

TEL. (705) 563-2375  
FAX. (705) 563-2093

*Le Centre Laitier du Nord*

CORPORATION  
DU OF



P.O. BOX 546

*Dairy Centre of the North*

January 08/2021

CORPORATION

DU OF

**SUMMARY & COMPLIANCE REPORT**

**FOR THE YEAR**

**2020**

**Earlton Drinking Water System**

**# 220003662**

**COUNCIL MEMBERS SIGNATURES**

**Mayor:**

*Pat Boivin*

**COUNCILOR:**

*Kurt Hever*

**COUNCILOR:**

*Matt Golick*

**COUNCILOR:**

*Michelle Pellerin*

**COUNCILOR:**

*T. Call*

TEL. (705) 563-2375  
FAX. (705) 563-2093

*Le Centre Laitier du Nord*



P.O. BOX 546

*Dairy Centre of the North*

January 08/2021

CORPORATION  
DU ANNUAL REPORT OF

FOR THE YEAR

2020

EARLTON DRINKING

WATER SYSTEM

# 220003662

The Drinking Water Works Permit (DWWP) #269-201 and  
Municipal Drinking Water License (MDWL) #269-101.

POJ 1EO

## EARLTON DRINKING WATER SYSTEM REPORT FOR THE YEAR 2020

Well #1 and Well #4 were completely refurbished in 2020 starting in May and completed in August: The refurbishments included new pumps, motors, pipes, pit less adaptors and all new electrical components. The work also involved brushing of the casings and took longer than planned as the pumps that were first sent were not suitable for the system and had to be ordered 3 times for well #1. All work was performed by Packard Well Drilling Company.

Well # 1: has produced a total of 16058.19 cub meter at an average rate of 2.30 L/sec. (flow rate) and 1938.67 total hours of run time.

Well # 3: has produced a total of 55808.95 cub meter at an average rate of 8.81 L/sec. (flow rate) and 1760.24 total hours of run time.

Well # 4: has produced a total of 19526.34 cub meter at an average rate of 2.79 L/sec. (flow rate) and 1943.69 total hours of run time.

### SUMMARY OF WATER TAKING PERMIT

**(Permit # 4656-988LG9)**

Source Name	Well # 1	Well # 3	Well # 4
Max amount taken in 1 minute	205 L/min	546 L/min	205 L/min
Max amount taken in 1 day	295,000 L	786,000 L	295,000 L
Max number of hours taking in one day	24 hours	24 hours	24 hours

### SUMMARY OF WELL OPERATION FOR THE YEAR 2020

Source Name	Well # 1	Well # 3	Well # 4
Max amount taken in 1 minute	138.0 L/min.	510.6 L/min.	190.8 L/min
Max amount taken in 1 day	94,230 L 94.23 m <sup>3</sup>	313,500 L 313.50 m <sup>3</sup>	130,330 L 130.33 m <sup>3</sup>
Max number of hours taking in one day	13.14 hours 788.4 minutes	10.23 hours 613.8 minutes	13.14 hours 788.4 minutes

## CONCLUSION OF SUMMARY

- A) The maximum amount of water taken from the aquifer in any day did not exceed the water taking permit limit.
- B) The maximum production rate of each well did not exceed the water taking permit limit.
- C) The wells produced less water than the water-taking permit provided for.

### **EARLTON WATER TREATMENT PLANT PERFORMANCE FOR THE YEAR 2020**

#### **Daily Flow Record Review:**

Records show that the Total Volume of water used in **2020** is 86531.53 cub meters, 5681.88 cub. Meters less than **2019** which was at 92213.41 cub meters.

Records also show that the month of **August** was our peak month of the year with a total of 8549.27 cub meters, which averages to 275.78 cub meter per day.

**June 19<sup>th</sup>**, with 432.12 cub meters was the maximum in any one day.

Records also show that we exceeded the **design peak flow demand** of 18.9 L/sec. as stated on the Certificate of Approval on 1 occasion during the year. This was directly related to Fire Department filling fire trucks.

**MAXIMUM DAY DEMAND** of the year was June 19<sup>th</sup>, at 432.12 cub meter. There were a few factors affecting the water demands on this day, swimming pools (public and private) and residents watering lawns and gardens.

A maximum flow rate of 432.12 cub meter/day which represents a flow rate of 5.00 l/sec., compared to the 12.50 l/sec. maximum day demand noted on the Certificate of Approval.

In conclusion, water consumption over the year has stayed fairly consistently below the maximum day demand allowed on the Certificate of Approval.

## **AVERAGE DAY DEMAND**

Noted on the Certificate of Approval is 432.60m<sup>3</sup>/day while the observed “ AVERAGE DAY DEMAND “ for the water supply system in 2020 was 237.07 m<sup>3</sup>/day, which represents an average flow rate of 2.74 l/sec.

## **FILTER PERFORMANCE:**

The filters performed well in 2020. The total production for the year for the Water Treatment Plant was 86531.53 cub. Meters. Turbidity has been maintained below  $\leq 1.0$  N.T.U. throughout the whole year. We have calibrated our turbidity analyzer units and also calibrated chart recorder for the turbidity at each filter unit. Calibrations done once a year by Hach and Quarterly calibrations performed by trained Operators.

## **CHLORINATION SYSTEM PEREORMANCE:**

Our Certificate of Approval allows for a minimum FREE Chlorine Residual Requirement in treated water leaving the plant to distribution of 0.2 mg/L. Records show that Free Chlorine Residual leaving the plant was maintained at an average over the year at 0.84 mg/L.

The FREE Chlorine Residual in the distribution system was monitored by sampling at various homes and businesses while collecting water samples for BACTERIA testing and the water was also sampled daily for FREE Chlorine Residual in the distribution system.

The average FREE Chlorine Residual in the distribution system is 0.82 mg/L with the minimum of the year 0.48 mg/L.

Chemical Usage for 2020:

<b>12% Sodium Hypochlorite and ferric sulphate used in 2020</b>					<b>Year total Chlorine</b>
	<b>Well #1</b>	<b>Well #3</b>	<b>Plant</b>	<b>Ferric</b>	
<b>Jan.</b>	32.25	78.475	72.56	38.7	<b>183.285</b>
<b>Feb.</b>	29.03	63.43	66.11	17.2	<b>158.57</b>
<b>Mar</b>	28.49	68.8	62.35	1.075	<b>159.64</b>
<b>April</b>	20.425	70.41	61.275	3.225	<b>152.11</b>
<b>May</b>	12.9	83.85	63.425	26.86	<b>160.175</b>
<b>June</b>	31.175	72.025	77.4	24.73	<b>180.6</b>
<b>July</b>	42.46	81.7	79.55	33.325	<b>203.71</b>
<b>Aug.</b>	34.94	101.05	74.175	66.65	<b>210.165</b>
<b>Sept.</b>	20.96	82.24	51.6	24.725	<b>154.8</b>
<b>Oct.</b>	36.01	69.875	66.65	26.875	<b>172.535</b>
<b>Nov.</b>	13.975	64.5	70.95	31.175	<b>149.425</b>
<b>Dec.</b>	39.78	69.34	75.79	3.225	<b>184.91</b>
<b>Total</b>	<b>342.395</b>	<b>905.695</b>	<b>821.835</b>	<b>297.765</b>	<b>2069.925</b>

**MICROBIOLOGICAL SAMPLE SUMMARY FOR THE YEAR 2020**

<b>Sample Source</b>	<b>Total Number Of Samples</b>	<b>Number of Samples with Total Coliform Detected</b>	<b>Number of Samples With E Coli Detected</b>	<b>Number of Samples with background Bacteria detected over 200/ml.</b>	<b>Number of Samples with HPC Detected over 500CFU/ml.</b>
Well # 1	52	3	0	0	0
Well # 3	52	0	0	0	0
Well # 4	52	0	0	0	0
Water Treat. Plant	52	0	0	0	0
Homes/Businesses	104	0	0	0	0

There were no sign of E-Coli, However Well #1 had 3 hits of Total Coliform after the refurbishing while disinfecting, and all TC were cleared before the well was put back into service. The distribution System and Water Plant also showed no signs of E-coli or Total Coliforms.

There were no signs of HPC over (500CFU/ml.) throughout the Distribution System and the treatment plant samples, over the year 2020.

### **FILTER BACKWASH WATER TREATMENT FOR 2020**

The filters are backwashed on a daily basis and the resulting backwash water is treated in a series of settling tanks, the treated wastewater is discharged to the storm sewer in Earlton. Phippen Waste Management who are licensed to handle contaminated waste, dispose the sludge remains in the town lagoon system. Sampling of the wastewater is done quarterly as a composite sample and tested for suspended solids and should not exceed 25mg/L, the maximum acceptable level.

Records show that samples have not exceeded 25mg/L. of Total Suspended Solids for the year 2020.

#### **2020 Quarterly Lab. Report**

	<b>Water plant</b>	<b>WP</b>	<b>WP</b>	<b>Distr.</b>	<b>Distr.</b>
	<b>T.S.S. mg/l</b>	<b>Nitrite mg/l</b>	<b>Nitrate mg/l</b>	<b>THM ug/l</b>	<b>HAA ug/l</b>
Jan.	11.5	<0.05	<0.05	5.7	<8
Feb.					
March					
April	12.5	<0.05	<0.05	7.4	<8
May					
June					
July	9	<0.05	<0.05	5.2	<8
August					
Sept.					
Oct.	11	<0.05	<0.05	2.9	<8
Nov.					
Dec.					
Average	11.00	<0.05	<0.05	5.3	<8
Maximum	12.5	0	0	7.4	0
Minimum	9	0	0	2.9	0

MAC	25 mg/l	1.0 mg/l	10 mg/l	100ug/l	80ug/l
-----	---------	----------	---------	---------	--------

\*MAC: maximum acceptable concentration

## WATER DISTRIBUTION REPORT

The Town had one new water connection for 2020. Operators closed and open all 109 water main valves as part of the yearly maintenance. Operators also performed the regular yearly hydrant maintenance and water main flushing through the distribution system. There were no water quality complaint from the public in 2020.

All complaints, connections and repairs are attended by competent operators and reports are logged and kept on file.

## WATER TREATMENT PLANT RESERVE CAPACITY CALCULATION FOR 2020

The Hydraulic Reserve Capacity of the Earlington Water treatment Plant has been calculated in accordance with Ministry of Environment guidelines.

In 2020 we had 30 unconnected units in town plus 21 new ones at the Airport road subdivision, a total of 51 unconnected units, 355 Residential units, 26 commercial units, and 15 institutions, for an estimated population of 812.

The Hydraulic Reserve Capacity was calculated using the following equation:

$$Cu = Cr - \frac{L \times F \times P}{H}$$

Cr = Plant Design Capacity	432.60 m <sup>3</sup> /day
Average Daily Flow over 3 years	<u>244.05 m<sup>3</sup>/day</u>
	188.55 m <sup>3</sup> /day

So Hydraulic Reserve Capacity is Cr = 188.55 m<sup>3</sup>/day

(Cu) Uncommitted Reserve Capacity is:

$Cu = Cr - \frac{L \times F \times P}{H}$	L = 51 units
	F = $\frac{\text{Avg.m}^3/\text{day}}{\text{People}} = 0.292 \text{ m}^3/\text{day}/\text{person}$
$Cu = 188.55 - \frac{12092.304}{355}$	P = 812 people
	H = 355 units



$$Cu = 188.55 - 34.06$$

$$Cr = 188.55 \text{ m}^3/\text{day}$$

$$Cu = 154.49 \text{ m}^3/\text{day}$$

$$Cu = 154.49 \text{ m}^3/\text{day}$$

$$Cu = \frac{P \times F}{H}$$

$$Cu = \frac{812 \times 0.292}{355}$$

$$Cu = 0.668$$

$$Cu = \frac{154.49}{0.668}$$

Therefore CU = 231.27 units rounded up to 231 units.

### **CONCLUSION:**

- The Water Supply System and Treatment Plant performed satisfactorily.
- The average water consumption in 2020 was 0.292 cub. Meter/day/person.
- The average 3 year plant production rate in 2020 was 244.05 cub. Meter/day compared to the Certificate of Approval production rate of 432.6m<sup>3</sup>/day.
- Calculations indicate that the Water Treatment plant has uncommitted hydraulic reserve capacity of 188.55 cub. Meters/day based on a Per Capita Consumption in 2020. There is an uncommitted reserve capacity of 231 units.

**COMPLIANCE AND NON-COMPLIANCE REPORT FOR 2020:**

There were no “noncompliance” issued during the 2020 MOECC yearly inspection.

There were no adverse test results or notice of issues at our drinking water system during year period 2020.

- All our operators are trained and licensed to be Class II Water treatment and Class I Water distribution Certificate.

Guy Laurin - Class 2 Water Treatment License # 64148

Caleb Fotheringham- Class 2 Water Treatment License # 86673

David Holeksa- Class 2 Water Treatment License #97961

Jeff Miller- Class 1 Water Treatment # 102841

**WATER QUALITY RESULT  
CHEMICAL SAMPLING AND TESTING**

<b>CHEMICAL &amp; MICROBIOLOGICAL</b>	<b>TESTED HOW OFTEN AND FROM WHERE</b>
Schedule 23 – Inorganic Parameters	Every 36 months from plant – last tested April 10/2018
Schedule 24 – Organic Parameters	Every 36 months from plant – last tested April 10/2018
Sodium	Every 60 months from plant – last tested April 09/2018
Fluoride	Every 60 months from plant – last tested April 09/2018
Nitrite & Nitrate	Every 3 months from plant – last tested Oct.06/2020
Trihalomethanes	Every 3 months at Earlington Arena – last tested Oct.06/2020
HAA	Every 3 months at Earlington Arena – last tested Oct.06/2020
Lead in drinking water sampling; O.Reg. 170/03 Requirements.	10 Houses Batches, June 2011/ October 2011
	1 Commercial Samples, June 2011/ October 2011
	2 Distribution Samples, July 18/2019

## MICROBIOLOGICAL SAMPLING AND TESTING

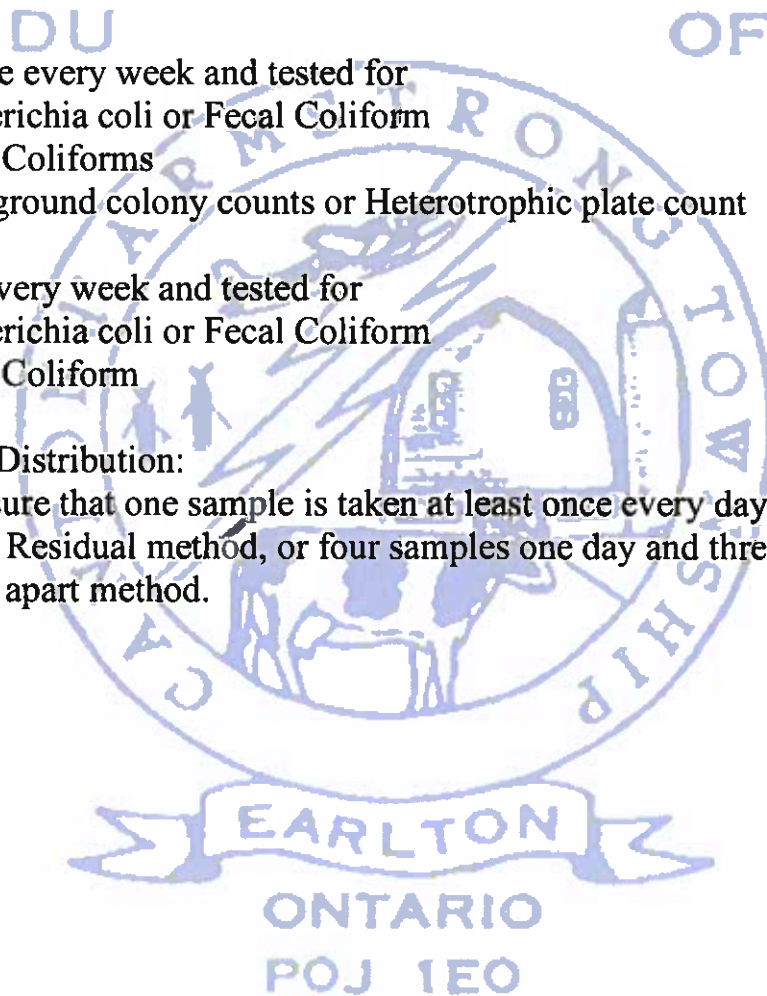
**Distribution Samples:** - 8 samples per month with at least two samples being taken each week.

Tested for: a) Escherichia coli or Fecal Coliform  
b) Total Coliform and that 25 per cent of samples taken during that month are tested for general bacteria population: background colony count or Heterotrophic plate counts.

Treated Samples: once every week and tested for  
a) Escherichia coli or Fecal Coliform  
b) Total Coliforms  
c) Background colony counts or Heterotrophic plate count

Raw Samples: once every week and tested for  
a) Escherichia coli or Fecal Coliform  
b) Total Coliform

Operational check in Distribution:  
Shall ensure that one sample is taken at least once every day and tested for Free Chlorine Residual method, or four samples one day and three samples another day 48 hours apart method.



I confirm with this report that the **Earlton Drinking Water System** has complied with all the rules and regulation, {*samples, quality, quantity etc.*}.

The annual report is available to the public at no cost, at the Town Office. (Notice is posted outside Town Office)

Copy of the summary report is also available for inspection in the “Water/Wastewater Office” with copies of all the 2020 sample results.

This concludes the Earlton Water Treatment System’s compliance/non-compliance report for the year 2020.

If you have any questions concerning this report, please do not hesitate to contact me at your convenience.

Guy Laurin  
Tel: 705-563-2375  
Fax: 705-563-2093  
Cell: 705-676-7703  
Email: [guy.laurin@armstrong.ca](mailto:guy.laurin@armstrong.ca)

**Copy of all sample results are available upon request. Thank you.**

  
\_\_\_\_\_  
Guy Laurin

January 13 / 2021  
DATE