



Leith

Water Distribution System

Summary & Annual Reports

2020



2020 Annual Compliance Report

Drinking Water System General Information

This report has been prepared in accordance with the reporting requirements of the Safe Drinking Water Act 2002 O. Reg 170/03, s 11(1), (3), (6), (7), (8), (9.1) and 10 as well as Schedule 22-1 and 22-2.

This annual report has been included in the Water Summary Report presented to Council and can be viewed on the Municipal website at www.meaford.ca

Drinking Water System Information

Drinking Water System Number	260065312
Drinking Water System Name	The Leith Distribution System
Drinking Water System Owner	Municipality of Meaford
Drinking Water System Category	Large Municipal Residential
Period being reported	January 1, 2020 to December 31, 2020
Does your Drinking Water System serve more than 10,000 people?	No

Drinking Water System Description

The Leith Distribution System is situated on Georgian Bay in Meaford, Ontario. The Leith water plant was shut down in 2005 following agreement with the City of Owen Sound to supply drinking water to the Hamlet of Leith. The system consists of a Booster pumping station, a flow metering Chamber and a Rechlorination Facility.

Leith Rechlorination Facility

The Leith Rechlorination facility consists of two sodium hypochlorite chemical feed pumps, each paced to flow with automatic switchover control. One sodium Hypochlorite chemical storage tank with secondary containment is also onsite. This station communicates back to the

main SCADA at the Meaford Water Treatment Plant for online monitoring. There is no method for back-up power at this facility.

The UTM Coordinates are Zone 17, E 507320 m, N 4940120 m

Leith Booster Station

The Leith Booster station located on Grey Road 15, provides pressure to the residences to the south of the station heading up towards Annan. The station has two centrifugal pumps each rated at 0.9L/s, 27 m TDH, along with two 450 L hydro pneumatic tanks. This station has no communication capabilities for online monitoring or back-up power.

The UTM Coordinates are Zone 17, E 510180 m, N 4940850 m

Leith Metering Chamber

The Leith Metering Chamber is located at the municipal boundary at the intersection of 36th Street Each and East Bayshore Road, It consists of one flowmeter to measure water flow from the Owen Sound System into the Leith System.

The UTM Coordinates are Zone 17, E 506930 m, N 4939310 m

Summary of Water Treatment Chemicals Used Over this Reporting Period

Sodium Hypochlorite – is a disinfectant used to disinfect water going through the Leith distribution System.

Summary of Monetary Expenses Incurred in 2020

Rechlorination Chamber Sealing	\$2,035.00
Yard Hydrant Install	\$1,119.62
Leith Chemical Pump	\$5,064.65

Summary of Adverse Drinking Water Quality Results

There were no instances of adverse drinking water in the Leith system during the 2019 reporting period.

Summary of Microbiological testing done under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting period

Parameter	Number of Samples	Range of E. Coli or Fecal Results Min-Max	Range of Total Coliform Results Min-Max	Number of HPC Samples	Results of HPC Results Min # to Max #
Distribution	118	0	0	53	0-39

Details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or Section 16-4 of Schedule 16 of O. Reg 170/03 and reported to Spills Action Centre

N/A

Summary of Operational Testing completed under Schedule 7, 8, or 9 of Ontario Regulation 170/03 during this reporting period

	Number of Grab Samples	Range of Results Min # to Max #	Unit of Measure
Chlorine			
Distribution	8760	0.84 to 1.69	mg/L

Summary of additional Testing and Sampling

Please see attached additional sampling results for Haloacetic Acids, pH, Alkalinity and Trihalomethanes

Haloacetic Acid

Quarter	HAA Sample Result ug/L	Sampling Location
A	29.7	303051 Grey Rd. 15
B	16.9	359115 Grey Rd. 15
C	19.8	359115 Grey Rd. 15
D	18.5	359115 Grey Rd. 15
RAA	21.2	

Trihalomethanes

Quarter	THM Sample Result ug/L	Sampling Location
A	23	359115 Grey Rd. 15
B	38	359466 Bayshore Rd.
C	45	303051 Grey Rd. 15
D	47	359466 Bayshore Rd.
RAA	38.3	

pH & Alkalinity Results

Sample Date	Location	pH	Alkalinity mg/L as CaCo3
March 23, 2020	303051 Grey Rd. 15	7.86	88
	359466 Bayshore Rd.	7.65	80
September 21, 2020	Old Leith WTP Yard Hyd.	7.61	71
	Auto flusher (Grey Rd. 15)	7.63	70

Summary of Lead Testing

Date	Location	Lead Results	Unit of Measure	Number of Exceedances
March 23, 2020	303051 Grey Rd. 15	0.14	Ug/L	0
	359466 Bayshore Rd.	0.22		
September 21, 2020	Old Leith WTP Yard Hyd.	0.20		
	Auto Flusher (Grey Rd. 15)	0.05		



2020 Summary report

Safe Drinking Water Act

Following the Walkerton tragedy in 2000, the Ontario Government developed a new, comprehensive legislative paradigm based on a source to tap, multi-barrier approach to the protection of drinking water. The Safe Drinking Water Act (SDWA), 2002, and its Regulations, contain requirements for Municipalities that provide potable water to their residents.

Under Section 19 Standard of Care of the SDWA, owners of a Drinking Water System are required to:

- a) Exercise the level of care, diligence and skill in respect of a Municipal Drinking Water System that a reasonable prudent person would be expected to exercise in a similar situation; and
 - b) Act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the Municipal Drinking Water System.
- 2002, c.32, s. 19(1)

Summary Report

Schedule 22 of Ontario Regulation 170/03 requires, for Large Municipal Residential Systems, that a Summary Report be prepared for distribution to Council by March 31, 2021 for the period from January 1 to December 31, 2020.

This regulation also requires the owner produce a Summary Report that includes the following:

- The requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water license, and any orders applicable to the system that were not met at any time during the period covered by the report and specify the duration of the failure and describe the measures taken to correct the situation.

- A summary of quantities and flow rates of the water supplied during the period covered by the report including monthly average and maximum daily flows
- The summary report must be presented and accepted by Council by March 31st of each year.

A hard copy of the Annual and Summary reports will be made available free of charge at the Meaford Water Plant after March 31st 2021. It will also be available for viewing on the Municipal website www.meaford.ca.

System Information – Leith Distribution System

Municipal Drinking Water Licence –089-102

Municipal Drinking Water Permit – 089-202

Permit to Take Water – N/A – Water received from Owen Sound

Financial Plan – 089-302

Accredited Operational Plan – 089-402

Leith Water Distribution System

The Leith Water Distribution System is located on Grey Road 15 and serves the hamlet of Leith, Ontario. The original Leith Water Treatment Plant was decommissioned in December of 2005. Since this time potable water has been received from the City of Owen Sound Water Treatment Plant. The Leith Distribution System is a Class 2 system.

The existing water works consists of a trunk watermain connecting the City of Owen Sound water system to the Leith water system. A flow metering chamber is located near the intersection of 36th Street east and East Bayshore Road. The Leith water system also includes a re-chlorination (sodium hypochlorite) building and a booster pumping building located along Grey Road 15.

The Leith Water Distribution System is operated as part of Municipality of Meaford Environmental Services Department. The Leith Distribution flow and chlorine residuals are remotely monitored by the SCADA located at the Meaford Water Treatment Plant.

2020 Leith Distribution Flow Summary

	Date mm/dd/yyyy	Previous Read m3	Current Read m3	Metered Consumption m3	Billing Days	Avg per Day Consumption m3	Actual \$ per m3	Consumption \$
Start	1/9/2020		89667					
Actual	4/3/2020	89667	93846	4179	85	49.2	\$3.12	\$13,024.60
Actual	7/2/2020	93846	99907	6061	90	67.3	\$3.13	\$18,941.60
Actual	10/6/2020	99907	106597	6690	96	69.7	\$3.13	\$20,919.18
End	1/11/2021	106597	112173	5576	97	57.5	\$3.12	\$17,416.76
				22,506 Annual Consumption	368 Total Billing Days	60.9 Annual Avg	\$3.12 Annual Avg	\$70,302.14 Annual Cost

Leith 2020 Water Inventory

<u>Owen Sound</u>	<u>Leith</u>	<u>Metered</u>
<u>Metered</u>	<u>Metered</u>	<u>Difference</u>
22506	14936	7570

1859 m3

Flushing

Analyzer ReCl2 station(runs at
500ml/min approx.)

262.8 m3

2121.4 m3

Total

Difference- Total
5449

5449 **24.21%**
22506

Annual Summary-Distribution Bacteriological Data

WATER WORKS NAME: Leith Water Distribution
 YEAR 2020
 SERVICE POPULATION 382.8
 LABORATORIES WHICH PERFORMED ANALYSES SGS Laboratory

MONTH	TOTAL COLIFORM			ESCHERICHIA COLI. (E. Coli)			H.P.C.			Max
	# of samples collected	# of samples safe	# of samples unsafe	# of samples collected	# of samples safe	# of samples unsafe	# of samples collected	# of samples safe	# of samples unsafe	
JAN.	11	11	0	11	11	0	5	5	0	<10
FEB.	9	9	0	9	9	0	4	4	0	<10
MAR.	11	11	0	11	11	0	5	5	0	0
APR.	9	9	0	9	9	0	4	4	0	0
MAY	9	9	0	9	9	0	4	4	0	0
JUN.	11	11	0	11	11	0	5	5	0	0
JUL.	9	9	0	9	9	0	4	4	0	2
AUG.	11	11	0	11	11	0	5	5	0	0
SEPT.	9	9	0	9	9	0	4	4	0	39
OCT.	9	9	0	9	9	0	4	4	0	13
NOV.	11	11	0	11	11	0	5	5	0	2
DEC.	9	9	0	9	9	0	4	4	0	15
TOTAL	118	118	0	118	118	0	53	53	0	39

Indicators of adverse water quality

If any of the following conditions exist, the drinking water is judged unsafe:

1. Eschericia coli and/or fecal coliforms are detected in any required sample other than raw water sample.
2. Total coliforms are detected in any required sample other than raw water sample.
3. Unchlorinated water is directed to the distribution system, where chlorination is used or required.
 This includes water in the distribution system, which has less than 0.05 mg/l of free chlorine residual when tested.

HPC % of Total Samples
45 %

If the water containing indicators of unsafe water quality for any of the reasons listed above, the laboratory will immediately notify the M.O.E. District Officer, M.O.E. Spills Action Centre, the local Medical Officer of Health and the owner / operator to initiate collection of special samples and or corrective action. In addition the owner / operator must notify the M.O.E. Spills Action Centre and the local Medical Officer of Health when they become aware of an adverse water quality condition.

Annual Summary- THM's, Lead

WATER WORKS NAME: Leith Water Distribution
 YEAR 2020
 SERVICE POPULATION 382.8
 LABORATORIES WHICH PERFORMED ANALYSES SGS Laboratory

MONTH	DISTRIBUTION WATER Trihalomethanes (THM's)		Lead		Alkalinity		pH		HAA's (ug/L)
	NO. OF SAMPLES COLLECTED	THM's (ug/L)							
JAN.									
FEB.	1	23							29.7
MAR.	2		0.14	0.22	88	80	7.86	7.65	
APR.									
MAY	1	38							16.9
JUN.									
JUL.									
AUG.	1	45							19.8
SEPT.	2		0.2	0.05	71	70	7.61	7.63	
OCT.									
NOV.	1	47							18.5
DEC.									
RAA		38.3							21.2
MAC		100							80

MAC = Maximum Acceptable Concentration

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (LEITH)

Date	Free Chlorine Residual	Flow
January	(mg/L)	m3
2020		
1	1.26	43
2	1.27	37
3	1.07	35
4	1.30	40
5	1.45	41
6	1.29	38
7	1.29	33
8	1.16	33
9	1.11	32
10	1.27	32
11	1.20	38
12	1.27	38
13	1.34	34
14	1.25	53
15	1.37	54
16	1.27	58
17	1.29	55
18	1.23	68
19	0.85	69
20	1.13	50
21	1.04	53
22	1.30	52
23	1.13	54
24	1.05	55
25	1.17	57
26	1.24	64
27	1.12	55
28	1.29	51
29	1.16	50
30	1.20	49
31	1.15	51
Total		1472
Average	1.21	47
MIN	0.85	32
MAX	1.45	69

Date	Free Chlorine Residual	Flow
February	(mg/L)	m3
2020		
1	1.29	59
2	1.11	64
3	1.20	55
4	1.22	55
5	1.09	54
6	1.20	59
7	1.27	54
8	1.34	62
9	1.27	67
10	1.24	55
11	1.29	56
12	1.23	54
13	1.25	53
14	1.34	55
15	1.22	67
16	1.19	71
17	1.31	69
18	1.29	54
19	1.29	52
20	1.34	54
21	1.39	60
22	1.36	67
23	1.28	66
24	1.41	57
25	1.39	57
26	1.35	53
27	1.49	56
28	1.28	52
29	1.36	56
Total		1693
Average	1.29	58
MIN	1.09	52
MAX	1.49	71

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (LEITH)

Date	Free Chlorine Residual	Flow
March	(mg/L)	m3
2020		
1	1.37	65
2	1.42	51
3	1.63	53
4	1.32	54
5	1.41	56
6	1.16	53
7	1.11	69
8	1.13	68
9	1.16	59
10	1.12	56
11	1.22	58
12	1.19	54
13	1.07	54
14	1.07	65
15	1.18	68
16	1.11	65
17	1.07	55
18	1.34	59
19	1.22	62
20	0.98	64
21	1.04	78
22	1.08	85
23	1.26	61
24	1.16	63
25	1.14	62
26	1.17	63
27	1.03	64
28	1.09	71
29	1.16	74
30	1.18	63
31	1.02	64
Total		1936
Average	1.18	62
MIN	0.98	51
MAX	1.63	85

Date	Free Chlorine Residual	Flow
April	(mg/L)	m3
2020		
1	1.23	61
2	1.32	62
3	1.28	63
4	1.17	66
5	1.06	71
6	1.07	65
7	1.02	65
8	1.24	68
9	1.15	64
10	1.17	65
11	1.20	69
12	1.21	68
13	1.20	67
14	1.18	64
15	1.27	64
16	1.22	62
17	1.24	63
18	1.21	66
19	1.25	68
20	1.22	62
21	1.16	61
22	1.31	58
23	1.21	58
24	1.18	56
25	1.25	74
26	1.22	64
27	1.20	64
28	1.23	62
29	1.29	57
30	1.27	59
Total		1916
Average	1.21	64
MIN	1.02	56
MAX	1.32	74

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (LEITH)

Date	Free Chlorine Residual (mg/L)	Flow (m3)
May 2020		
1	1.33	62
2	1.37	66
3	1.24	73
4	1.26	65
5	1.31	62
6	1.25	63
7	1.28	61
8	1.34	64
9	1.34	71
10	1.30	74
11	1.25	67
12	1.38	64
13	1.30	89
14	1.29	79
15	1.32	72
16	1.30	102
17	1.28	78
18	1.40	72
19	1.42	62
20	1.31	86
21	1.29	82
22	1.45	67
23	1.41	78
24	1.38	75
25	1.46	66
26	1.11	66
27	1.13	74
28	1.24	63
29	1.43	52
30	1.33	65
31	1.40	72
Total		2192
Average	1.32	71
MIN	1.11	52
MAX	1.46	102

Date	Free Chlorine Residual (mg/L)	Flow (m3)
June 2020		
1	1.32	69
2	1.42	70
3	1.36	73
4	1.43	68
5	1.35	85
6	1.40	104
7	1.39	113
8	1.57	86
9	1.65	91
10	1.42	60
11	1.45	66
12	1.61	84
13	1.56	113
14	1.69	113
15	1.56	126
16	1.36	123
17	1.44	108
18	1.34	105
19	1.41	114
20	1.52	119
21	1.49	131
22	1.47	122
23	1.53	86
24	1.53	92
25	1.36	100
26	1.35	133
27	1.43	139
28	1.57	141
29	1.57	88
30	1.52	97
Total		3019
Average	1.47	101
MIN	1.32	60
MAX	1.69	141

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (LEITH)

Date	Free Chlorine Residual (mg/L)	Flow (m3)
July 2020		
1	1.56	93
2	1.49	122
3	1.42	120
4	1.27	131
5	1.20	135
6	1.45	172
7	1.61	117
8	1.45	124
9	1.55	458
10	1.48	117
11	1.44	87
12	1.37	71
13	1.35	69
14	1.36	92
15	1.34	78
16	1.32	68
17	1.29	80
18	1.25	93
19	1.24	96
20	1.35	78
21	1.25	72
22	1.26	71
23	1.25	71
24	1.22	78
25	1.14	114
26	1.22	100
27	1.31	84
28	1.29	75
29	1.14	86
30	1.14	74
31	1.49	86
Total		3312
Average	1.34	107
MIN	1.14	68
MAX	1.61	458

Date	Free Chlorine Residual (mg/L)	Flow (m3)
August 2020		
1	1.46	103
2	1.57	76
3	1.43	82
4	1.40	75
5	1.24	77
6	1.29	80
7	1.28	84
8	1.28	90
9	1.20	86
10	1.13	74
11	0.93	67
12	0.98	73
13	1.14	76
14	1.15	77
15	1.11	84
16	1.04	80
17	1.01	74
18	1.27	76
19	1.28	72
20	1.33	71
21	1.30	88
22	1.09	93
23	1.31	87
24	1.36	82
25	1.13	71
26	1.22	68
27	1.18	74
28	1.22	78
29	1.22	81
30	1.25	82
31	1.24	77
Total		2458
Average	1.23	79
MIN	0.93	67
MAX	1.57	103

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (LEITH)

Date	Free Chlorine Residual (mg/L)	Flow (m3)
September 2020		
1	1.32	71
2	1.62	75
3	1.36	71
4	1.11	86
5	1.21	83
6	1.20	81
7	1.18	89
8	1.09	81
9	1.00	66
10	1.13	61
11	1.14	74
12	1.16	78
13	1.16	81
14	1.05	67
15	1.09	74
16	1.17	76
17	1.32	69
18	1.20	77
19	1.21	88
20	1.32	93
21	1.20	76
22	1.22	81
23	1.32	78
24	1.16	71
25	1.32	72
26	1.34	87
27	1.16	85
28	1.23	71
29	1.22	72
30	1.38	68
Total		2302
Average	1.22	77
MIN	1.00	61
MAX	1.62	93

Date	Free Chlorine Residual (mg/L)	Flow (m3)
October 2020		
1	1.29	70
2	1.26	72
3	1.20	73
4	1.29	75
5	1.18	72
6	1.15	74
7	1.23	78
8	1.14	69
9	1.11	92
10	1.29	112
11	1.22	90
12	1.17	84
13	1.31	69
14	1.14	70
15	1.15	73
16	1.16	69
17	1.34	77
18	1.20	85
19	1.19	77
20	1.22	66
21	1.13	66
22	1.20	67
23	1.20	74
24	1.33	86
25	1.30	79
26	1.02	67
27	1.07	66
28	1.17	68
29	0.85	66
30	1.00	69
31	1.00	90
Total		2345
Average	1.18	76
MIN	0.85	66
MAX	1.34	112

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (LEITH)

Date	Free Chlorine Residual (mg/L)	Flow m3
November		
2020		
1	1.06	83
2	0.89	80
3	1.00	73
4	1.08	75
5	1.12	70
6	0.92	69
7	1.11	79
8	1.18	83
9	1.09	70
10	1.15	72
11	1.10	71
12	1.01	67
13	1.07	65
14	1.10	74
15	1.23	78
16	1.18	68
17	1.23	68
18	1.20	74
19	1.17	71
20	1.21	71
21	1.23	76
22	1.22	81
23	1.27	68
24	1.43	68
25	1.25	72
26	1.27	73
27	1.27	70
28	1.29	81
29	1.29	86
30	1.47	71
Total		2207
Average	1.17	74
MIN	0.89	65
MAX	1.47	86

Date	Free Chlorine Residual (mg/L)	Flow m3
December		
2020		
1	1.14	68
2	1.25	67
3	1.31	69
4	1.05	70
5	1.32	77
6	1.32	79
7	1.27	71
8	1.39	69
9	1.28	69
10	1.35	67
11	1.31	67
12	1.26	78
13	1.28	81
14	1.20	67
15	1.13	68
16	1.29	72
17	1.30	71
18	1.18	73
19	1.03	83
20	1.04	81
21	0.84	74
22	1.27	72
23	1.32	72
24	1.24	82
25	1.29	75
26	1.37	78
27	1.32	82
28	1.29	80
29	1.22	76
30	1.17	81
31	1.29	79
Total		2298
Average	1.24	74
MIN	0.84	67
MAX	1.39	83