940.0					75630.0	61950.0	90510.0
4	88930.0	143640.0	129460.0	176960.0	76170.0					72800.0	73050.0	89790.0
5	92050.0	141690.0	129570.0	186820.0	82880.0					73080.0	77830.0	88670.0
6	88620.0	134210.0	123130.0	193830.0	88670.0					63640.0	71830.0	83020.0
7	106910.0	131070.0	116070.0	200020.0	96060.0					73390.0	71500.0	84760.0
8	117320.0	133820.0	127830.0	210370.0	84850.0					82700.0	70910.0	85600.0
9	90750.0	134160.0	119880.0	212690.0	91070.0					124920.0	69050.0	89470.0
10	98210.0	141830.0	128190.0	205320.0	104770.0					132490.0	76610.0	95390.0
11	90110.0	144580.0	139330.0	202460.0	97720.0					134430.0	82850.0	84780.0
12	100570.0	146760.0	137410.0	132420.0	103590.0					83790.0	88270.0	95360.0
13	95170.0	145350.0	126700.0	76320.0	143340.0				25870.0	54800.0	81080.0	94460.0
14	105030.0	146620.0	131990.0	80500.0	123790.0				58810.0	62700.0	74160.0	90830.0
15	116860.0	145830.0	133240.0	98900.0	118210.0				59150.0	67500.0	74860.0	92640.0
16	101910.0	153690.0	133380.0	101360.0	92860.0				76930.0	59670.0	70170.0	97000.0
17	106310.0	149950.0	132920.0	73930.0	91330.0				64670.0	57240.0	75100.0	99120.0
18	100940.0	167130.0	151960.0	74120.0	108260.0				59590.0	57820.0	93140.0	102270.0
19	108150.0	176620.0	152750.0	79310.0	59450.0				59840.0	55940.0	80490.0	96050.0
20	103650.0	188160.0	145070.0	81480.0					65550.0	56830.0	78040.0	102570.0
21	116000.0	178480.0	144550.0	80120.0				150.0	59100.0	60920.0	77660.0	99810.0
22	124020.0	178090.0	144490.0	97200.0					81800.0	77520.0	82770.0	109670.0
23	109410.0	184340.0	152550.0	92110.0					77770.0	69230.0	81290.0	108380.0
24	111740.0	200640.0	150450.0	83440.0					80450.0	61930.0	83180.0	109610.0
25	114440.0	209840.0	158240.0	77520.0					67810.0	58380.0	84460.0	104420.0
26	114370.0	214180.0	164860.0	80330.0					73770.0	68280.0	81740.0	109880.0
27	115140.0	209960.0	161180.0	78200.0					83810.0	61030.0	78680.0	104980.0
28	122600.0	205160.0	162190.0	77710.0					65620.0	77110.0	79560.0	102320.0
29	125670.0		162140.0	82740.0					57780.0	70620.0	79780.0	108000.0
30	122990.0		166440.0	95730.0					73080.0	64510.0	72940.0	110000.0
31	117040.0		166480.0							60550.0		118000.0

Site Name: Alpine Village/Pirates Glen Drinking Water System
Source ID: 500000624803 Source Name: Well 2 Source Type: Well
UTM(Zone/Easting/Northing): 17/700266.0/4939139.0 Method of Determination: Metered Unit of Measure: Litre

Description: Well 2 Purpose Category: Public administration Specific Category: Municipal Supply Activity: Water Supply

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1						170620.0	123320.0	112390.0	172040.0	47310.0	35750.0	61650.0
2						154710.0	165080.0	125410.0	166050.0	39070.0	45020.0	59240.0
3						131620.0	166350.0	115240.0	147760.0	47620.0	47940.0	64720.0
4						154520.0	146860.0	111680.0	179530.0	45120.0	43400.0	61390.0
5						144660.0	143270.0	135270.0	156400.0	31560.0	48580.0	58030.0
6						139620.0	136240.0	157650.0	134640.0	41510.0	40090.0	63340.0
7						122340.0	115650.0	127880.0	109020.0	43110.0	40930.0	66830.0
8						122050.0	148850.0	114620.0	100270.0	56210.0	45190.0	66270.0
9						91080.0	121920.0	123000.0	118700.0	93080.0	46150.0	72060.0
10						102330.0	133380.0	121670.0	126800.0	92130.0	44420.0	72580.0
11						99650.0	135580.0	111860.0	117570.0	90160.0	48770.0	72370.0
12						102950.0	122880.0	117860.0	103600.0	50950.0	45950.0	63270.0
13						86530.0	107930.0	123040.0	85980.0	33510.0	40700.0	67370.0
14						91300.0	116910.0	110150.0	40000.0	37360.0	44730.0	73440.0
15						94090.0	111050.0	96820.0	39140.0	35310.0	47560.0	74870.0
16						125480.0	123190.0	104040.0	40230.0	33070.0	52090.0	76800.0
17						124540.0	119200.0	87000.0	52920.0	36420.0	45530.0	78420.0
18						133840.0	123830.0	93640.0	39520.0	37250.0	48420.0	70550.0
19						129260.0	116980.0	107900.0	40010.0	38330.0	59120.0	72730.0
20					100690.0	169160.0	114640.0	119300.0	46230.0	37650.0	54480.0	64350.0
21					122720.0	131070.0	107650.0	104480.0	41730.0	41150.0	51110.0	82410.0
22					117400.0	152590.0	124650.0	106480.0	54110.0	37340.0	45280.0	92380.0
23					109230.0	118540.0	150290.0	91250.0	52570.0	32750.0	44540.0	83520.0
24					87200.0	105340.0	127740.0	100780.0	54140.0	33600.0	55130.0	91500.0
25					133510.0	110290.0	122330.0	93920.0	46480.0	41060.0	54100.0	85650.0
26					117670.0	96910.0	134690.0	113850.0	39890.0	30300.0	63570.0	79250.0
27					134770.0	94950.0	114650.0	122630.0	48890.0	37120.0	55120.0	87170.0
28					188070.0	95730.0	134230.0	135680.0	45350.0	40730.0	56090.0	87210.0
29					161210.0	112880.0	125200.0	124960.0	42310.0	44040.0	56330.0	99000.0
30					151950.0	105110.0	126900.0	114170.0	48220.0	35880.0	65540.0	97000.0
31					171120.0		114540.0	134240.0		44150.0		91000.0

Name of Attester

First Name: Wesley

Last Name: Henneberry

Company: Ontario Clean Water Agency

Date Certified/Submitted(yyyy/mm/dd): 2024/02/12