

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, 2018

Issued: Feb. 25th, 2019

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 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 Environment Inspections	Jan. 4/18 & Jan. 16/19
Ministry of Labour Inspections	None
QEMS External Audit	Surveillance System Report (Off-Site Audit) – completed on Oct. 30/18 & Re-Accreditation Audit (On-Site Audit) – completed on Nov. 20/18
AWQI's/BWA	Jan. 12/18 – AWQI #138553 – Sodium exceedance of 21 mg/L in TW sample (MAC = 20 mg/L)
Non-Compliance	None
Community Complaints	17 complaints throughout Town all in regards to discoloured water, except for one that was in regards to odour
Spills	None
Water main Breaks	3 (See Distribution Maintenance Summary for details)

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. There are no other systems that receive water from this water system.

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. PAS-8 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 using soda ash 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	BASF Canada Ltd.
Zetag 8140	Polymer - Lamella Clarifier & Centrifuge Process	BASF Canada Ltd.
Silica Sand	Actiflo Process	Univar

Distribution

The distribution system consists of various piping, one (1) tower and one (1) booster pumping station.

Summary of Non-Compliance**Adverse Water Quality Incidents**

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Jan. 12/18	138553	TW	Sodium exceedance	Sample result of 21 mg/L (MAC = 20 mg/L)	O. Reg. 170/03	Resample result came back at 20 mg/L. No further action required.

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 2017-2018 and 2018-2019 inspection reports. The reports both received 100% compliance ratings.				

Flows

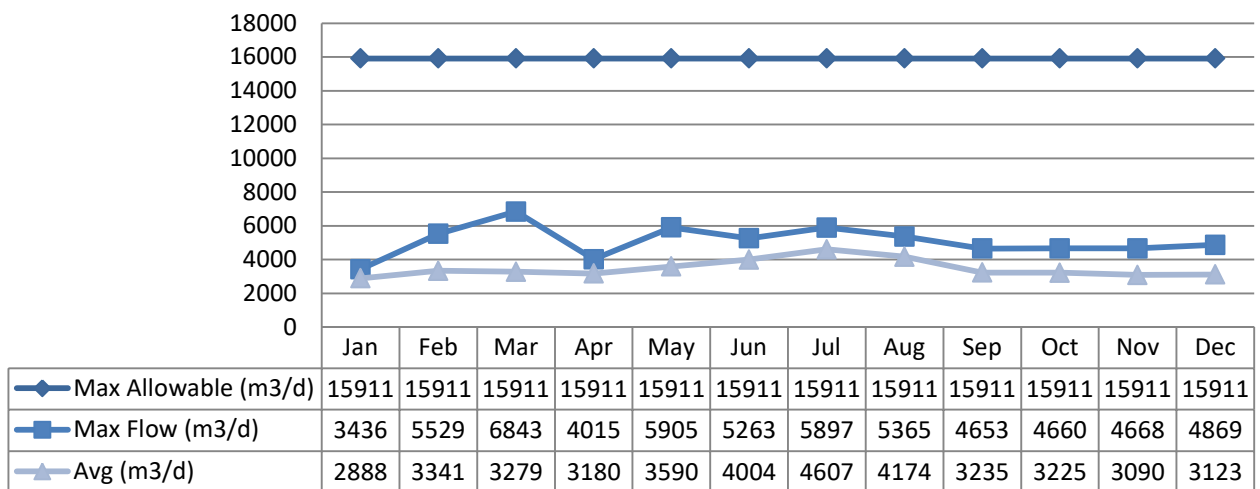
The Deep River Drinking Water System is operating on average under half the rated capacity of the plant at 35.1% for 2018.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2018 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.

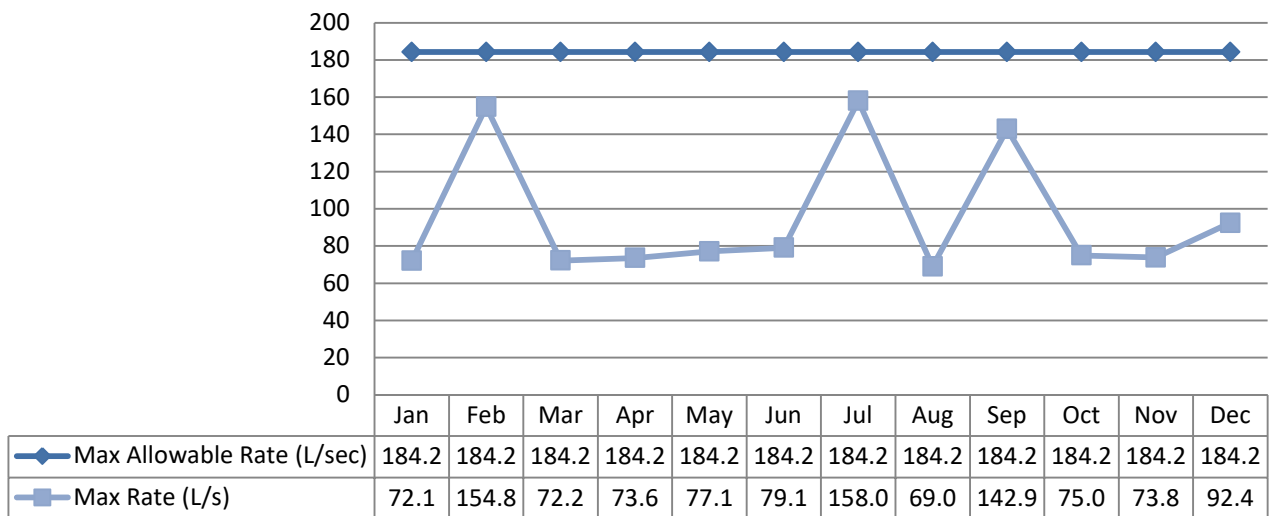
Total Monthly Flows (m3/d)

Max Allowable PTTW



Monthly Rated Flows (L/s)

Max allowable rate - PTTW

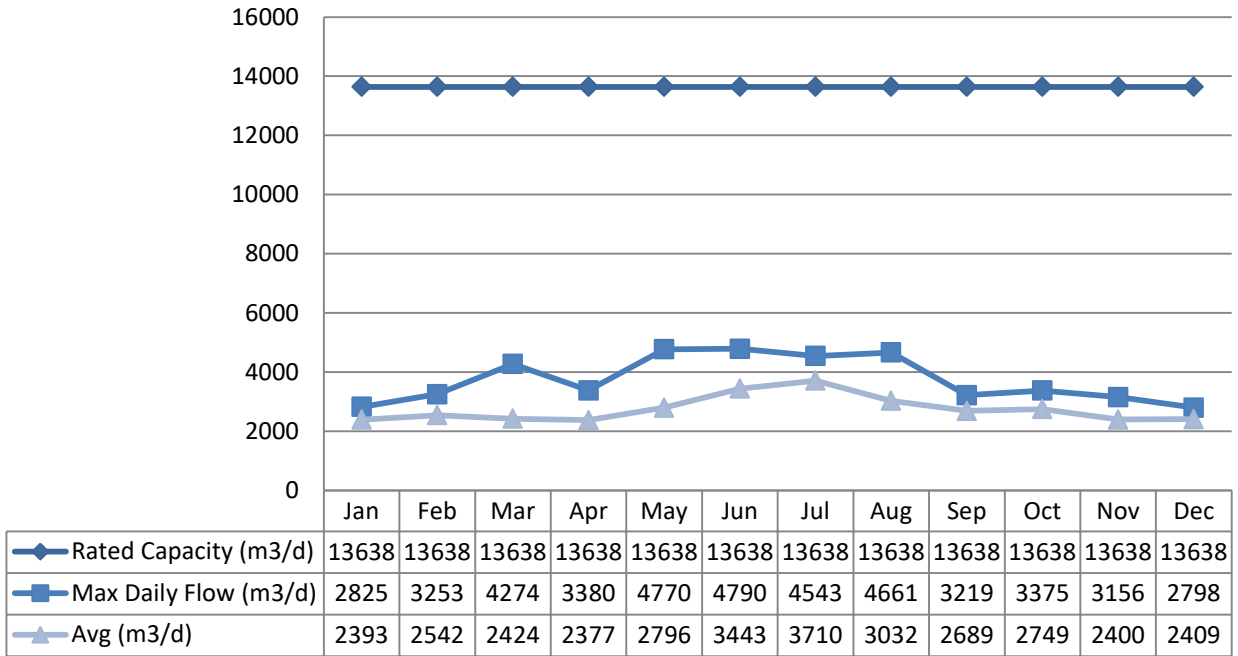


Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

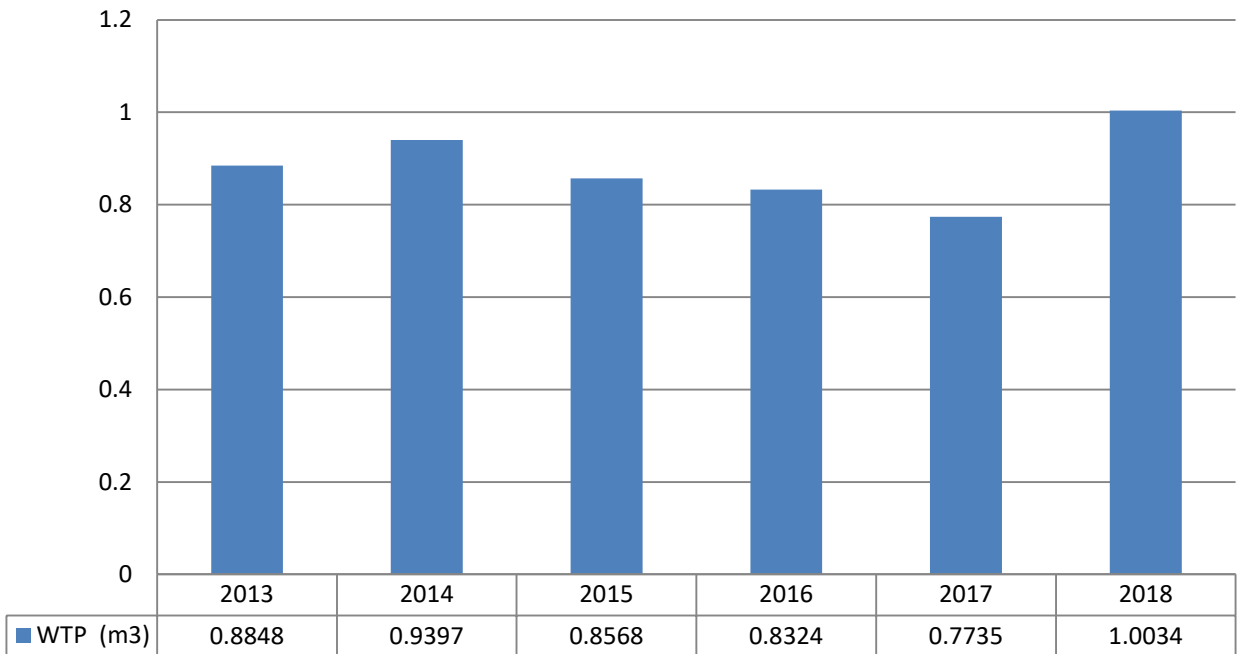
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m3



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 Water	52	0	7	0	303		
Treated Water	54	0	0	0	0	0	18
Distribution Water	217	0	0	0	0	0	500

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	52	1.22	6.85
Turbidity, On-Line (NTU) - RW	8760	1.009	88.209
Turbidity, In-House (NTU) - TW	50	0.082	0.736
Turbidity, On-Line (NTU) - Filt1	39	0	0.92
Turbidity, On-Line (NTU) - Filt2	50	0	0.29
Turbidity, On-Line (NTU) - Filt3	48	0	0.264
Free Chlorine Residual, On-Line (mg/L) - TW	8760	1.2	5.0
Free Chlorine Residual, In-House (mg/L) - TW	246	1.57	2.56
Free Chlorine Residual, In-House (mg/L) - DW	120	0.15	2.30
Free Chlorine Residual, In-House-Field (mg/L) - DW	279	0.13	2.2
Total Chlorine Residual, In-House (mg/L) - TW	246	0.21	2.96
Fluoride Residual, In-House (mg/L) - TW	245	0.15	0.91

NOTE: 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 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	2018/01/09	<MDL 0.5	6.0	No	No
Arsenic: As (ug/L) - TW	2018/01/09	<MDL 1.0	10.0	No	No
Barium: Ba (ug/L) - TW	2018/03/14	<MDL 10.0	1000.0	No	No
Boron: B (ug/L) - TW	2018/03/14	<MDL 10.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2018/03/14	<MDL 0.1	5.0	No	No
Chromium: Cr (ug/L) - TW	2018/03/14	<MDL 1.0	50.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Mercury: Hg (ug/L) - TW	2018/01/09	<MDL 0.1	1.0	No	No
Selenium: Se (ug/L) - TW	2018/01/09	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2018/01/09	<MDL 1.0	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2018/12/04	0.56	1.5	No	No
Nitrite (mg/L) - TW	2018/01/09	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/04/03	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/07/03	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/10/02	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2018/01/09	0.3	10.0	No	No
Nitrate (mg/L) - TW	2018/04/03	0.17	10.0	No	No
Nitrate (mg/L) - TW	2018/07/03	0.14	10.0	No	No
Nitrate (mg/L) - TW	2018/10/02	0.17	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 were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (mg/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	3	3	22	23	500	0
pH	3	6	7.40	7.73	8.5	0
Lead (mg/l)	3	6	< 0.001	< 0.001	0.010	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	2018/01/09	<MDL 0.5	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2018/01/09	<MDL 0.2	5.00	No	No
Azinphos-methyl (ug/L) - TW	2018/01/09	<MDL 2.0	20.00	No	No
Benzene (ug/L) - TW	2018/01/09	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2018/01/09	<MDL 0.01	0.01	No	Yes*
Bromoxynil (ug/L) - TW	2018/01/09	<MDL 0.5	5.00	No	No
Carbaryl (ug/L) - TW	2018/01/09	<MDL 5.0	90.00	No	No
Carbofuran (ug/L) - TW	2018/01/09	<MDL 5.0	90.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbon Tetrachloride (ug/L) - TW	2018/01/09	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2018/01/09	<MDL 1.0	90.00	No	No
Diazinon (ug/L) - TW	2018/01/09	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2018/01/09	<MDL 1.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2018/01/09	<MDL 0.4	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2018/01/09	<MDL 0.4	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2018/01/09	<MDL 0.2	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2018/01/09	<MDL 0.5	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2018/01/09	<MDL 4.0	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2018/01/09	<MDL 0.2	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2018/01/09	<MDL 1.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2018/01/09	<MDL 0.9	9.00	No	No
Dimethoate (ug/L) - TW	2018/01/09	<MDL 2.5	20.00	No	No
Diquat (ug/L) - TW	2018/01/09	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2018/01/09	<MDL 10.0	150.00	No	No
Glyphosate (ug/L) - TW	2018/01/09	<MDL 10.0	280.00	No	No
Malathion (ug/L) - TW	2018/01/09	<MDL 0.5	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2018/01/09	<MDL 1.0	50.00	No	No
Metolachlor (ug/L) - TW	2018/01/09	<MDL 5.0	80.00	No	No
Metribuzin (ug/L) - TW	2018/01/09	<MDL 0.5	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2018/01/09	<MDL 1.0	10.00	No	No
Paraquat (ug/L) - TW	2018/01/09	<MDL 0.1	3.00	No	No
PCB (ug/L) - TW	2018/01/09	<MDL 1.0	60.00	No	No
Pentachlorophenol (ug/L) - TW	2018/01/09	<MDL 0.5	2.00	No	No
Phorate (ug/L) - TW	2018/01/09	<MDL 5.0	190.00	No	No
Picloram (ug/L) - TW	2018/01/09	<MDL 0.25	1.00	No	No
Prometryne (ug/L) - TW	2018/01/09	<MDL 1.0	10.00	No	No
Simazine (ug/L) - TW	2018/01/09	<MDL 0.4	1.00	No	No
Terbufos (ug/L) - TW	2018/01/09	<MDL 0.3	10.00	No	No
Tetrachloroethylene (ug/L) - TW	2018/01/09	<MDL 1.0	100.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2018/01/09	<MDL 1.0	230.00	No	No
Triallate (ug/L) - TW	2018/01/09	<MDL 0.3	5.00	No	No
Trichloroethylene (ug/L) - TW	2018/01/09	<MDL 1.0	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2018/01/09	<MDL 10.0	100.00	No	No
Trifluralin (ug/L) - TW	2018/01/09	<MDL 1.0	45.00	No	No
Vinyl Chloride (ug/L) - TW	2018/01/09	<MDL 0.2	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2018/01/01	90.675	100.00	No	Yes

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
HAA: Total (ug/L) Annual Average - DW	2018/01/01	74.1		N/A	N/A

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

*BDL = Below the laboratory detection level

Additional Legislated Samples

Sample	Parameter	Date	Range Results	MAC
Backwash Effluent	Suspended Solids	2018	< 2 - 4.0 mg/L	
		Annual Average	2.2 mg/L	25 mg/L

Major Maintenance Summary (Capital)

WO #	Description
740691	Intake underwater inspection.
767467	Hydro-Vac filter media from filter #1 in order to facilitate repairs to filter.
701308	New fluoride electrode kit required to perform maintenance on fluoride.
980639	Fittings for fluoride effluent injection point, storage tote, miscellaneous tools, check valve, bucket and lid for oil storage, colorimeter, supplies for constructing/painting repairs, hydrant sock, electrical supplies, and other miscellaneous hardware.
628170	Plywood for actiflo sand, parts for metal detector, distribution parts, service call on heater, install lights at actiflo turbidity meters, PAS container and pump connections, check valve, replace hose on raw water caustic pumps, air compressor, back pressure valve, electrical hardware, filter 1 repairs, chlorine tablets, shipping costs for valve actuator, and miscellaneous hardware.
662544	Ongoing costs for communications throughout Deep River and to and from CNL.
821376	Surge protector, CL2 17 kit, service call on Reznor unit heater, lights at actiflo meter, disconnect switch, vacuum, hack saw blades, materials for replacement water line on Chadwick, pump fittings, hose for water fountain, materials for AWI filter repair, Buchner Porc funnel, printer for trends, laser distance reader, service call from Falcon Security, freight charges for Augor and valve actuator, and miscellaneous hardware.
860557	Replacement CL2 analyzer photocell assemblies required for the WTP in Deep River. Two units are in need of replacement, while the last unit will be kept in stock.
861337	Major service kits required for the repair and maintenance of the centrifuge at the Deep River water treatment plant.

Distribution Maintenance

Date	Location Reference	Details
2018	Various Locations	Thirty-four (34) Water Shut Offs
2018	Various Hydrants	Nine (9) Flushing and Hydrant Maintenance
2018	Various Locations	Four (4) Locates
2018	Various Locations	Twenty-seven (27) Water Turn On's
2018	Various Locations	Nine (9) Service Repairs
2018	Various Locations	Seasonal Flushing (Spring & Fall)
2018	Various Locations	Six (6) New Water Service Installations
Jan. 24/18	Legion & Various Locations	Five (5) Hydrant Inspections and Repairs
Feb. 2018	CNL Pipeline	CNL Commissioning
Feb. 26/18	10 Iberville Street	Broken Water Main
April 23/18	Service Station on Hwy #17	Broken Water Main
Nov. 1/18	Walkers Road & Hwy #17 (Canadian Tire)	Broken Water Main
Jun. 6/18	50 Huron Street	Exploratory Service Dig
July 9/18	Chadwick Drive Water Line	Line broken by Eastway Construction capped
Aug. 15 & 23/18	Lower Chadwick Drive	Replacement of water line and put into service
Aug. 23/18	Summer Street (back lane)	Water line cut and capped
Nov. 9/18	Lasalle Drive	Investigated excessive ground water on road
Nov. 23/18	Hillcrest Avenue	Low water pressure - Interior valve was closed

Appendix A

WTRS Data and Submission Confirmation

DEEP RIVER DRINKING WATER SYSTEM / Raw Water

Yearly Summary (Flow DAILY) 2018

Report extracted 01/30/2019 08:36

Annual Values and Summary

Units: cubic meter per day

Station:

Daily Max: 6842.5 on March 11

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3022.40	2919.40	2653.30	3137.80	2899.40	4281.90	4589.50	3244.20	3115.40	3105.10	3123.00	3449.10
2	3246.70	2660.30	5174.50	3279.70	2790.40	5005.30	5115.60	2860.10	3016.30	2921.00	2703.60	3524.60
3	3097.40	2901.40	3723.30	3048.60	2984.10	5061.50	5006.60	5364.60	3046.80	3162.90	2745.40	4868.90
4	2838.20	2856.30	3126.50	3237.00	2944.20	4517.90	5521.10	4176.50	2951.90	3270.40	2831.00	4785.90
5	2902.20	2726.80	3399.80	4015.20	2884.10	4316.90	5230.40	5269.60	3322.50	2661.10	4668.00	3328.50
6	2927.50	2959.70	2878.00	3753.90	3545.00	4249.80	4863.60	5053.80	2938.80	2717.00	3086.40	2681.20
7	2929.50	3891.70	3033.90	2925.60	2969.90	4520.90	4550.50	4617.90	2846.00	2806.20	3839.80	2900.50
8	2447.30	3123.30	2761.60	3052.20	3255.70	5020.90	5426.20	5156.10	3060.90	2816.50	2686.50	2683.60
9	3436.20	2850.00	3729.50	3125.50	4141.30	4851.80	5189.00	4916.40	3045.10	3033.70	3816.80	3083.70
10	2661.60	3003.00	3729.50	2885.60	2782.80	5263.60	4758.10	5108.20	3356.00	3375.30	2855.20	2647.70
11	2868.60	2608.00	6842.50	3617.30	3405.20	4563.60	5254.10	4731.90	3241.80	2961.20	2926.90	2848.30
12	2885.60	2939.80	2432.60	3055.90	3170.50	4537.80	5049.90	4430.70	2939.90	3351.10	2926.50	2626.00
13	3142.70	2697.90	3017.10	3302.20	3509.10	3469.10	4709.00	5175.00	2793.20	2890.90	3113.70	3606.20
14	2776.70	5528.80	2436.30	3149.00	600.80	2720.00	4513.10	5270.00	3194.40	2688.80	3252.40	3031.50
15	2834.30	4228.30	2938.10	3164.60	3581.90	3036.80	4658.70	5268.60	2597.60	3786.90	3081.60	3378.60
16	2983.90	3077.40	3963.50	2958.50	4434.00	2972.40	5022.30	4679.80	3788.50	2860.10	2775.60	3062.20
17	2802.70	3756.80	3013.30	3104.30	3599.10	3522.40	5075.20	3157.40	4652.50	3145.10	3599.30	3119.40
18	2768.30	3152.60	3320.30	2665.20	3918.50	3116.70	5897.40	3039.90	4222.40	3070.10	3097.50	2888.70
19	2987.10	2251.50	3778.40	2711.10	3253.90	2939.60	5269.70	4777.00	3902.30	3602.90	2998.40	2826.80
20	2590.80	4708.80	2874.70	2578.50	3249.40	3441.10	5352.10	4985.10	2864.60	3399.80	3064.30	3714.50
21	3307.80	3796.50	3127.60	3050.90	3667.90	2845.00	5111.20	3954.50	3520.30	2911.10	2706.00	3234.50
22	2707.10	2211.70	4157.20	2988.40	3798.90	4152.80	4767.60	5197.60	2689.40	3967.40	2895.60	2787.20
23	2761.20	5042.20	2686.00	3568.60	3888.60	2709.90	3572.30	3249.90	3184.50	3475.70	2742.00	2984.90
24	2716.70	3342.40	2687.30	2801.40	3642.30	4678.90	3385.50	3221.80	3800.00	3180.10	2861.60	2516.40
25	2670.60	3657.90	2612.30	3160.60	3312.50	4171.30	3864.10	3467.00	3517.00	2977.90	2930.40	2713.60
26	2951.80	3480.50	3852.90	2848.30	2918.60	4352.10	3598.20	3148.40	3396.40	3421.30	2510.10	2861.00
27	2833.50	3448.40	2816.70	3707.80	3039.00	3367.40	3673.00	3186.30	3358.10	2997.80	3956.40	2988.40
28	2858.50	3719.90	2716.40	3415.50	5743.90	3953.50	3405.90	3153.40	3127.70	3108.00	2653.50	3079.60
29	2942.70		2771.10	3677.80	5595.60	4309.00	3226.20	3295.00	2569.30	4659.50	3005.60	3120.02
30	2828.70		2634.70	3408.00	5904.80	4165.00	3328.10	3122.10	2978.50	3443.50	3244.50	2807.90
31	2814.90		2746.20		5858.40		3817.20	3105.10		4195.60		2674.70
Min	2447.30	2211.70	2432.60	2578.50	600.80	2709.90	3226.20	2860.10	2569.30	2661.10	2510.10	2516.40
Mean	2888.49	3340.76	3278.55	3179.83	3589.99	4003.83	4606.50	4173.67	3234.60	3224.65	3089.92	3123.36
Max	3436.20	5528.80	6842.50	4015.20	5904.80	5263.60	5897.40	5364.60	4652.50	4659.50	4668.00	4868.90

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

Created on 01/30/19 08:36

by roycebr

Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)

WTRS-WT-008

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 12, 2019 2:39 PM

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.

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DEEP2 RIVER2 | 2019/02/12

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