



Meaford
Water Treatment Plant
Summary Report
2019



2019 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, 2019 for the period from January 1 to December 31, 2018.

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 2019. It will also be available for viewing on the Municipal website www.meaford.ca.

System Information – Meaford Drinking Water System

Municipal Drinking Water Licence – 089-101

Municipal Drinking Water Permit – 089-201

Permit to Take Water – 7605-74TJ9N

Financial Plan – 089-301

Accredited Operational Plan – 089-401

Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 5585-ALCPQM
Permit Holder: THE CORPORATION OF THE MUNICIPALITY OF MEAFORD.
Received on: Mar 16, 2020 9:58 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.

[Print Confirmation](#)

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MUNICIPALITY OF MEAFORD

WATER DEPARTMENT STATISTICS FOR YEAR ENDING DECEMBER 31, 2018

ROUTE	DESCRIPTION	WATER	SEWAGE
20	COMMERCIAL - MONTHLY	813	265
1	RESIDENTIAL - BI MONTHLY	1193	1071
2	RESIDENTIAL - BI MONTHLY	918	656
11	RESIDENTIAL - MONTHLY (VICTORIA VILLAGE)	64	64
10	LEITH RESIDENTIAL - FLAT RATE BI-MONTHLY	18	
	LEITH RESIDENTIAL - BI MONTHLY	132	
TOTAL CUSTOMERS		3138	2056
WATER		SEWAGE	
URBAN RESIDENTIAL	2175	RESIDENTIAL	1791
COMMERCIAL SERVICE	813	COMM SERVICE	265
LEITH RESIDENTIAL	132		
TOTAL WATER	3120	TOTAL SEWAGE	2056

TOTAL WATER PUMPED AT WTP FOR YEAR	598532
TOTAL METERED WATER CONSUMPTION FOR YEAR	407689
FLUSHING	24792
WATER MAIN BREAKS/LEAKS/CONSTRUCTION	15860
TOTAL BULK WATER SALES	7256
OTHER (SP/NON MTR/BCKWSH/TURBIDI/CHL)	10576.1
UNACCOUNTED WATER FOR YEAR	132359
RESIDENTIAL URBAN MONTHLY AVERAGE	9.9357471
TOTAL RESIDENTIAL CONSUMPTION	259323
TOTAL RESIDENTIAL CUSTOMERS	2175
COMMERCIAL SERVICE MONTHLY AVERAGE	15.2077
TOTAL COMMERCIAL SERVICE CONSUMPTION	148366
TOTAL COMMERCIAL SERVICE CUSTOMERS	813
OVERALL CONSUMPTION AVERAGE	16.69266
OVERALL CONSUMPTION	598532
TOTAL CUSTOMERS (less Leith)	2988
TOTAL LEITH CONSUMPTION	15645

**Meaford Water Treatment Plant
Waterloss**

Plant	555,800 m3	Bulkwater	6776
Metered	400,175 m3	Backwash	16714
Difference	155,625 m3	Flushing	23921.5
		Swimming Pool	611.5
		Main Breaks/ Construction	24769.6
		Analyzers Cl2	525.6
		Turbidimeters	372
		Total	73690.3

Difference- Total

81935

Water Loss	<u>81935</u>	14.7%
	555800	

Annual Summary-Treated Water Bacteriological Data (From Water Treatment Plant)

WATER WORKS NAME: Municipality of Meaford
 YEAR 2019
 SERVICE POPULATION 5000
 LABORATORIES WHICH PERFORMED ANALYSES SGS Laboratory

MONTH	TOTAL COLIFORM			ESCHERICHIA COLI. (E. Coli)			H.P.C.		
	# 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.	5	5	0	5	5	0	5	5	0
FEB.	4	4	0	4	4	0	4	4	0
MAR.	4	4	0	4	4	0	4	4	0
APR.	5	5	0	5	5	0	5	5	0
MAY	4	4	0	4	4	0	4	4	0
JUN.	4	4	0	4	4	0	4	4	0
JUL.	5	5	0	5	5	0	5	5	0
AUG.	4	4	0	4	4	0	4	4	0
SEPT.	5	5	0	5	5	0	5	5	0
OCT.	4	4	0	4	4	0	4	4	0
NOV.	4	4	0	4	4	0	4	4	0
DEC.	4	4	0	4	4	0	4	4	0
TOTAL	52	52	0	52	52	0	52	52	0

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

1. Escherichia 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.

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 -Raw Water Bacteriological Data

WATER WORKS NAME:	Municipality of Meaford
YEAR	2019
SERVICE POPULATION	5000
LABORATORIES WHICH PERFORMED ANALYSES	SGS Laboratory

MONTH	TOTAL COLIFORM					ESCHERICHIA COLI (E. Coli)			
	# of samples collected	# of samples 0-100 ORG./100ml	# of samples 101-5000 ORG./100ml	# of samples >5000 ORG./100ml		# of samples collected	# of samples 0-10 ORG./100ml	# of samples 11-500 ORG./100ml	# of samples >500 ORG./100ml
JAN.	5	5	0	0		5	5	0	0
FEB.	4	3	1	0		4	4	0	0
MAR.	4	3	1	0		4	4	0	0
APR.	5	5	0	0		5	5	0	0
MAY	4	4	0	0		4	4	0	0
JUN.	4	4	0	0		4	4	0	0
JUL.	5	5	0	0		5	5	0	0
AUG.	4	4	0	0		4	4	0	0
SEPT.	5	5	0	0		5	5	0	0
OCT.	4	3	1	0		4	4	0	0
NOV.	4	4	0	0		4	4	0	0
DEC.	4	3	1	0		4	3	1	0
TOTAL	52	48	4	0		52	51	1	0

In systems treating surface water or ground water, samples should be taken from the raw water source and from the point at which treated water enters the distribution system. In these systems sampling is done weekly in systems serving populations up to 100,000 and more often in larger systems. In addition, the operator must ensure that the disinfection process is functioning properly at all times.

Annual Summary-Distribution Bacteriological Data

WATER WORKS NAME: Municipality of Meaford
 YEAR 2019
 SERVICE POPULATION 5000
 LABORATORIES WHICH PERFORMED ANALYSES SGS Laboratory

MONTH	TOTAL COLIFORM			ESCHERICHIA COLI. (E. Coli)			H.P.C.		
	# 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.	19	19	0	19	19	0	6	6	0
FEB.	16	16	0	16	16	0	5	5	0
MAR.	22	22	0	22	22	0	7	7	0
APR.	16	16	0	16	16	0	5	5	0
MAY	21	21	0	21	21	0	7	7	0
JUN.	16	16	0	16	16	0	5	5	0
JUL.	21	21	0	21	21	0	7	7	0
AUG.	13	13	0	13	13	0	4	4	0
SEPT.	22	22	0	22	22	0	7	7	0
OCT.	13	13	0	13	13	0	4	4	0
NOV.	19	19	0	19	19	0	6	6	0
DEC.	13	13	0	13	13	0	4	4	0
TOTAL	211	211	0	211	211	0	67	67	0

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

1. Escherichia coli and/or fecal coliforms are detected in any required sample other than raw water sample. **HPC %= 32%**
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.

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- Nitrite, Nitrate , THM's

WATER WORKS NAME:
 YEAR
 SERVICE POPULATION
 LABORATORIES WHICH PERFORMED ANALYSES

Municipality of Meaford
 2019
 5000
 SGS Laboratory

TREATED WATER Nitrates				DISTRIBUTION WATER			
	NO. OF SAMPLES COLLECTED	NITRITE (mg/l)	NITRATE (mg/L)	RAA	NO. OF SAMPLES COLLECTED	THM's (ug/L)	HAA's (ug/L)
JAN.							
FEB.	1	<0.003	0.351	(May 2019) A	1	20	5.3
MAR.							
APR.							
MAY	1	<0.003	0.272	(Aug 2019) B	1	46	23.6
JUN.							
JUL.							
AUG.	1	<0.003	0.231	(Nov 2019) C	1	30	5.5
SEPT.							
OCT.							
NOV.	1	0.003	0.268	(Feb 2020) D	1	20	13.1
DEC.							
AVG.		< 0.005	0.2805			29.00	11.88
MAC		1	10			mg/L 0.029	0.011875
						MAC 100	80

Where nitrite and nitrate are present, the total of the two shall not exceed 10mg/L.
 MAC = Maximum Acceptable Concentration

Annual Summary- Total Suspended Solids (TSS)

WATER WORKS NAME:

Municipality of Meaford

YEAR

2019

SERVICE POPULATION

5000

LABORATORIES WHICH PERFORMED ANALYSES

SGS Laboratory

MONTH	Backwash Waste Water (TSS)	
	NO. OF SAMPLES COLLECTED	TSS (mg/l)
JAN.	1	22
FEB.	1	41
MAR.	1	39
APR.	1	52
MAY	1	2
JUN.	1	32
JUL.	1	30
AUG.	1	21
SEPT.	1	10
OCT.	1	16
NOV.	1	8
DEC.	1	7
AVG.		23
MAC		25

MAC = Maximum Acceptable Concentration

Annual Summary- Sodium and Flouride

WATER WORKS NAME:

YEAR

SERVICE POPULATION

LABORATORIES WHICH PERFORMED ANALYSES

Municipality of Meaford

2019

5000

SGS Laboratory

	Month	No. of Samples	Sample Results
Sodium	Sep-17	1	4.38
Flouride	Sep-17	1	0.08

Month	Lead	pH	Alkalinity
Mar	0.05	7.46	73
	0.03	7.51	65
Sept	1.34	7.55	78
	0.16	7.40	67

Annual Summary- Treated Water and Wastewater Flows, Turbidity and Disinfectant Residuals

WATER WORKS NAME:

Municipality of Meaford

YEAR

2019

SERVICE POPULATION

5000

LABORATORIES WHICH PERFORMED ANALYSES

OPERATORS/CONTINUOUS MONITOR

MONTH	TREATED WATER FLOW			BACKWASH WATER	TREATED WATER TURBIDITY			TREATED DISINFECTANT		DIST. SYSTEM DISINFECTANT	
	AVERAGE DAY (m3)	MAX. DAY (m3)	MONTHLY TOTAL (m3)	MONTHLY TOTAL (m3)	NO. OF SAMPLES COLLECTED	NO. OF SAMPLES (> 1 NTU)	AVERAGE TURBIDITY (NTU)	NO. OF SAMPLES COLLECTED	AVERAGE RESIDUAL (mg/l)	NO. OF SAMPLES COLLECTED	NO. WITH DETECTABLE RESIDUAL
JAN.	1549	1917	48015	862	8760	0	0.07	8760	1.36	8760	8760
FEB.	1700	2045	47600	1441	8760	0	0.09	8760	1.36	8760	8760
MAR.	1501	1821	46542	1150	8760	0	0.08	8760	1.43	8760	8760
APR.	1309	1479	39271	1154	8760	0	0.07	8760	1.43	8760	8760
MAY	1413	1891	43798	1448	8760	0	0.06	8760	1.35	8760	8760
JUN.	1426	1708	42775	875	8760	0	0.07	8760	1.31	8760	8760
JUL.	1922	2583	59594	2185	8760	0	0.07	8760	1.35	8760	8760
AUG.	1801	2161	55824	1353	8760	0	0.07	8760	1.42	8760	8760
SEPT.	1559	1772	46780	826	8760	0	0.05	8760	1.38	8760	8760
OCT.	1476	1713	45758	1536	8760	0	0.05	8760	1.36	8760	8760
NOV.	1241	1519	37221	1725	8760	0	0.06	8760	1.33	8760	8760
DEC.	1375	1740	42622	2159	8760	0	0.06	8760	1.38	8760	8760
TOTAL			555,800	16,714							
AVG.	1,523	1,862		1393			0.07		1.37		
MAX.	1922	2583	59594	2185			0.09		1.43		

DISINFECTANT COMPOUND USED

CHLORINE GAS

FORM OF RESIDUAL DISPLAYED ON ABOVE TABLE

QUANTITY OF DISINFECTANT USED DURING YEAR

(kg)

1389.6

DISTRIBUTION SYSTEM TARGET RESIDUAL

(mg/l)

> .20 mg/l

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (WATER TOWER)

Date	Free Chlorine Residual	Free Chlorine Residual
January	MIN (mg/L)	MAX (mg/L)
2019		
1	1.13	1.40
2	1.11	1.45
3	1.14	1.44
4	1.16	1.43
5	1.18	1.42
6	1.16	1.45
7	1.14	1.39
8	1.17	1.44
9	1.13	1.38
10	1.10	1.36
11	1.08	1.37
12	1.11	1.14
13	1.10	1.36
14	1.09	1.32
15	1.12	1.37
16	1.09	1.34
17	1.06	1.33
18	1.07	1.34
19	1.06	1.35
20	1.06	1.29
21	1.07	1.32
22	1.10	1.32
23	1.09	1.36
24	1.08	1.44
25	1.26	1.51
26	1.25	1.57
27	1.26	1.52
28	1.25	1.52
29	1.27	1.55
30	1.26	1.48
31	1.26	1.49
Average	1.14	1.40

Date	Free Chlorine Residual	Free Chlorine Residual
February	MIN (mg/L)	MAX (mg/L)
2019		
1	1.24	1.46
2	1.23	1.48
3	1.23	1.47
4	1.23	1.51
5	1.23	1.51
6	1.21	1.46
7	1.11	1.48
8	1.08	1.35
9	1.07	1.31
10	1.07	1.32
11	1.07	1.30
12	1.04	1.27
13	1.05	1.33
14	1.07	1.31
15	1.10	1.47
16	1.20	1.46
17	1.21	1.44
18	1.20	1.46
19	1.20	1.46
20	1.21	1.45
21	1.19	1.36
22	1.18	1.44
23	1.18	1.46
24	1.23	1.49
25	1.17	1.40
26	1.16	1.41
27	1.13	1.37
28	1.11	1.41
Average	1.16	1.42

DISTRIBUTION SYSTEM CHLORINE RESIDUALS

(St. Vincent St. Booster Station)

Date	Inlet Chlorine	Outlet Chlorine
Jan		
2019		
1	1.12	1.09
2	1.06	1.03
3	1.22	1.14
4	0.99	0.78
5	1.06	1.05
6	1.02	1.08
7	1.01	1.06
8	0.98	1.05
9	0.98	1.05
10	1.08	1.05
11	0.99	1.04
12	0.97	1.07
13	0.98	1.08
14	0.95	1.05
15	1.01	1.03
16	1.01	1.03
17	0.98	1.03
18	1.06	1.02
19	1.02	1.09
20	0.99	1.09
21	1.06	1.12
22	1.03	1.12
23	1.12	1.14
24	1.05	1.30
25	0.89	1.22
26	1.12	1.16
27	1.15	1.17
28	1.09	1.14
29	1.08	1.18
30	1.10	1.21
31	1.06	1.20
Average	1.04	1.09

Date	Inlet Chlorine	Outlet Chlorine
Feb		
2019		
1	1.04	1.14
2	1.05	1.18
3	1.05	1.14
4	1.01	1.12
5	1.05	1.11
6	1.03	1.15
7	0.96	1.11
8	1.03	1.14
9	1.01	1.18
10	0.98	1.13
11	1.01	1.21
12	0.99	1.15
13	1.17	1.22
14	1.04	1.20
15	1.18	1.21
16	1.23	1.21
17	1.22	1.23
18	1.26	1.18
19	1.23	1.22
20	1.22	1.19
21	1.21	1.19
22	1.17	1.12
23	1.20	1.22
24	1.24	1.29
25	1.18	1.20
26	1.15	1.18
27	1.13	1.16
28	1.18	1.23
Average	1.12	1.18

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (WATER TOWER)

Date	Free Chlorine Residual	Free Chlorine Residual
March	MIN (mg/L)	MAX (mg/L)
2019		
1	1.10	1.38
2	1.11	1.37
3	1.11	1.36
4	1.07	1.36
5	1.06	1.27
6	1.03	1.28
7	1.01	1.28
8	1.06	1.34
9	1.13	1.39
10	1.11	1.34
11	1.13	1.39
12	1.01	1.38
13	1.19	1.56
14	1.24	1.70
15	1.18	1.60
16	1.10	1.28
17	1.09	1.45
18	1.12	1.45
19	1.16	1.42
20	1.14	1.36
21	1.08	1.34
22	1.02	1.27
23	1.00	1.34
24	1.02	1.32
25	1.00	1.22
26	1.01	1.24
27	1.01	1.31
28	1.07	1.36
29	1.10	1.39
30	1.06	1.36
31	1.06	1.34
Average	1.08	1.37

Date	Free Chlorine Residual	Free Chlorine Residual
April	MIN (mg/L)	MAX (mg/L)
2019		
1	1.05	1.35
2	1.06	1.35
3	1.07	1.35
4	1.03	1.36
5	1.08	1.30
6	1.06	1.30
7	1.04	1.34
8	1.04	1.36
9	1.03	1.38
10	1.01	1.27
11	1.03	1.33
12	1.03	1.34
13	1.05	1.36
14	1.04	1.32
15	1.02	1.33
16	1.04	1.33
17	1.05	1.35
18	1.08	1.34
19	1.05	1.30
20	1.06	1.34
21	1.08	1.38
22	1.13	1.41
23	1.15	1.38
24	1.12	1.36
25	1.11	1.45
26	1.15	1.48
27	1.16	1.47
28	1.22	1.56
29	1.27	1.54
30	1.24	1.40
Average	1.09	1.37

DISTRIBUTION SYSTEM CHLORINE RESIDUALS
(St. Vincent St. Booster Station)

Date	Inlet Chlorine	Outlet Chlorine
March		
2019		
1	1.12	1.18
2	1.16	1.10
3	1.14	1.09
4	1.11	1.06
5	1.10	1.08
6	1.11	1.05
7	1.07	1.05
8	1.06	1.05
9	0.99	1.04
10	0.99	1.02
11	0.96	1.05
12	0.94	1.06
13	1.06	1.03
14	1.12	1.19
15	1.23	1.18
16	1.08	1.15
17	1.08	1.11
18	1.10	1.12
19	1.20	1.20
20	1.17	1.20
21	1.15	1.15
22	1.08	1.16
23	1.07	0.93
24	1.08	0.96
25	1.22	1.00
26	1.15	1.01
27	1.14	0.98
28	1.12	1.02
29	1.10	1.00
30	1.24	1.06
31	1.16	1.02
Average	1.11	1.07

Date	Inlet Chlorine	Outlet Chlorine
2019		
April		
2019		
1	1.17	1.02
2	1.04	1.03
3	1.03	1.01
4	0.99	1.02
5	1.08	1.02
6	1.37	0.96
7	1.11	1.02
8	1.03	0.93
9	1.01	0.91
10	1.04	0.97
11	0.98	0.95
12	0.86	0.90
13	0.98	0.94
14	1.01	1.02
15	0.99	1.01
16	1.00	1.00
17	1.04	1.06
18	1.01	1.03
19	1.05	1.05
20	1.06	1.06
21	1.06	1.02
22	1.10	1.10
23	1.13	1.11
24	1.09	1.05
25	1.06	1.08
26	1.10	1.14
27	1.16	1.14
28	1.25	1.18
29	1.21	1.18
30	1.18	1.17
Average	1.07	1.04

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (WATER TOWER)

Date	Free Chlorine	Free Chlorine
	Residual	Residual
May	MIN (mg/L)	MAX (mg/L)
2019		
1	1.21	1.37
2	1.09	1.57
3	1.02	1.32
4	1.02	1.36
5	1.06	1.36
6	1.12	1.34
7	1.11	1.33
8	1.09	1.32
9	1.10	1.33
10	1.08	1.34
11	1.02	1.35
12	1.09	1.54
13	1.13	1.55
14	1.17	1.62
15	1.24	1.42
16	1.17	1.37
17	1.14	1.40
18	1.11	1.41
19	1.11	1.42
20	1.10	1.19
21	1.10	1.50
22	1.14	1.45
23	1.11	1.53
24	1.14	1.55
25	1.15	1.65
26	1.24	1.66
27	1.25	1.56
28	0.95	1.60
29	1.15	1.70
30	1.13	1.57
31	1.15	1.56
Average	1.12	1.46

Date	Free Chlorine	Free Chlorine
	Residual	Residual
June	MIN (mg/L)	MAX (mg/L)
2019		
1	1.13	1.53
2	1.15	1.60
3	1.16	1.58
4	1.16	1.53
5	1.12	1.51
6	1.17	1.56
7	1.06	1.48
8	1.05	1.48
9	1.06	1.41
10	1.05	1.36
11	1.01	1.37
12	1.00	1.34
13	0.96	1.30
14	0.93	1.47
15	1.06	1.59
16	1.06	1.63
17	1.13	1.56
18	1.13	1.53
19	1.12	1.50
20	1.12	1.43
21	1.03	1.44
22	1.01	1.34
23	1.00	1.34
24	1.02	1.29
25	1.00	1.34
26	1.04	1.62
27	1.08	1.65
28	1.15	1.69
29	1.15	1.66
30	1.15	1.57
Average	1.08	1.49

DISTRIBUTION SYSTEM CHLORINE RESIDUALS
(St. Vincent St. Booster Station)

Date	Inlet Chlorine	Outlet Chlorine
May		
2019		
1	1.12	1.09
2	1.08	1.05
3	1.02	1.02
4	1.14	1.07
5	1.17	1.14
6	1.17	1.18
7	1.14	1.16
8	1.15	1.16
9	0.83	1.10
10	1.19	1.11
11	1.01	1.07
12	1.00	1.04
13	1.07	1.14
14	1.21	1.20
15	1.13	1.19
16	1.06	1.15
17	1.03	1.05
18	1.03	1.03
19	1.05	1.03
20	1.14	1.10
21	1.09	1.07
22	1.10	1.10
23	1.12	1.05
24	1.08	1.03
25	1.11	1.08
26	1.23	1.20
27	1.22	1.23
28	1.20	1.21
29	1.21	1.22
30	1.08	1.05
31	1.05	1.00
Average	1.10	1.11

Date 2019	Inlet Chlorine	Outlet Chlorine
June		
2019		
1	1.04	1.03
2	1.06	1.06
3	1.26	1.09
4	1.15	1.04
5	1.17	1.03
6	1.15	1.02
7	1.14	1.01
8	1.08	1.00
9	1.06	1.02
10	1.08	1.02
11	1.02	1.01
12	0.99	1.00
13	0.99	0.98
14	0.95	0.89
15	0.87	0.87
16	1.04	0.97
17	1.06	1.01
18	1.07	1.02
19	1.03	0.98
20	1.08	0.98
21	1.01	0.98
22	0.99	0.92
23	1.01	0.93
24	1.10	0.95
25	1.01	0.88
26	1.00	0.86
27	1.08	0.91
28	1.11	1.05
29	1.10	1.09
30	1.03	1.03
Average	1.06	0.99

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (WATER TOWER)

Date	Free Chlorine Residual	Free Chlorine Residual
July	MIN (mg/L)	MAX (mg/L)
2019		
1	1.12	1.51
2	1.12	1.57
3	1.11	1.57
4	1.14	1.56
5	1.12	2.00
6	1.03	1.95
7	1.00	1.32
8	0.94	1.28
9	0.88	1.29
10	0.89	1.33
11	0.94	1.31
12	0.95	1.42
13	1.02	1.42
14	1.02	1.43
15	0.97	1.31
16	0.92	1.31
17	0.94	1.38
18	0.93	1.37
19	0.88	1.34
20	0.86	1.21
21	0.85	1.35
22	0.93	1.39
23	0.83	1.94
24	0.97	1.38
25	0.97	1.52
26	1.05	1.47
27	1.09	1.48
28	1.02	1.47
29	1.02	1.44
30	0.96	1.57
31	0.98	1.57
Average	0.98	1.47

Date	Free Chlorine Residual	Free Chlorine Residual
August	MIN (mg/L)	MAX (mg/L)
2019		
1	1.00	1.46
2	0.96	1.48
3	0.98	1.50
4	1.01	1.46
5	0.95	1.46
6	0.97	1.40
7	0.92	1.46
8	0.93	1.37
9	0.89	1.41
10	0.93	1.43
11	1.00	1.47
12	1.04	1.51
13	1.03	1.48
14	1.03	1.47
15	1.00	1.42
16	0.95	1.52
17	1.00	1.60
18	0.99	1.61
19	1.08	1.59
20	1.03	1.56
21	1.02	1.55
22	0.94	1.09
23	0.88	1.34
24	0.85	1.53
25	0.91	1.63
26	1.01	1.67
27	1.03	1.61
28	1.02	1.50
29	0.96	1.26
30	0.87	1.24
31	0.79	1.40
Average	0.97	1.47

DISTRIBUTION SYSTEM CHLORINE RESIDUALS
(St. Vincent St. Booster Station)

Date	Inlet Chlorine Residual	Outlet Chlorine Residual
July		
2019		
1	1.00	0.99
2	1.00	0.98
3	1.08	1.05
4	1.10	1.07
5	0.97	0.96
6	1.23	1.21
7	1.10	1.07
8	0.95	0.96
9	0.94	0.94
10	0.89	0.87
11	1.08	1.10
12	1.07	1.05
13	1.08	1.09
14	0.99	1.02
15	0.96	1.00
16	0.99	0.96
17	0.94	0.95
18	1.00	0.95
19	1.06	1.07
20	0.85	0.90
21	0.85	0.90
22	0.98	1.04
23	0.94	0.97
24	0.97	1.12
25	1.06	1.23
26	1.03	1.11
27	0.94	1.01
28	0.94	0.93
29	0.94	0.91
30	0.89	0.90
31	0.90	0.94
Average	0.99	1.01

Date	Inlet Chlorine Residual	Outlet Chlorine Residual
2019		
August		
2019		
1	0.98	0.96
2	0.83	0.86
3	0.85	0.89
4	0.80	0.82
5	0.87	0.89
6	0.91	0.91
7	0.90	0.85
8	0.90	0.88
9	0.84	0.87
10	0.97	0.94
11	0.89	0.89
12	0.85	0.83
13	0.92	0.87
14	0.89	0.85
15	0.87	0.82
16	0.76	0.76
17	0.74	0.70
18	0.94	0.87
19	0.90	0.89
20	0.85	0.81
21	0.90	0.87
22	0.80	0.75
23	0.76	0.72
24	0.75	0.69
25	0.98	0.85
26	1.04	0.92
27	0.98	0.89
28	0.95	0.89
29	0.85	0.81
30	0.77	0.75
31	0.66	0.65
Average	0.87	0.84

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (WATER TOWER)

Date	Free Chlorine Residual	Free Chlorine Residual
September	MIN (mg/L)	MAX (mg/L)
2019		
1	0.86	1.45
2	0.93	1.43
3	0.94	1.46
4	0.92	1.43
5	0.90	1.41
6	0.88	1.45
7	0.89	1.48
8	0.92	1.43
9	0.93	1.39
10	0.93	1.45
11	0.93	1.52
12	0.94	1.51
13	0.87	1.44
14	0.86	1.53
15	0.94	1.49
16	0.96	1.43
17	0.98	1.38
18	0.98	2.00
19	1.02	1.43
20	1.01	1.43
21	0.98	1.48
22	1.00	1.48
23	0.97	1.40
24	0.92	1.45
25	0.91	1.38
26	0.89	1.34
27	0.89	1.26
28	0.91	1.39
29	0.89	1.35
30	0.93	1.36
Average	0.93	1.45

Date	Free Chlorine Residual	Free Chlorine Residual
October	MIN (mg/L)	MAX (mg/L)
2019		
1	0.95	1.45
2	0.94	1.36
3	0.90	1.81
4	1.19	1.92
5	1.15	1.89
6	1.18	1.86
7	1.21	1.84
8	1.17	1.85
9	1.17	1.79
10	1.18	1.75
11	1.05	1.67
12	1.01	1.39
13	0.95	1.51
14	1.04	1.51
15	1.03	1.42
16	1.03	1.47
17	1.02	1.45
18	0.99	1.36
19	0.98	1.47
20	1.02	1.43
21	1.01	1.48
22	1.03	1.44
23	0.99	1.56
24	1.00	1.66
25	1.12	1.58
26	1.11	1.47
27	1.08	1.44
28	1.10	1.72
29	1.17	1.44
30	1.09	1.40
31	1.01	1.39
Average	1.06	1.57

DISTRIBUTION SYSTEM CHLORINE RESIDUALS

(St. Vincent St. Booster Station)

Date	Inlet Chlorine Residual	Outlet Chlorine Residual
September		
2019		
1	0.81	0.78
2	0.83	0.81
3	0.85	0.81
4	0.80	0.76
5	0.78	0.72
6	0.80	0.76
7	0.87	0.77
8	0.69	0.66
9	0.78	0.73
10	0.78	0.72
11	0.84	0.78
12	0.90	0.74
13	0.74	0.79
14	0.93	0.96
15	0.87	0.97
16	1.08	0.96
17	0.90	0.87
18	0.87	0.84
19	0.94	0.98
20	0.98	0.98
21	0.90	0.94
22	0.90	0.96
23	0.86	0.90
24	0.93	0.90
25	0.97	0.96
26	1.03	0.99
27	0.86	0.81
28	0.91	0.89
29	0.94	0.93
30	0.96	0.89
Average	0.88	0.85

Date	Inlet Chlorine Residual	Outlet Chlorine Residual
October		
2019		
1	0.97	0.89
2	1.01	0.89
3	0.83	0.78
4	0.99	1.04
5	1.28	1.48
6	1.14	1.94
7	0.78	0.85
8	0.63	0.96
9	0.74	0.92
10	0.71	0.95
11	0.69	1.08
12	0.92	1.00
13	0.87	1.06
14	0.89	1.19
15	0.96	1.35
16	0.90	1.42
17	0.99	1.03
18	0.89	0.94
19	0.92	0.89
20	0.87	0.83
21	0.91	0.82
22	0.93	0.80
23	0.86	0.78
24	1.14	0.96
25	1.13	0.97
26	0.99	0.94
27	0.99	0.87
28	0.97	0.90
29	0.93	0.91
30	0.99	0.79
31	0.96	0.83
Average	0.93	1.00

DISTRIBUTION SYSTEM CHLORINE RESIDUALS (WATER TOWER)

Date	Free Chlorine	Free Chlorine
	Residual	Residual
November	MIN (mg/L)	MAX (mg/L)
2019		
1	0.95	1.27
2	0.95	1.25
3	0.93	1.33
4	0.95	1.38
5	0.99	1.41
6	1.02	1.51
7	1.07	1.52
8	1.04	1.53
9	1.06	1.33
10	0.99	1.26
11	0.94	1.22
12	0.89	1.29
13	0.99	1.29
14	0.96	1.31
15	0.98	1.50
16	1.08	1.47
17	1.13	1.50
18	1.09	1.98
19	1.21	1.60
20	1.18	1.49
21	1.17	1.40
22	1.11	1.39
23	1.11	1.44
24	1.11	1.44
25	1.08	1.45
26	1.12	1.39
27	1.04	1.30
28	1.02	1.32
29	0.99	1.33
30	1.04	1.33
Average	1.04	1.41

Date	Free Chlorine	Free Chlorine
	Residual	Residual
December	MIN (mg/L)	MAX (mg/L)
2019		
1	0.99	1.30
2	0.99	1.28
3	0.99	1.32
4	0.98	1.24
5	0.95	1.18
6	0.91	1.34
7	1.04	1.45
8	1.06	1.42
9	1.13	1.41
10	1.07	1.36
11	1.04	1.34
12	1.08	1.51
13	1.34	1.54
14	1.20	1.48
15	1.10	1.35
16	1.08	1.34
17	1.04	1.35
18	1.03	1.36
19	1.06	1.38
20	1.07	1.38
21	1.09	1.35
22	1.12	1.41
23	1.09	1.29
24	1.07	1.25
25	1.04	1.22
26	1.02	1.27
27	1.05	1.42
28	1.11	1.45
29	1.13	1.35
30	1.10	1.44
31	1.13	1.43
Average	1.07	1.36

DISTRIBUTION SYSTEM CHLORINE RESIDUALS

(St. Vincent St. Booster Station)

Date	Inlet Chlorine Residual	Outlet Chlorine Residual
November		
2019		
1	0.89	0.79
2	0.85	91.00
3	0.81	0.82
4	0.87	0.78
5	0.92	0.76
6	0.91	0.78
7	0.89	0.80
8	1.03	0.92
9	0.97	0.89
10	0.89	0.77
11	0.87	0.74
12	0.85	0.69
13	0.87	0.65
14	0.97	0.61
15	0.93	0.81
16	1.01	1.02
17	1.02	0.94
18	1.12	1.02
19	1.57	1.77
20	1.55	1.82
21	1.38	1.92
22	1.33	1.85
23	0.99	1.05
24	1.03	1.11
25	0.97	1.10
26	0.91	1.08
27	0.90	1.15
28	0.97	1.06
29	0.88	1.08
30	1.03	1.13
Average	1.01	4.03

Date	Inlet Chlorine Residual	Outlet Chlorine Residual
December		
2019		
1	1.09	1.14
2	1.12	1.13
3	1.08	1.19
4	1.11	1.18
5	1.08	1.18
6	1.06	1.14
7	1.06	1.20
8	1.06	1.29
9	1.09	1.28
10	1.09	1.28
11	1.06	1.30
12	1.03	1.25
13	1.14	1.15
14	1.13	1.11
15	1.08	1.05
16	1.06	1.09
17	1.04	1.04
18	1.05	1.02
19	1.11	1.09
20	1.08	1.07
21	1.12	1.05
22	1.13	1.07
23	1.12	1.16
24	1.08	1.12
25	1.12	1.07
26	1.05	1.07
27	1.15	1.11
28	1.12	1.15
29	1.05	1.18
30	1.08	1.17
31	1.16	1.19
Average	1.09	1.15