

Deep River Drinking Water System

Waterworks # 220000923
System Category – Large Municipal Residential

Annual Water Report

Prepared For: Town of Deep River

Reporting Period of January 1st – December 31st, 2020

Issued: Feb 26th, 2021

Revision: 1

Operating Authority:



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

Table of Contents

Report Availability	1
Compliance Report Card.....	1
System Process Description	1
Raw Source	1
Treatment.....	1
Treatment Chemicals used during the reporting year:.....	2
Distribution.....	2
Summary of Non-Compliance	2
Adverse Water Quality Incidents.....	2
Non-Compliance	2
Non-Compliance Identified in a Ministry Inspection:.....	2
Flows.....	3
Raw Water Flows.....	3
Total Monthly Flows (m3/d)	3
Monthly Rated Flows (L/s)	3
Treated Water Flows	4
Monthly Rated Flows	4
Annual Total Flow Comparison	4
Regulatory Sample Results Summary.....	5
Microbiological Testing	5
Operational Testing	5
Inorganic Parameters	5
Schedule 15 Sampling:	6
Organic Parameters	6
Additional Legislated Samples.....	8
Major Maintenance Summary	8
Distribution Maintenance	9
WTRS Data and Submission Confirmation	Appendix A

Report Availability

This system does not serve more than 10,000 residence and the annual reports will be available to residents at the Towns of Deep River Municipal Office. Notification will be at the Municipal Office and copies provided free of charge, if requested. The Town of Deep River office is located at 100 Deep River Road in Deep River, ON.

Compliance Report Card

Compliance Event	# of Events
Ministry of the Environment, Parks and Conservation (MECP) Inspections	Jan 23, 2020 – received 100% (2019-2020 Inspection Period) Nov 18, 2020 – received 100% (2020-2021 Inspection Period)
Ministry of Labour Inspections	There were no inspections during the reporting period.
QEMS External Audit	S2 - Surveillance System Audit (Off-Site Audit) Completed on Oct 13, 2020 – No non-conformances were identified.
AWQI's/BWA	There were no AWQI's reported during the reporting period.
Non-Compliance	There were no non-compliances reported during the reporting period.
Community Complaints	There were no Community Complaints during the reporting period.
Spills	There were no spills reported during the reporting period.
Water Main Breaks	Three (3)

System Process Description

Raw Source

Raw water source for the Deep River Drinking Water System is the Ottawa River. The water is drawn from the lake using low lift pumps and transferred to the water treatment plant, uphill from the low lift station. In November 2019, the distribution line from the Town of Deep River water tower started to send water to the Chalk Nuclear Laboratories (CNL) reservoir on their federal land jurisdiction.

Treatment

The Deep River Water Treatment Plant is a surface water plant utilizing the Actiflo process. The plant has three Actiflo units that provide coagulation, flocculation and sedimentation. Coagulant and polymer are added in the Actiflo process. Filtration is provided by dual media filters. Post disinfection is provided using chlorine gas. pH is adjusted both before the Actiflo process, and as the treated water

enters the distribution system.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
PAS-8	Coagulant	Kemira
Fluoride	Fluoridation	Brenntag
Chlorine Gas	Disinfection	Brenntag
Caustic Soda	pH Adjustment	Sodrox
Magnafloc LT27AG	Polymer – Actiflo’s	Solenis
Zetag 8140	Polymer - Lamella Clarifier & Centrifuge Process	Solenis
Silica Sand	Actiflo Process	Univar

Distribution

The distribution system consists of various piping, one (1) tower and one (1) booster pumping station. The system consists of approx. 38 km of water mains, 1 708 service connections, 245 fire hydrants, and 21 dead ends. The water mains are constructed mainly of cast iron and polyvinyl chloride (PVC) pipes ranging from 40 mm (1.5 inches) to 400 mm (16 inches). Consumers are not provided with individual water meters.

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
There were no AWQI’s reported during this reporting period.						

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no Non-Compliances reported during this reporting 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 received in the 2019-2020 or the 2020-2021 inspection reports. The Deep River DWS received a 100% compliance rating for both inspection periods.				

Flows

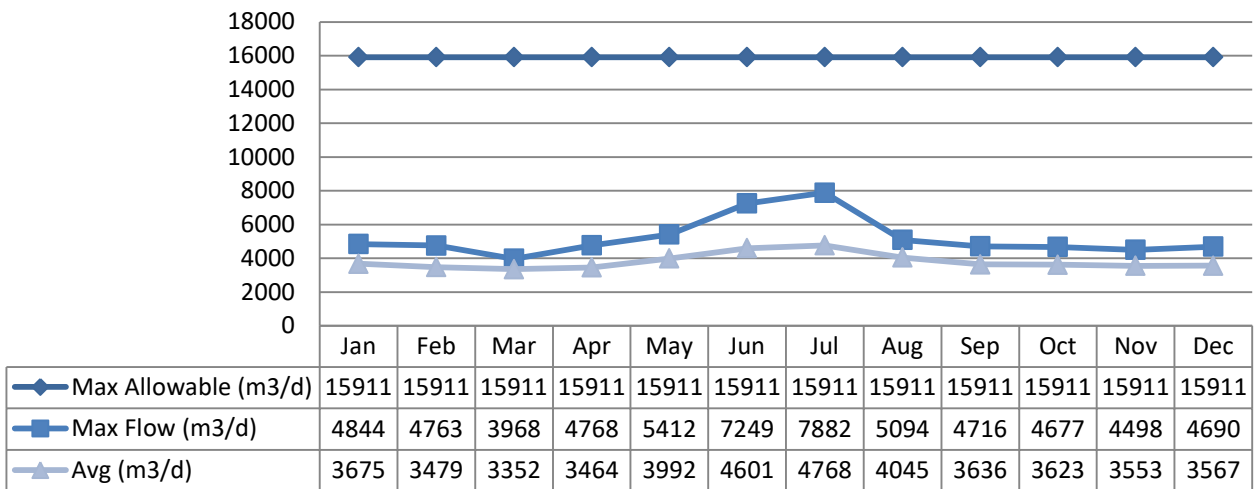
In 2020, the average day flow was at approximately 22.1% of the current plant design for the Deep River Drinking Water System, and the maximum day flow was at approximately 41.2% of the plant design of 13 638 m³/d.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2020 Raw Flow Data was submitted to the Ministry electronically under permit #8528-9ECQPJ. The confirmation and a copy of the data that was submitted are attached in Appendix A.

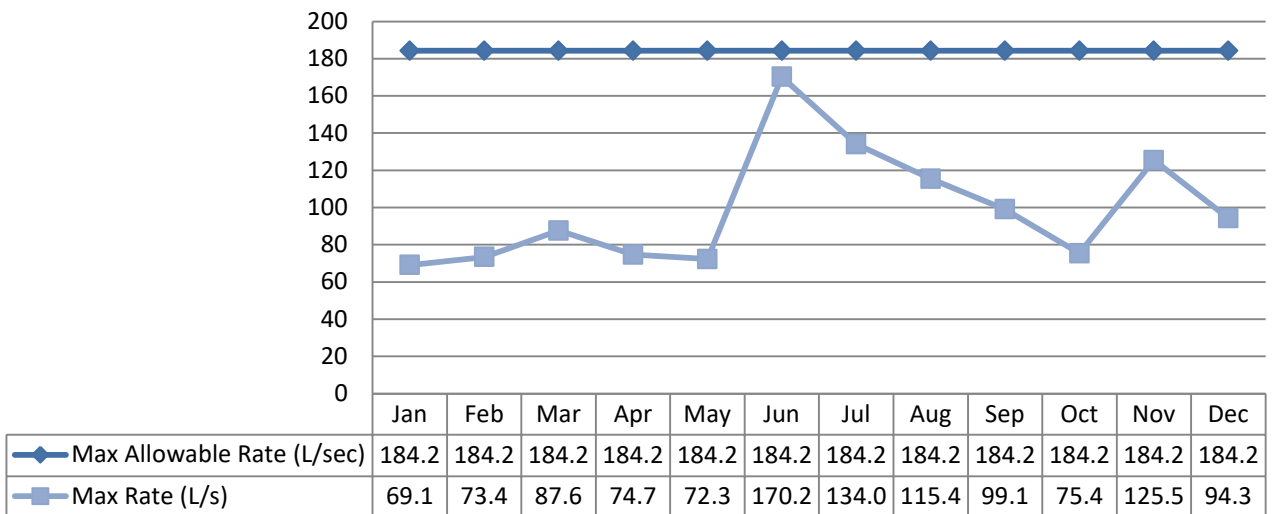
Total Monthly Flows (m3/d)

Max Allowable PTTW



Monthly Rated Flows (L/s)

Max allowable rate - PTTW

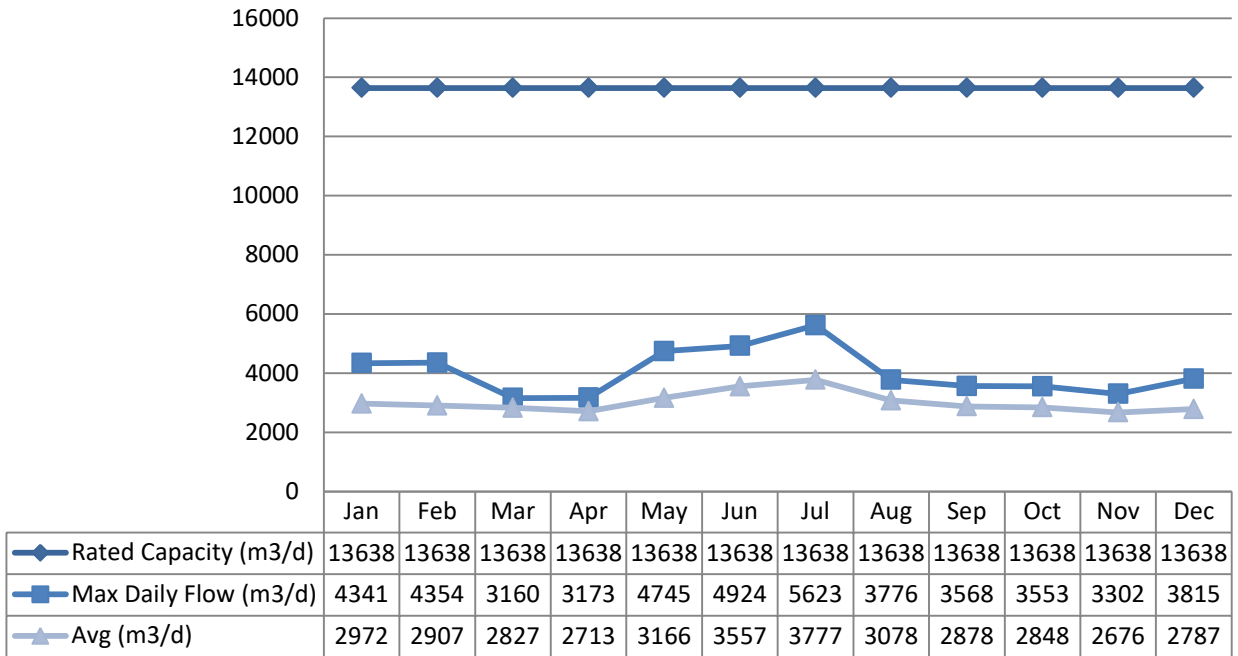


Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

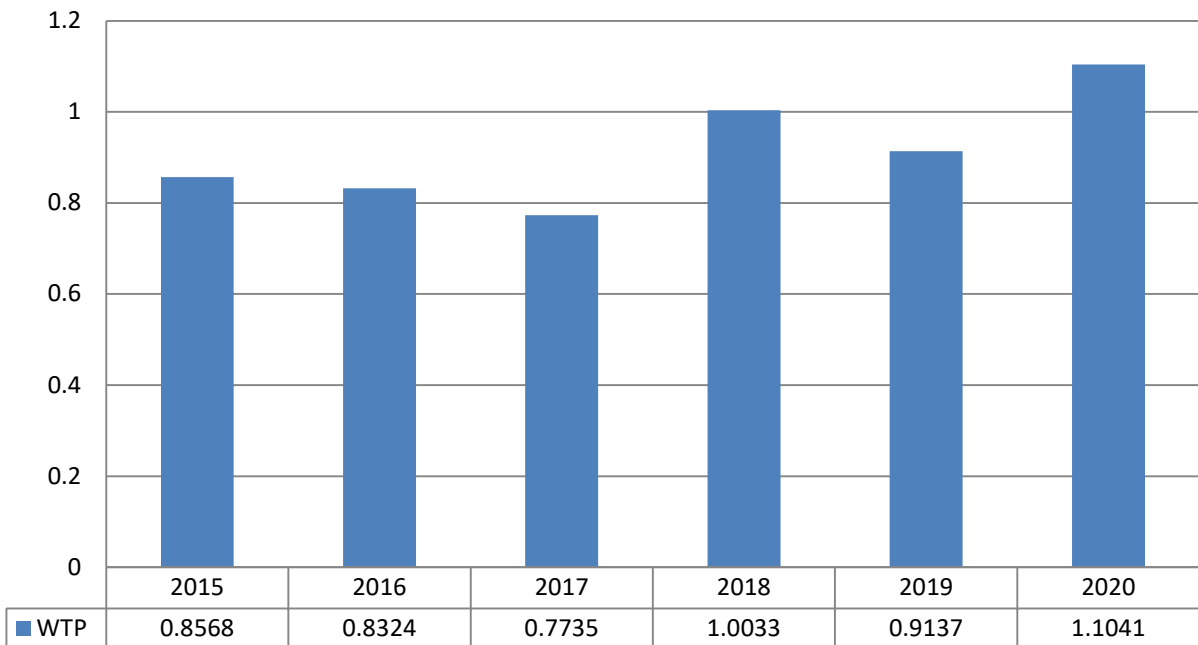
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m3(x 10⁶)



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	No. of Samples	Min	Max
Raw Water	53	0	3	0	119			
Treated Water	53	0	0	0	0	53	0	19
Distribution Water	275	0	0	0	0	115	0	56

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	53	1.41	8.01
Turbidity, In-House (NTU) - TW	53	0.124	0.281
Turbidity, In-House (NTU) - Filt1	54	0.098	0.38
Turbidity, On-Line (NTU) - Filt1	8760	0.004	0.3
Turbidity, In-House (NTU) - Filt2	53	0.093	0.290
Turbidity, On-Line (NTU) - Filt2	8760	0.145	0.29
Turbidity, In-House (NTU) - Filt3	36	0.112	0.27
Turbidity, On-Line (NTU) - Filt3	8760	0	0.264
Free Chlorine Residual, On-Line (mg/L) - TW	8760	1.24	3.29
Free Chlorine Residual, In-House (mg/L) - TW	245	1.59	2.81
Total Chlorine Residual, In-House (mg/L) - TW	244	1.80	3.08
Free Chlorine Residual, In-House (mg/L) – DW-DW6	390	0.06	2.20
Fluoride Residual, In-House (mg/L) - TW	242	0	0.96
Fluoride Residual, On-Line (mg/L) - TW	8760	0	9.98

NOTE: Spikes /Drops to zero 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 O. Reg. 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 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.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- BDL = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2020/01/07	<MDL 0.5	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/07	<MDL 1.0	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/07	<MDL 10.0	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/07	10.0	5000.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Cadmium: Cd (ug/L) - TW	2020/01/07	<MDL 0.1	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/07	<MDL 1.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2020/01/07	<MDL 0.1	1.0	No	No
Selenium: Se (ug/L) - TW	2020/01/07	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/07	<MDL 1.0	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2020/12/01	0.63	1.5	No	No
Nitrite (mg/L) - TW	2020/01/08	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/04/07	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/07/07	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/10/06	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2020/01/08	0.22	10.0	No	No
Nitrate (mg/L) - TW	2020/04/07	0.21	10.0	No	No
Nitrate (mg/L) - TW	2020/07/07	0.16	10.0	No	No
Nitrate (mg/L) - TW	2020/10/06	0.18	10.0	No	No
Sodium: Na (mg/L) - TW	2018/03/14	19.0	20*	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 mg/L 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.

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O. Reg. 170/03. This system is under the plumbing exemption therefore, hydrant samples only were collected. (*Lead will be sampled again in 2021 – every 3 years)

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (mg/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	3	6	16	20	500	0
pH	3	6	7.43	8.36	8.5	0
Lead (mg/L)	3	n/a*	n/a	n/a	0.01	0

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.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	2020/01/07	<MDL 0.5	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2020/01/07	<MDL 0.1	5.00	No	No
Azinphos-methyl (ug/L) - TW	2020/01/07	<MDL 2.0	20.00	No	No
Benzene (ug/L) - TW	2020/01/28	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2020/01/07	<MDL 0.01	0.01	No	Yes*

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Bromoxynil (ug/L) - TW	2020/01/07	<MDL 0.5	5.00	No	No
Carbaryl (ug/L) - TW	2020/01/07	<MDL 5.0	90.00	No	No
Carbofuran (ug/L) - TW	2020/01/07	<MDL 5.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/28	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2020/01/07	<MDL 1.0	90.00	No	No
Diazinon (ug/L) - TW	2020/01/07	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2020/01/07	<MDL 1.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/28	<MDL 0.4	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/28	<MDL 0.4	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/28	<MDL 0.2	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2020/01/28	<MDL 0.5	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2020/01/28	<MDL 4.0	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/07	<MDL 0.2	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2020/01/07	<MDL 1.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2020/01/07	<MDL 0.9	9.00	No	No
Dimethoate (ug/L) - TW	2020/01/07	<MDL 2.5	20.00	No	No
Diquat (ug/L) - TW	2020/01/07	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2020/01/07	<MDL 10.0	150.00	No	No
Glyphosate (ug/L) - TW	2020/01/07	<MDL 10.0	280.00	No	No
Malathion (ug/L) - TW	2020/01/07	<MDL 0.5	190.00	No	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2020/01/07	<MDL 10.0	100.00	No	No
Metolachlor (ug/L) - TW	2020/01/07	<MDL 1.0	50.00	No	No
Metribuzin (ug/L) - TW	2020/01/07	<MDL 5.0	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2020/01/28	<MDL 0.5	80.00	No	No
Paraquat (ug/L) - TW	2020/01/07	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2020/01/07	<MDL 0.1	3.0	No	No
Pentachlorophenol (ug/L) - TW	2020/01/07	<MDL 1.0	60.0	No	No
Phorate (ug/L) - TW	2020/01/07	<MDL 0.5	2.0	No	No
Picloram (ug/L) - TW	2020/01/07	<MDL 5.0	190.00	No	No
Prometryne (ug/L) - TW	2020/01/07	<MDL 0.25	1.00	No	No
Simazine (ug/L) - TW	2020/01/07	<MDL 1.0	10.00	No	No
Terbufos (ug/L) - TW	2020/01/07	<MDL 0.4	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/28	<MDL 0.3	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2020/01/07	<MDL 1.0	100.00	No	No
Triallate (ug/L) - TW	2020/01/07	<MDL 1.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2020/01/28	<MDL 0.3	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/07	<MDL 1.0	5.00	No	No
Trifluralin (ug/L) - TW	2020/01/07	<MDL 1.0	45.00	No	No
Vinyl Chloride (ug/L) - TW	2020/01/28	<MDL 0.2	1.00	No	No
Distribution Water					

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Trihalomethane: Total (ug/L) Running Annual Average (RAA) - DW	2020	82.2	100.00	No	Yes
HAA: Total (ug/L) Running Annual Average (RAA) - DW	2020	46.4	80.0	No	Yes

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

*BDL = Below the laboratory detection level

Additional Legislated Samples

Legislation	Sample	Parameter	Date	Range Results	MAC
MDWL	Backwash Effluent	Suspended Solids	2020	All <2 mg/L	
			Annual Average	0.16 mg/L	25 mg/L

Major Maintenance Summary (Capital)

WO #	Description
1586968	Miscellaneous low cost purchases for the water treatment plant.
1750216	Miscellaneous Capital for WTP - Items included: <ul style="list-style-type: none"> • PMs on generator at CNL Booster station, • pH liquid probe, • office chair, • calibration verification kit, • nozzles, • fans for air circulation, • parts and material for lawn maintenance equipment, • paint, • miscellaneous electrical supplies, • rebuild kit, • belts for garage door, • laminating costs for maps, • other hardware.

Distribution Maintenance

Date	Location Reference	Details
2020	Various Locations	Eight (8) Seasonal Water Shut Offs
2020	Various Locations	Nine (9) Seasonal Residential Shut Offs
2020	Various Locations	Twenty-four (24) Locates
2020	Various Locations	Twenty-two (22) Water Turn Off/On for Service Repairs
2020	Various Locations	Seasonal Flushing – not performed in Spring due to COVID-19; Fall completed Oct 6 th -28 th
2020	Various Locations	Two (2) residential complaints that had corrected themselves before OCWA attended home
2020	Various Locations	Winterized Hydrants – Nov 4 th -13 th
2020	Three (3) Locations – 10 Frontenac, 2 Laurier, Avon & Frontenac	Broken Water Mains – Jan 4 th , Jan 7 th , Nov 30 th
2020	CD Howe Drive	One (1) Business Shut Off – Empty building
2020	Various Locations	Three (3) Emergency Shut Offs - Residential

Appendix A

WTRS Data and Submission Confirmation

DEEP RIVER DRINKING WATER SYSTEM / Raw Water

Yearly Summary (Flow DAILY) 2020

Report extracted 02/16/2021 13:48

Annual Values and Summary

Units: cubic meter per day

Station:

Daily Max:

7882.0 on July 06

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3342.90	3534.90	3259.40	3364.17	3166.50	4289.90	5373.20	5089.70	3913.10	4676.90	3676.20	3296.30
2	3420.80	3406.80	3296.10	3723.71	3109.40	3335.90	5423.20	3649.10	3397.00	3960.83	3378.50	3574.10
3	4377.10	3219.80	3330.30	3492.10	3770.70	3436.10	6947.20	4466.50	3778.40	3489.91	3858.60	3259.40
4	4308.30	3293.50	3453.40	3308.40	3134.40	3778.30	6356.60	3889.60	3274.50	4218.88	3418.20	2822.70
5	4664.10	3547.80	3402.20	3163.50	5336.10	4487.50	6510.00	4201.50	3481.00	4079.85	3694.00	3326.70
6	3200.00	3560.40	3388.70	3400.70	4033.50	4026.90	7882.00	4412.50	3602.90	3244.94	3192.34	3516.30
7	3516.80	3409.20	3388.70	3554.30	3301.80	4965.10	5516.80	4382.60	3813.90	3506.20	3284.00	3092.70
8	3413.20	4762.70	3104.70	3715.30	3349.50	4677.00	4776.00	4150.90	3422.30	3561.03	3647.20	3342.00
9	3630.40	3506.90	3791.00	3157.80	3237.40	5297.90	4750.90	3665.00	3544.90	4295.91	3421.11	3559.10
10	3688.60	3255.60	3125.80	3116.41	3228.80	4059.20	3500.50	4344.40	2756.60	3679.55	3664.40	3330.20
11	3092.70	3312.70	3479.30	3552.62	3343.50	3447.90	3805.40	3795.40	3464.80	3262.27	3663.40	3434.50
12	3364.30	3444.90	3391.40	3045.00	3054.80	4010.20	3774.70	5026.00	3477.30	4017.41	3233.59	3523.60
13	4007.40	3523.50	3293.30	4768.32	3711.90	4050.30	4400.60	4658.80	3572.40	3392.41	3479.67	3434.80
14	3914.70	4085.50	3477.60	4100.34	3226.10	4459.60	5007.90	4694.60	3862.30	3412.47	3355.36	3308.90
15	3700.70	3282.60	3253.70	3889.13	3231.10	4841.10	5006.10	4342.80	4022.10	3033.01	3891.85	3605.10
16	4844.10	3333.50	3359.80	3344.20	3582.60	4412.10	4365.90	5093.60	3983.10	2927.06	3434.56	3699.90
17	4833.50	3434.40	3276.60	3145.80	3839.80	5998.60	3900.20	5027.50	4311.60	3564.05	3233.93	4462.70
18	3833.90	3390.90	3484.30	3338.20	4273.40	5889.00	4170.40	4333.30	3239.30	3435.40	3076.44	3404.40
19	3460.10	3530.10	2692.80	3623.00	4106.70	5937.00	3754.60	3865.00	3649.20	3361.67	3600.31	4689.80
20	3662.70	3250.20	3571.80	3247.40	5100.70	5556.90	4250.00	3536.90	2973.70	4343.00	3037.04	4329.20
21	3391.30	3188.30	3270.50	3016.60	4685.85	6053.00	4173.10	3522.10	3999.30	3084.20	3141.08	3584.90
22	3403.10	3272.40	3967.60	3023.20	5105.59	5996.80	3676.00	3365.30	3447.10	3851.61	3300.13	3682.30
23	3158.20	3505.40	3328.90	3255.60	5259.17	3794.20	3776.70	4049.30	3430.10	3283.40	3455.48	3353.60
24	3588.90	3278.00	3439.00	3487.40	5060.20	2809.10	4258.90	3870.00	3566.90	3508.40	3247.10	3593.70
25	3107.70	3341.30	3397.30	3649.30	4419.80	4328.10	4479.90	3747.60	3444.70	3605.10	4498.20	3304.50
26	3434.60	4151.70	3308.60	3412.30	5106.80	4215.30	4840.80	3638.90	3340.70	3954.30	3984.00	3298.60
27	4057.20	3328.10	3357.90	3076.80	5411.80	3561.80	4347.20	3259.90	3698.60	3627.90	3859.58	3445.30
28	3114.20	3267.70	3171.60	4246.20	5107.60	4140.10	4570.30	3467.48	4715.70	3577.50	4151.08	3180.90
29	3291.20	3466.50	3295.50	3729.50	3779.90	4938.50	4413.00	2847.70	4108.40	3507.00	4127.63	4132.80
30	3786.40		3224.60	2985.40	3403.10	7249.00	5084.70	3423.00	3792.70	3370.70	3585.63	3914.80
31	3320.40		3344.80		3260.10		4727.80	3588.10		3494.20		4073.90
Min	3092.70	3188.30	2692.80	2985.40	3054.80	2809.10	3500.50	2847.70	2756.60	2927.06	3037.04	2822.70
Mean	3675.15	3478.80	3352.49	3464.42	3991.57	4601.41	4768.41	4045.33	3636.15	3623.45	3553.02	3567.02
Max	4844.10	4762.70	3967.60	4768.32	5411.80	7249.00	7882.00	5093.60	4715.70	4676.90	4498.20	4689.80

Legend: '---' Missing Data
'+' No Day

Created on

02/16/21 13:48

by roycebr



Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 8528-9ECQPJ

Permit Holder: THE CORPORATION OF THE TOWN OF DEEP RIVER.

Received on: Feb 17, 2021 10:41 AM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

[Return to Main Page](#)

DEEP2 RIVER2 | 2021/02/17
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