

# Lakeshore Annual Report

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## 1.0 INTRODUCTION AND BACKGROUND

The Operating Authority, on behalf of the Owner, the Township of Huron-Kinloss, has prepared this report to satisfy the requirements of Section 11 (1) of Ontario Regulation 170/03. Section 11 (1) requires that the Owner of a drinking water system ensure that a report is prepared in accordance with Subsections (3) and (6) for the preceding calendar year, which covers from the period of January 1 to December 31, 2017. The annual report must be prepared no later than February 28 of each year. A copy of this report will be submitted to the Owner to be made available to the residents.

## 2.0 DESCRIPTION OF WATER SYSTEM

A summary of the Lakeshore Drinking Water System description is outlined below:

|  |   |
|--|---|
| Drinking Water System Number:                | 220000425   |
| Drinking Water System Name:                  | Lakeshore Well Water Distribution and Supply              |
| Drinking Water System Owner:                 | Corporation of the Township of Huron-Kinloss              |
| Drinking Water System Category:              | Large Municipal Residential                               |
| Drinking Water System Classification:        | Water Distribution and Supply Subsystem Class 3           |
| Drinking Water System Certificate No.:       | 1808  |
| Daily Maximum Water Supply Capacity:         | 11,636.26 m <sup>3</sup>                                  |
| Population (as per engineer's design notes): | 3,200   |
| Total Number of Service Connections:         | 2,324   |
| Estimated Seasonal Population:               | 6,042 (based on Census data of 2.6 persons per household) |

The Lakeshore Drinking Water Distribution and Supply Subsystem (LDWDSS) is characterized as a "secure groundwater system". It consists of four sub-systems and its equipment deliver potable water to the Huron-Kinloss Lakeshore community, extending from Point Clark in the south, to Huronville in the north, and the subsystem supplying the Courtney/Amberley Beach subdivision in the Township of Ashfield-Colborne-Wawanosh.

The four sub-systems are: Point Clark, Blairs Grove, Huronville South, and Murdock Glen. All of these sites are located within the Municipality of Huron-Kinloss along Lake Huron. All sites are controlled, monitored, and alarmed through a Supervisory Control and Data Acquisition (SCADA) system which is connected to the main computer and server at Ripley Municipal office. As a redundancy, each site is also equipped with an auto-dialer that is independent of the SCADA system, and is used to call out alarms in the event of communications/SCADA failure. This SCADA system provides the operator with the ability to monitor current operating status of the supply and treatment equipment throughout the water system at any given time via remote access by computer or iPhone, and to have control over operations.

The four well systems are detailed as follows:

|                               |  |
|-------------------------------|--|
| <b>Site:</b>                  | <b>Point Clark - 603 Tuscarora Rd</b>  |
| • Water Source:               | Groundwater, Non-GUDI                  |
| • Number of Production Wells: | 2 (Well #2 – 1994; Well #3 – 2015)     |
| • Depth of Wells:             | 75.6m, 82.3m                           |
| • Well Pumps:                 | 15hp each, submersible                 |
| • Disinfection:               | Sodium hypochlorite (12%)              |
| • CT Requirement:             | 2-log, 5°C, baffled reservoir (0.5 BF) |
| • Iron Sequestering:          | Sodium silicate (undiluted)            |
| • High Lift Pumps:            | 2 @ 25hp each                          |
| • Reservoir:                  | 65 m <sup>3</sup>                      |
| • Permit To Take Water:       | 1852-9YQMAY, expires November 1, 2024  |

**Site: Blairs Grove – 28 Cathcart Street**

- Water Source: Groundwater, Non-GUDI
- Number of Production Wells: 1, flowing artesian
- Depth of Well: 73.2m
- Well Pump: 10hp, submersible
- Disinfection: Sodium hypochlorite (12%)
- CT Requirement: 2-log, 5°C, baffled reservoir (0.5 BF)
- Iron Sequestering: Sodium silicate (undiluted)
- High Lift Pump: 1 @ 30hp
- Reservoir: 83 m<sup>3</sup>
- Permit To Take Water: 6154-988KDE, expires May 31, 2023

**Site: Murdock Glen**

- Water Source: Groundwater, Non-GUDI
- Number of Production Wells: 1 (1992)
- Depth of Well: 80.5m
- Well Pump: 25hp, submersible
- Disinfection: Sodium hypochlorite (12%)
- CT Requirement: 2-log, 5°C, contact watermain (BF 1.0)
- Iron Sequestering: Sodium Silicate (undiluted)
- High Lift Pumps: 2 @ 15hp, 2 @ 50hp
- Reservoir: 400 m<sup>3</sup>
- Standby Power: 130 kW Diesel Generator, 1,110 L fuel storage
- Permit To Take Water: 6123-A2UQBM, expires October 15, 2025

**Site: Huronville South – 39 Penetangore Row South**

- Water Source: Groundwater, Non-GUDI
- Number of Production Wells: 1 (1994)
- Depth of Wells: 93.3m
- Well Pumps: 30hp, submersible, soft-start
- Disinfection: Sodium hypochlorite (12%)
- CT Requirement: 2-log, 5°C, baffled reservoir (0.5 BF)
- Iron Sequestering: Sodium silicate (undiluted)
- High Lift Pumps: 2 @ 30hp each
- Reservoir: 65 m<sup>3</sup>
- Permit To Take Water: 3332-9N6H8L, expires November 1, 2024

The LDWDSS currently (February 2018) has 2,185 water connections along the Huron-Kinloss Lakeshore and 139 water connections in the Courtney/Amberley Beach Subdivision. The Lakeshore area has a large seasonal population of potentially 6,042 (based on census data of 2.6 people per household connection), and therefore, the demands are significantly higher during the cottage season.

All the Lakeshore wells are secure deep bedrock wells that penetrate limestone aquifers. Due to the depth and structure of the aquifers, the water temperature is relatively constant (<10°C), turbidity is low, and the water is relatively hard. The raw water is also relatively high in naturally-occurring sodium, fluoride, and iron, but the lead content of the raw water is well below the half-MAC (Maximum Allowable Concentration). Iron sequestering is achieved by means of treating the chlorinated water with sodium silicate. Sequestering does not remove iron, but instead it prevents the dissolved iron from precipitating which can stain plumbing fixtures and appear as discoloration in the water. Sodium silicate can leave a slight metallic taste in the water. Those who are supplied water from the LDWDSS are made aware of the various concentrations in their drinking water by numerous means of communication from the Township of Huron-Kinloss.

A 130 kW diesel generator, located at the Murdoch Glen pumphouse, includes a 1,110 L capacity fuel storage tank and is used for emergency power supply. A standpipe is situated in the Point Clark area at 3405 Concession 2, and is constructed of bolted steel. The 31 m (102 ft) high and 9.45 m (31 ft) wide standpipe has an effective storage of approximately 1,500 m<sup>3</sup> to supply the entire Lakeshore System in emergency situations. Periodic inspections of the standpipe (exterior and interior) are conducted. In 2017, the standpipe was isolated, drained, cleaned, and had some minor repairs. After repairs, it was disinfected, flushed, sampled, and put back into service.

The Township of Huron-Kinloss has an agreement with the Municipality of Kincardine, where Kincardine is the Operating Authority for a small area of Huron-Kinloss known as the Huronville Subdivision Distribution System (Plan M28). This subdivision receives all their water from the Municipality of Kincardine Water System. There is an interconnecting valve between the LDWDSS and Huronville Subdivision Distribution System, and the Town of Kincardine. This valve is normally closed and is to be used for emergency purposes only.

### 3.0 SUMMARY OF WATER QUALITY MONITORING

#### 3.1 Water Treatment Equipment Operation and Monitoring

##### 3.1.1 Treated Water (Point of Entry) Chlorine Residuals

In 2017, a total of 1,460 treated water samples were collected and analyzed for Free Chlorine Residual at the Point of Entry (POE) water using a HACH pocket chlorine colorimeter. **Table 1** shows the grab sample monthly average of free chlorine residual values.

##### 3.1.2 Distribution (Grab) Free Chlorine Residuals

In 2017, a total of 678 distribution residuals were collected: 365 daily grab residuals and an additional 313 weekly grab residuals were taken in conjunction with the required weekly micro bacteriological sampling. A summary of all the residuals collected is presented in **Table 1**.

**Table 1 –** Average Treated and Distribution Free Chlorine (Grab) Residuals

| Month      | Blairs Grove | Huronville South | Murdock Glen | Point Clark | Distribution |
|------------|--------------|------------------|--------------|-------------|--------------|
| Jan        | 1.28         | 1.49             | 1.61         | 1.40        | 1.35         |
| Feb        | 1.33         | 1.54             | 1.50         | 1.64        | 1.36         |
| Mar        | 1.43         | 1.72             | 1.62         | 1.69        | 1.43         |
| Apr        | 1.31         | 1.62             | 1.55         | 1.56        | 1.36         |
| May        | 1.39         | 1.60             | 1.39         | 1.46        | 1.33         |
| Jun        | 1.33         | 1.63             | 1.53         | 1.56        | 1.39         |
| Jul        | 1.30         | 1.59             | 1.52         | 1.51        | 1.38         |
| Aug        | 1.29         | 1.63             | 1.67         | 1.52        | 1.39         |
| Sep        | 1.31         | 1.62             | 1.66         | 1.58        | 1.41         |
| Oct        | 1.35         | 1.75             | 1.71         | 1.64        | 1.42         |
| Nov        | 1.30         | 1.76             | 1.77         | 1.64        | 1.41         |
| Dec        | 1.41         | 1.74             | 1.64         | 1.68        | 1.43         |
| Annual Min | 1.09         | 1.41             | 1.10         | 1.18        | 0.86         |
| Annual Max | 1.91         | 1.86             | 1.89         | 1.90        | 1.77         |
| Annual Avg | 1.34         | 1.64             | 1.60         | 1.57        | 1.39         |
| # Samples  | 365          | 365              | 365          | 365         | 678          |

### 3.1.3 Turbidity

Drinking water turbidity was measured by a portable turbidity analyzer. Raw and treated water grab samples were collected and analyzed for turbidity. **Table 2** provides a summary of raw and treated turbidity results. The maximum turbidity measured in the raw water was 1.53 NTU and the maximum turbidity measured in the treated water was 0.55 NTU.

**Table 2 – Raw and Treated Water Turbidity**

| Month      | BG Raw | BG Treated | HS Raw | HS Treated | MG Raw | MG Treated | PC W2 Raw | PC W3 Raw | PC Treated |
|------------|--------|------------|--------|------------|--------|------------|-----------|-----------|------------|
| Jan        | 1.10   | 0.35       | 0.15   | 0.14       | 0.26   | 0.3        | 0.13      | 0.14      | ---        |
| Feb        | 1.15   | 0.40       | 0.29   | 0.16       | 0.15   | 0.3        | 0.24      | 0.25      | 0.24       |
| Mar        | 0.84   | 0.22       | 0.08   | 0.09       | 0.18   | 0.29       | 0.24      | 0.22      | ---        |
| Apr        | 1.53   | 0.55       | 0.20   | 0.21       | 0.26   | 0.19       | 0.18      | 0.18      | 0.17       |
| May        | 0.55   | 0.37       | 0.17   | 0.14       | 0.32   | 0.30       | 0.13      | 0.13      | ---        |
| Jun        | 0.61   | 0.38       | 0.13   | 0.20       | 0.22   | 0.20       | 0.14      | 0.16      | 0.19       |
| Jul        | 1.08   | 0.34       | 0.17   | 0.18       | 0.17   | 0.35       | 0.26      | 0.23      | 0.10       |
| Aug        | 0.97   | 0.27       | 0.19   | 0.20       | 0.18   | 0.13       | 0.18      | 0.21      | 0.25       |
| Sep        | 0.96   | 0.17       | 0.06   | 0.06       | 0.16   | 0.14       | 0.17      | 0.28      | 0.21       |
| Oct        | 0.74   | 0.16       | 0.08   | 0.11       | 0.16   | 0.26       | 0.12      | 0.19      | 0.16       |
| Nov        | 0.71   | 0.20       | 0.07   | 0.12       | 0.13   | 0.24       | 0.13      | 0.16      | 0.21       |
| Dec        | 0.89   | 0.41       | 0.22   | 0.28       | 0.21   | 0.29       | 0.13      | 0.15      | 0.17       |
| Annual Min | 0.55   | 0.16       | 0.06   | 0.06       | 0.13   | 0.13       | 0.10      | 0.11      | 0.10       |
| Annual Max | 1.53   | 0.55       | 0.29   | 0.28       | 0.32   | 0.35       | 0.26      | 0.28      | 0.25       |
| Annual Avg | 0.94   | 0.32       | 0.15   | 0.16       | 0.21   | 0.26       | 0.16      | 0.18      | 0.19       |
| # Samples  | 13     | 14         | 13     | 13         | 14     | 14         | 15        | 15        | 9          |

## 3.2 Microbiological Sampling as per Schedule 10, Ontario Regulation 170/03

### 3.2.1 Raw Water Samples

Raw water samples are collected every week. In 2017, a total of 261 samples were collected and analyzed for E. Coli and Total Coliform. **Table 3** provides a summary of bacteriological results performed on the raw water.

**Table 3 – Microbiological Results for Raw Water**

| Month | E. Coli   |               |              | Total Coliform |               |              |
|-------|-----------|---------------|--------------|----------------|---------------|--------------|
|       | # Samples | # Samples "0" | # Samples ≥1 | # Samples      | # Samples "0" | # Samples ≥1 |
| Jan   | 25        | 25            | 0            | 25             | 25            | 0            |
| Feb   | 20        | 20            | 0            | 20             | 20            | 0            |
| Mar   | 20        | 20            | 0            | 20             | 20            | 0            |
| Apr   | 20        | 20            | 0            | 20             | 20            | 0            |
| May   | 25        | 25            | 0            | 25             | 25            | 0            |
| Jun   | 20        | 20            | 0            | 20             | 20            | 0            |
| Jul   | 20        | 20            | 0            | 20             | 20            | 0            |
| Aug   | 26        | 26            | 0            | 26             | 25            | 1*           |
| Sep   | 20        | 20            | 0            | 20             | 20            | 0            |
| Oct   | 25        | 25            | 0            | 25             | 25            | 0            |
| Nov   | 20        | 20            | 0            | 20             | 20            | 0            |
| Dec   | 20        | 20            | 0            | 20             | 20            | 0            |
| TOTAL | 261       | 261           | 0            | 261            | 260           | 1            |

\*Note: One sample result from Huronville South raw water tested positive of 1 Total Coliform on August 8, 2017. The treated sample from the same day was free of Total Coliform. Raw water is not reportable as an adverse.

### 3.2.2 Treated Water (Point of Entry) Samples

One (1) treated water sample from each point of entry is taken every week and analyzed for E. Coli, Total Coliform, and for Heterotrophic Plate Count (HPC). In 2017, a total of 209 treated water samples were collected and analyzed for the above parameters. One sample had a total coliform of 1 cfu/100 mL, but the resample was all clear. Each E. Coli result from the treated water was 0 cfu/100 mL. The range of HPC results were 0 – 6 cfu/100 mL. **Table 4** provides a summary of all bacteriological results performed on treated water.

### 3.2.3 Distribution Samples

Distribution samples are collected every week and tested for E. Coli, Total Coliform, and for Heterotrophic Plate Count (HPC). Ontario Regulation 170/03 requires 8 distribution samples plus one additional sample for every 1,000 people served by the system. In 2017, a total of 365 distribution samples were collected and analyzed for the above parameters, which is above the required number of samples (n=156, based on 5,681 potential residents). Each E. Coli and Total Coliform result was 0 cfu/100 mL. The range of HPC results were 0 – 8 cfu/100 mL. **Table 5** provides a summary of all bacteriological samples taken in the distribution system.

**Table 4 –** Microbiological Results for Treated Water (Point of Entry)

| Month        | E.Coli     |               |              | Total Coliform |               |              | HPC        |               |                 |
|--------------|------------|---------------|--------------|----------------|---------------|--------------|------------|---------------|-----------------|
|              | # Samples  | # Samples "0" | # Samples ≥1 | # Samples      | # Samples "0" | # Samples ≥1 | # Samples  | # Samples "0" | # Samples 1 - 6 |
| Jan          | 20         | 20            | 0            | 20             | 20            | 0            | 20         | 11            | 9               |
| Feb          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 10            | 6               |
| Mar          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 12            | 4               |
| Apr          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 10            | 6               |
| May          | 20         | 20            | 0            | 20             | 20            | 0            | 20         | 12            | 8               |
| Jun          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 7             | 9               |
| Jul          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 12            | 4               |
| Aug          | 21         | 21            | 0            | 21             | 20            | 1*           | 20         | 11            | 9               |
| Sep          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 15            | 1               |
| Oct          | 20         | 20            | 0            | 20             | 20            | 0            | 20         | 17            | 3               |
| Nov          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 13            | 3               |
| Dec          | 16         | 16            | 0            | 16             | 16            | 0            | 16         | 10            | 6               |
| <b>TOTAL</b> | <b>209</b> | <b>209</b>    | <b>0</b>     | <b>209</b>     | <b>209</b>    | <b>1</b>     | <b>208</b> | <b>140</b>    | <b>68</b>       |

\* Note: One sample result from Murdock Glen treated water tested positive for 1 Total Coliform on August 22, 2017. This result was reported to the Grey-Bruce Health Unit and MOECC Spills Action Centre as an adverse (AWQI # 135888). The resample was free of Total Coliform.

**Table 5 –** Microbiological Results for Distribution System

| Month        | E.Coli     |               |              | Total Coliform |               |              | HPC        |               |                 |
|--------------|------------|---------------|--------------|----------------|---------------|--------------|------------|---------------|-----------------|
|              | # Samples  | # Samples "0" | # Samples ≥1 | # Samples      | # Samples "0" | # Samples ≥1 | # Samples  | # Samples "0" | # Samples 1 - 8 |
| Jan          | 35         | 35            | 0            | 35             | 35            | 0            | 20         | 13            | 7               |
| Feb          | 28         | 28            | 0            | 28             | 28            | 0            | 16         | 13            | 3               |
| Mar          | 28         | 28            | 0            | 28             | 28            | 0            | 16         | 9             | 7               |
| Apr          | 27         | 27            | 0            | 27             | 27            | 0            | 16         | 12            | 4               |
| May          | 35         | 35            | 0            | 35             | 35            | 0            | 21         | 17            | 4               |
| Jun          | 28         | 28            | 0            | 28             | 28            | 0            | 16         | 8             | 8               |
| Jul          | 28         | 28            | 0            | 28             | 28            | 0            | 16         | 11            | 5               |
| Aug          | 36         | 36            | 0            | 36             | 36            | 0            | 20         | 7             | 13              |
| Sep          | 28         | 28            | 0            | 28             | 28            | 0            | 16         | 12            | 4               |
| Oct          | 35         | 35            | 0            | 35             | 35            | 0            | 20         | 18            | 2               |
| Nov          | 29         | 29            | 0            | 29             | 29            | 0            | 16         | 15            | 1               |
| Dec          | 28         | 28            | 0            | 28             | 28            | 0            | 16         | 14            | 2               |
| <b>TOTAL</b> | <b>365</b> | <b>365</b>    | <b>0</b>     | <b>365</b>     | <b>365</b>    | <b>0</b>     | <b>209</b> | <b>149</b>    | <b>60</b>       |



### 3.3 Chemical Sampling & Testing as per Schedule 13, Ontario Regulation 170/03

#### 3.3.1 Inorganics (Schedule 13, Section 13-2; Schedule 23)

Treated water samples are collected every 36 months and tested for inorganics. The most recent samples for the Lakeshore Drinking Water System were collected on June 10, 2015 and submitted to the laboratory for analysis of inorganics as listed in Schedule 23. All parameters were found to be within compliance. Inorganics will be sampled and analyzed again on or before June 10, 2018. Results from the June 10, 2015 samples can be found in **Table 6**.

**Table 6 –** Inorganics (Schedule 13, Section 13-2; Schedule 23) Results

| Parameter | Blairs Grove Result (µg/L) | Huronville South Result (µg/L) | Murdock Glen Result (µg/L) | Point Clark Result (µg/L) | Maximum Allowable Concentration (µg/L) | Exceedance |
|-----------|----------------------------|--------------------------------|----------------------------|---------------------------|--|------------|
| Antimony  | 0.02 <MDL                  | 0.02 <MDL                      | 0.02 <MDL                  | 0.02 <MDL                 | 6                                      | No         |
| Arsenic   | 3.9                        | 0.4                            | 1.6                        | 5.5                       | 25*                                    | No         |
| Barium    | 24.1                       | 24.3                           | 26.6                       | 25.3                      | 1000                                   | No         |
| Boron     | 68.2                       | 151                            | 138                        | 71.1                      | 5000                                   | No         |
| Cadmium   | 0.003 <MDL                 | 0.003 <MDL                     | 0.012                      | 0.003 <MDL                | 5                                      | No         |
| Chromium  | 0.03 <MDL                  | 0.03 <MDL                      | 0.08                       | 0.03 <MDL                 | 50                                     | No         |
| Mercury   | 0.01 <MDL                  | 0.01 <MDL                      | 0.01 <MDL                  | 0.01 <MDL                 | 1                                      | No         |
| Selenium  | 0.04 <MDL                  | 0.04 <MDL                      | 0.04 <MDL                  | 0.04 <MDL                 | 10                                     | No         |
| Uranium   | 0.419                      | 0.305                          | 1.47                       | 0.431                     | 20                                     | No         |

Note \*: The Arsenic standard changes from a MAC of 25 µg/L to 10 µg/L in January 2018.

#### 3.3.2 Organics (Schedule 13, Section 13-4; Schedule 24)

Treated water samples are collected every 36 months and tested for schedule 24 organic parameters. The most recent samples were collected on June 10, 2015. All parameters were found to be within compliance. Organics will be sampled and analyzed again on or before June 10, 2018. Sample results can be found in **Table 7**.

**Table 7 -** Organics (Schedule 13, Section 13-4; Schedule 24) Results

| Parameter                 | Blairs Grove (µg/L) | Huronville South (µg/L) | Murdock Glen (µg/L) | Point Clark (µg/L) | Maximum Allowable Concentration (µg/L) | Exceedance |
|---------------------------|---------------------|-------------------------|---------------------|--------------------|--|------------|
| Benzene                   | 0.32 <MDL           | 0.32 <MDL               | 0.32 <MDL           | 0.32 <MDL          | 5                                      | No         |
| Carbon Tetrachloride      | 0.16 <MDL           | 0.16 <MDL               | 0.16 <MDL           | 0.16 <MDL          | 5                                      | No         |
| 1,2-Dichlorobenzene       | 0.41 <MDL           | 0.41 <MDL               | 0.41 <MDL           | 0.41 <MDL          | 200                                    | No         |
| 1,4-Dichlorobenzene       | 0.36 <MDL           | 0.36 <MDL               | 0.36 <MDL           | 0.36 <MDL          | 5                                      | No         |
| 1,1-Dichloroethylene      | 0.33 <MDL           | 0.33 <MDL               | 0.33 <MDL           | 0.33 <MDL          | 14                                     | No         |
| 1,2-Dichloroethane        | 0.35 <MDL           | 0.35 <MDL               | 0.35 <MDL           | 0.35 <MDL          | 5                                      | No         |
| Dichloromethane           | 0.35 <MDL           | 0.35 <MDL               | 0.35 <MDL           | 0.35 <MDL          | 50                                     | No         |
| Monochlorobenzene         | 0.3 <MDL            | 0.3 <MDL                | 0.3 <MDL            | 0.3 <MDL           | 80                                     | No         |
| Tetrachloroethylene       | 0.35 <MDL           | 0.35 <MDL               | 0.35 <MDL           | 0.35 <MDL          | 30                                     | No         |
| Trichloroethylene         | 0.44 <MDL           | 0.44 <MDL               | 0.44 <MDL           | 0.44 <MDL          | 50                                     | No         |
| Vinyl Chloride            | 0.17 <MDL           | 0.17 <MDL               | 0.17 <MDL           | 0.17 <MDL          | 2                                      | No         |
| Diquat                    | 1 <MDL              | 1 <MDL                  | 1 <MDL              | 1 <MDL             | 70                                     | No         |
| Paraquat                  | 1 <MDL              | 1 <MDL                  | 1 <MDL              | 1 <MDL             | 10                                     | No         |
| Glyphosate                | 1 <MDL              | 1 <MDL                  | 1 <MDL              | 1 <MDL             | 280                                    | No         |
| Polychlorinated Biphenyls | 0.04 <MDL           | 0.04 <MDL               | 0.04 <MDL           | 0.04 <MDL          | 3                                      | No         |
| Benzo(a)pyrene            | 0.004 <MDL          | 0.004 <MDL              | 0.004 <MDL          | 0.004 <MDL         | 0.01                                   | No         |

**Table 7 – Organics (Schedule 13, Section 13-4; Schedule 24) Results**

| Parameter                          | Blairs Grove (µg/L) | Huronville South (µg/L) | Murdock Glen (µg/L) | Point Clark (µg/L) | Maximum Allowable Concentration (µg/L) | Exceedance |
|------------------------------------|---------------------|-------------------------|---------------------|--------------------|--|------------|
| 2,4-dichlorophenol                 | 0.15 <MDL           | 0.15 <MDL               | 0.15 <MDL           | 0.15 <MDL          | 900                                    | No         |
| 2,4,6-trichlorophenol              | 0.25 <MDL           | 0.25 <MDL               | 0.25 <MDL           | 0.25 <MDL          | 5                                      | No         |
| 2,3,4,5-tetrachlorophenol          | 0.20 <MDL           | 0.20 <MDL               | 0.20 <MDL           | 0.20 <MDL          | 100                                    | No         |
| Pentachlorophenol                  | 0.15 <MDL           | 0.15 <MDL               | 0.15 <MDL           | 0.15 <MDL          | 60                                     | No         |
| Alachlor                           | 0.02 <MDL           | 0.02 <MDL               | 0.02 <MDL           | 0.02 <MDL          | 5                                      | No         |
| Aldicarb                           | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 9                                      | No         |
| Aldrin+Dieldrin                    | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 0.7                                    | No         |
| Aldrin                             | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Dieldrin                           | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Atrazine+N-dealkylated metabolites | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 5                                      | No         |
| Atrazine                           | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| De-ethylated atrazine              | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Azinphos-methyl                    | 0.05 <MDL           | 0.05 <MDL               | 0.05 <MDL           | 0.05 <MDL          | 20                                     | No         |
| Bendiocarb                         | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 40                                     | No         |
| Carbaryl                           | 0.05 <MDL           | 0.05 <MDL               | 0.05 <MDL           | 0.05 <MDL          | 90                                     | No         |
| Carbofuran                         | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 90                                     | No         |
| Chlordane                          | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 7                                      | No         |
| a-chlordane                        | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| g-chlordane                        | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Oxychlordane                       | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Chlorpyrifos                       | 0.02 <MDL           | 0.02 <MDL               | 0.02 <MDL           | 0.02 <MDL          | 90                                     | No         |
| Cyanazine                          | 0.03 <MDL           | 0.03 <MDL               | 0.03 <MDL           | 0.03 <MDL          | 10                                     | No         |
| Diazinon                           | 0.02 <MDL           | 0.02 <MDL               | 0.02 <MDL           | 0.02 <MDL          | 20                                     | No         |
| (DDT)+Metabolites                  | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 30                                     | No         |
| op-DDT                             | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| pp-DDD                             | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| pp-DDE                             | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| pp-DDT                             | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Dimethoate                         | 0.03 <MDL           | 0.03 <MDL               | 0.03 <MDL           | 0.03 <MDL          | 20                                     | No         |
| Diuron                             | 0.03 <MDL           | 0.03 <MDL               | 0.03 <MDL           | 0.03 <MDL          | 150                                    | No         |
| Heptachlor-Heptachlor Epoxide      | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 3                                      | No         |
| Heptachlor                         | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Heptachlor epoxide                 | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | -                                      | -          |
| Lindane                            | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 4                                      | No         |
| Malathion                          | 0.02 <MDL           | 0.02 <MDL               | 0.02 <MDL           | 0.02 <MDL          | 190                                    | No         |
| Methoxychlor                       | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 900                                    | No         |
| Metolachlor                        | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 50                                     | No         |
| Metribuzin                         | 0.02 <MDL           | 0.02 <MDL               | 0.02 <MDL           | 0.02 <MDL          | 80                                     | No         |
| Parathion                          | 0.02 <MDL           | 0.02 <MDL               | 0.02 <MDL           | 0.02 <MDL          | 50                                     | No         |

**Table 7 –** Organics (Schedule 13, Section 13-4; Schedule 24) Results - Continued

| Parameter                         | Blairs Grove (µg/L) | Huronville South (µg/L) | Murdock Glen (µg/L) | Point Clark (µg/L) | Maximum Allowable Concentration (µg/L) | Exceedance |
|-----------------------------------|---------------------|-------------------------|---------------------|--------------------|--|------------|
| Phorate                           | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 2                                      | No         |
| Prometryne                        | 0.03 <MDL           | 0.03 <MDL               | 0.03 <MDL           | 0.03 <MDL          | 1                                      | No         |
| Simazine                          | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 10                                     | No         |
| Temephos                          | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 280                                    | No         |
| Terbufos                          | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 1                                      | No         |
| Triallate                         | 0.01 <MDL           | 0.01 <MDL               | 0.01 <MDL           | 0.01 <MDL          | 230                                    | No         |
| Trifluralin                       | 0.02 <MDL           | 0.02 <MDL               | 0.02 <MDL           | 0.02 <MDL          | 45                                     | No         |
| 2,4-dichlorophenoxyacetic acid    | 0.19 <MDL           | 0.19 <MDL               | 0.19 <MDL           | 0.19 <MDL          | 100                                    | No         |
| 2,4,5-trichlorophenoxyacetic acid | 0.22 <MDL           | 0.22 <MDL               | 0.22 <MDL           | 0.22 <MDL          | 280                                    | No         |
| Bromoxynil                        | 0.33 <MDL           | 0.33 <MDL               | 0.33 <MDL           | 0.33 <MDL          | 5                                      | No         |
| Dicamba                           | 0.20 <MDL           | 0.20 <MDL               | 0.20 <MDL           | 0.20 <MDL          | 120                                    | No         |
| Diclofop-methyl                   | 0.40 <MDL           | 0.40 <MDL               | 0.40 <MDL           | 0.40 <MDL          | 9                                      | No         |
| Dinoseb                           | 0.36 <MDL           | 0.36 <MDL               | 0.36 <MDL           | 0.36 <MDL          | 10                                     | No         |
| Picloram                          | 1 <MDL              | 1 <MDL                  | 1 <MDL              | 1 <MDL             | 190                                    | No         |

3.3.3 Trihalomethanes (Schedule 13, Section 13-6)

Distribution samples are taken every three months from representative points in the distribution system and tested for Trihalomethanes (THMs). In 2017, samples were collected during the months of February, May, August, and November. The Ontario Drinking Water Quality Standard (ODWQS) have set a Maximum Allowable Concentration (MAC) of 100 µg/L for this parameter and it is expressed as a running annual average. In 2017, the average THM was found to be 10.94 µg/L, which is within compliance. Refer to **Table 8** for the summary of trihalomethane results. In 2018, samples will be collected in February, May, August, and November.

**Table 8 -** Trihalomethane (Schedule 13, Section 13-6) Results

**BLAIRS GROVE**

| Month          | THMs          | Bromodichloro methane | Bromoform     | Chloroform    | Dibromochloro methane | Maximum Allowable Concentration | Exceedance |
|----------------|---------------|-----------------------|---------------|---------------|-----------------------|---------------------------------|------------|
|                | Result (µg/L) | Result (µg/L)         | Result (µg/L) | Result (µg/L) | Result (µg/L)         | (µg/L)                          |            |
| Feb            | 11.0          | 3.5                   | <0.34         | 4.8           | 2.3                   | 100                             | No         |
| May            | 13.0          | 4.5                   | 0.34          | 5.5           | 2.9                   | 100                             | No         |
| Aug            | 8.3           | 2.8                   | <0.34         | 3.6           | 2.0                   | 100                             | No         |
| Nov            | 25.0          | 7.7                   | 0.50          | 13.0          | 4.2                   | 100                             | No         |
| <b>Average</b> | 14.3          | 4.63                  | 0.38          | 6.7           | 2.9                   |                                 |            |
| <b>Maximum</b> | 25.0          | 7.7                   | 0.50          | 13.0          | 4.2                   |                                 |            |

**Table 8 -** Trihalomethane (Schedule 13, Section 13-6) Results - Continued

**HURONVILLE SOUTH**

| Month   | THMs          | Bromodichloro methane | Bromoform     | Chloroform    | Dibromochloro methane | Maximum Allowable Concentration | Exceedance |
|---------|---------------|-----------------------|---------------|---------------|-----------------------|---------------------------------|------------|
|         | Result (µg/L) | Result (µg/L)         | Result (µg/L) | Result (µg/L) | Result (µg/L)         | (µg/L)                          |            |
| Feb     | 8.9           | 2.8                   | <0.34         | 4.1           | 2.0                   | 100                             | No         |
| May     | 6.1           | 1.9                   | <0.34         | 2.8           | 1.4                   | 100                             | No         |
| Aug     | 5.8           | 1.8                   | <0.34         | 2.7           | 1.4                   | 100                             | No         |
| Nov     | 7.9           | 2.6                   | <0.34         | 3.4           | 1.9                   | 100                             | No         |
| Average | 7.2           | 2.3                   | <0.34         | 3.3           | 1.7                   |                                 |            |
| Maximum | 8.9           | 2.8                   | <0.34         | 4.1           | 2.0                   |                                 |            |

**MURDOCK GLEN**

| Month   | THMs          | Bromodichloro methane | Bromoform     | Chloroform    | Dibromochloro methane | Maximum Allowable Concentration | Exceedance |
|---------|---------------|-----------------------|---------------|---------------|-----------------------|---------------------------------|------------|
|         | Result (µg/L) | Result (µg/L)         | Result (µg/L) | Result (µg/L) | Result (µg/L)         | (µg/L)                          |            |
| Feb     | 14.0          | 4.6                   | 0.69          | 4.6           | 4.0                   | 100                             | No         |
| May     | 11.0          | 3.6                   | 0.71          | 2.9           | 3.5                   | 100                             | No         |
| Aug     | 8.6           | 2.8                   | 0.56          | 2.6           | 2.7                   | 100                             | No         |
| Nov     | 19.0          | 6.3                   | 1.00          | 5.6           | 5.6                   | 100                             | No         |
| Average | 13.2          | 4.3                   | 0.74          | 3.9           | 4.0                   |                                 |            |
| Maximum | 19.0          | 6.3                   | 1.00          | 5.6           | 5.6                   |                                 |            |

**POINT CLARK**

| Month   | THMs          | Bromodichloro methane | Bromoform     | Chloroform    | Dibromochloro methane | Maximum Allowable Concentration | Exceedance |
|---------|---------------|-----------------------|---------------|---------------|-----------------------|---------------------------------|------------|
|         | Result (µg/L) | Result (µg/L)         | Result (µg/L) | Result (µg/L) | Result (µg/L)         | (µg/L)                          |            |
| Feb     | 6.8           | 2.2                   | <0.34         | 3.0           | 1.6                   | 100                             | No         |
| May     | 5.5           | 1.8                   | <0.34         | 2.3           | 1.4                   | 100                             | No         |
| Aug     | 5.2           | 1.7                   | <0.34         | 2.3           | 1.2                   | 100                             | No         |
| Nov     | 19.0          | 6.5                   | 0.46          | 8.4           | 4.0                   | 100                             | No         |
| Average | 9.1           | 3.1                   | 0.37          | 4.0           | 2.1                   |                                 |            |
| Maximum | 19.0          | 6.5                   | 0.46          | 8.4           | 4.0                   |                                 |            |

3.3.4 Haloacetic Acids (Schedule 13, Section 13-6.1)

Ontario Regulation 170/03 has been amended to include quarterly testing for Haloacetic acids (HAAs). Four distribution samples are taken every three months from representative points in the distribution system and tested for Haloacetic Acids (HAAs). In 2017, samples were collected during the months of February, May, August, and November and results are expressed as a running annual average. Results are summarized in **Table 9**.

Table 9 - Haloacetic Acid (Schedule 13, Section 13-6.1) Results

**BLAIRS GROVE**

| Month   | Total HAAs    | Bromoacetic Acid | Chloroacetic Acid | Dichloroacetic Acid | Dibromoacetic Acid | Trichloroacetic Acid | Maximum Allowable Concentration | Exceedance |
|---------|---------------|------------------|-------------------|---------------------|--------------------|----------------------|---------------------------------|------------|
|         | Result (µg/L) | Result (µg/L)    | Result (µg/L)     | Result (µg/L)       | Result (µg/L)      | Result (µg/L)        | (µg/L)                          |            |
| Feb     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| May     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Aug     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Nov     | <5.3          | <2.9             | <4.7              | 4.2                 | <2.0               | <5.3                 | 80                              | No         |
| Average | <5.3          | <2.9             | <4.7              | 3.0                 | <2.0               | <5.3                 |                                 |            |
| Max     | <5.3          | <2.9             | <4.7              | 4.2                 | <2.0               | <5.3                 |                                 |            |

**HURONVILLE SOUTH**

| Month   | Total HAAs    | Bromoacetic Acid | Chloroacetic Acid | Dichloroacetic Acid | Dibromoacetic Acid | Trichloroacetic Acid | Maximum Allowable Concentration | Exceedance |
|---------|---------------|------------------|-------------------|---------------------|--------------------|----------------------|---------------------------------|------------|
|         | Result (µg/L) | Result (µg/L)    | Result (µg/L)     | Result (µg/L)       | Result (µg/L)      | Result (µg/L)        | (µg/L)                          |            |
| Feb     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| May     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Aug     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Nov     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Average | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 |                                 |            |
| Max     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 |                                 |            |

**MURDOCK GLEN**

| Month   | Total HAAs    | Bromoacetic Acid | Chloroacetic Acid | Dichloroacetic Acid | Dibromoacetic Acid | Trichloroacetic Acid | Maximum Allowable Concentration | Exceedance |
|---------|---------------|------------------|-------------------|---------------------|--------------------|----------------------|---------------------------------|------------|
|         | Result (µg/L) | Result (µg/L)    | Result (µg/L)     | Result (µg/L)       | Result (µg/L)      | Result (µg/L)        | (µg/L)                          |            |
| Feb     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| May     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Aug     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Nov     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Average | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 |                                 |            |
| Max     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 |                                 |            |

**Table 9 -** Haloacetic Acid (Schedule 13, Section 13-6.1) Results – Continued

**POINT CLARK**

| Month   | Total HAAs    | Bromoacetic Acid | Chloroacetic Acid | Dichloroacetic Acid | Dibromoacetic Acid | Trichloroacetic Acid | Maximum Allowable Concentration | Exceedance |
|---------|---------------|------------------|-------------------|---------------------|--------------------|----------------------|---------------------------------|------------|
|         | Result (µg/L) | Result (µg/L)    | Result (µg/L)     | Result (µg/L)       | Result (µg/L)      | Result (µg/L)        | (µg/L)                          |            |
| Feb     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| May     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Aug     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Nov     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 | 80                              | No         |
| Average | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 |                                 |            |
| Max     | <5.3          | <2.9             | <4.7              | <2.6                | <2.0               | <5.3                 |                                 |            |

3.3.5 Nitrate and Nitrite (Schedule 13, Section 13-7)

Four treated water samples are taken every three months and tested for nitrate and nitrite. In 2017, samples were collected during the months of February, May, August, and December. The Ontario Drinking Water Quality Standard (ODWQS) have set a Maximum Allowable Concentration (MAC) of 10 mg/L for nitrates and 1 mg/L for nitrites. The results were found to be within compliance. Refer to **Table 8**. In 2018, samples will be collected in February, May, August, and December.

**Table 10 –** Nitrate and Nitrite (Schedule 13, Section 13-7) Results

**BLAIRS GROVE**

| Month   | Nitrite       | Maximum Allowable Concentration | Exceedance | Nitrate       | Maximum Allowable Concentration | Exceedance |
|---------|---------------|---------------------------------|------------|---------------|---------------------------------|------------|
|         | Result (mg/L) | (mg/L)                          |            | Result (mg/L) | (mg/L)                          |            |
| Feb     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| May     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Aug     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Nov     | <0.006        | 1                               | No         | 0.004         | 10                              | No         |
| Average | <0.006        |                                 |            | <0.003        |                                 |            |
| Maximum | <0.006        |                                 |            | 0.003         |                                 |            |

**HURONVILLE SOUTH**

| Month   | Nitrite       | Maximum Allowable Concentration | Exceedance | Nitrate       | Maximum Allowable Concentration | Exceedance |
|---------|---------------|---------------------------------|------------|---------------|---------------------------------|------------|
|         | Result (mg/L) | (mg/L)                          |            | Result (mg/L) | (mg/L)                          |            |
| Feb     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| May     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Aug     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Nov     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Average | <0.006        |                                 |            | <0.003        |                                 |            |
| Maximum | <0.006        |                                 |            | <0.003        |                                 |            |

**Table 10 – Nitrate and Nitrite (Schedule 13, Section 13-7) Results - Continued**

**MURDOCK GLEN**

| Month   | Nitrite       | Maximum Allowable Concentration | Exceedance | Nitrate       | Maximum Allowable Concentration | Exceedance |
|---------|---------------|---------------------------------|------------|---------------|---------------------------------|------------|
|         | Result (mg/L) | (mg/L)                          |            | Result (mg/L) | (mg/L)                          |            |
| Feb     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| May     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Aug     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Nov     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Average | <0.006        |                                 |            | <0.003        |                                 |            |
| Maximum | <0.006        |                                 |            | <0.003        |                                 |            |

**POINT CLARK**

| Month   | Nitrite       | Maximum Allowable Concentration | Exceedance | Nitrate       | Maximum Allowable Concentration | Exceedance |
|---------|---------------|---------------------------------|------------|---------------|---------------------------------|------------|
|         | Result (mg/L) | (mg/L)                          |            | Result (mg/L) | (mg/L)                          |            |
| Feb     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| May     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Aug     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Nov     | <0.006        | 1                               | No         | <0.003        | 10                              | No         |
| Average | <0.006        |                                 |            | <0.003        |                                 |            |
| Maximum | <0.006        |                                 |            | <0.003        |                                 |            |

3.3.6 Sodium (Schedule 13, Section 13-8)

One water sample is collected from each point of entry every 60 months and tested for Sodium. The Ontario Drinking Water Standards (ODWQS) have set a Maximum Acceptable concentration (MAC) of 200 mg/L for Sodium and requires the Medical Office of Health be notified if the concentration exceeds 20 mg/L. These samples were collected on June 21, 2016. Refer to **Table 11**. The next water sample for Sodium will be collected and analyzed on or before June 21, 2021.

3.3.7 Fluoride (Schedule 13, Section 13-9)

One water sample is collected from each point of entry at least once in every 60 months and tested for Fluoride. The Ontario Drinking Water Quality Standards (ODWQS) have set a MAC of 1.5 mg/L. On August 15, 2017, samples were collected for this analysis. All four samples exceeded the Maximum Allowable Concentration (MAC). This is due to naturally occurring fluoride in the aquifers. The next water samples for Fluoride will be collected and analyzed on or before August 15, 2022. Refer to **Table 11**.

**Table 11 – Sodium (Schedule 13, Section 13-8) and Fluoride (Schedule 13, Section 13-9) Results**

| Location         | Sodium        |  |            | Fluoride      |  |            |
|------------------|---------------|--|------------|---------------|--|------------|
|                  | Result (mg/L) | Maximum Allowable Concentration (mg/L) | Exceedance | Result (mg/L) | Maximum Allowable Concentration (mg/L) | Exceedance |
| Blairs Grove     | 101           | 20                                     | Yes        | 2.20          | 1.5                                    | Yes        |
| Huronville South | 52.7          | 20                                     | Yes        | 2.24          | 1.5                                    | Yes        |
| Murdock Glen     | 68.4          | 20                                     | Yes        | 2.14          | 1.5                                    | Yes        |
| Point Clark      | 19.8          | 20                                     | No         | 2.20          | 1.5                                    | Yes        |

3.3.8 Lead (Schedule 15.1)

Schedule 15.1 of Ontario Regulation 170/03 requires that samples be taken during two seasons: once between December 15 and April 15 and once between June 15 and October 15. The Lakeshore Drinking Water System is currently under a reduced sampling program for lead where lead, pH and alkalinity are sampled in each season every 3 years. In the interim, pH and alkalinity are tested during each sampling season. Two lead, pH and alkalinity samples were taken on March 29, 2017 and three lead, pH and alkalinity samples on September 18 and 19, 2017. These parameters are required to be sampled and analyzed again between the months of December 2017 and April 2018 and again between June and October 2018. Lead samples are required next in the 2020 sampling season. 2017 results can be found in **Table 12**.

**Table 12 -** Lead Sampling Program (Schedule 15.1) Results

| Season  | Alkalinity (mg/L) | pH   | Lead (mg/L) | Maximum Allowable Concentration - Lead (mg/L) | Exceedance |
|---------|-------------------|------|-------------|---|------------|
| Dec-Apr | 186               | 7.80 | 0.00043     | 0.010   | No         |
|         | 225               | 7.59 | 0.00035     |   | No         |
|         | 185               | 7.50 | 0.00015     |   | No         |
| Jun-Oct | 171               | 7.87 | 0.00034     | 0.010   | No         |
|         | 181               | 7.51 | 0.00028     |   | No         |
|         | 181               | 7.67 | 0.00015     |   | No         |

3.3.9 Non-Regulatory Testing – Aesthetic Objectives and Operational Guidelines

Samples were collected on November 21, 2016 and tested for parameters listed in the *MOECC Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines, June 2006, PIBS 4449e01*. Refer to **Table 12** for Aesthetic Objective/Operational Guideline results.

**Table 13 –** Aesthetic Objectives and Operational Guideline Results

| Parameter                               | AO/OG     | Blairs Grove Treated Water | Huronville South Treated Water | Murdock Glen Treated Water | Point Clark Treated Water |
|---|-----------|----------------------------|--------------------------------|----------------------------|---------------------------|
| pH                                      | 6.5 – 8.5 | 7.89                       | 8.10                           | 8.17                       | 8.07                      |
| Alkalinity (mg/L as CaCO <sub>3</sub> ) | 30 – 500  | 174                        | 156                            | 171                        | 190                       |
| Conductivity (µS/cm)                    | ---       | 1,720                      | 694                            | 771                        | 709                       |
| Colour (TCU)                            | 5         | 3<MDL                      | 3<MDL                          | 3<MDL                      | 7                         |
| Total Dissolved Solids (mg/L)           | 500       | 1,350                      | 494                            | 511                        | 534                       |
| Organic Nitrogen (mg/L)                 | 0.15      | 0.05<MDL                   | 0.05<MDL                       | 0.05<MDL                   | 0.05<MDL                  |
| Total Kjeldahl Nitrogen (mg/L)          | ---       | 0.05<MDL                   | 0.07                           | 0.05<MDL                   | 0.05<MDL                  |
| Ammonia + Ammonium (mg/L)               | ---       | 0.04<MDL                   | 0.04                           | 0.07                       | 0.05                      |
| Hydrogen Sulphide (mg/L)                | 0.05      | <0.006                     | <0.006                         | <0.006                     | <0.006                    |
| Sulphide (mg/L)                         | 0.05      | 0.006<MDL                  | 0.006<MDL                      | 0.006<MDL                  | 0.006<MDL                 |
| Chloride (mg/L)                         | 250       | 150                        | 18                             | 37                         | 13                        |
| Sulphate (mg/L)                         | 500       | 620                        | 170                            | 170                        | 170                       |
| Hardness (mg/L as CaCO <sub>3</sub> )   | 80 – 100  | 765                        | 237                            | 246                        | 308                       |
| Aluminum (µg/L)                         | 100       | 25.5                       | 1.0                            | 2.8                        | 3.3                       |
| Copper (µg/L)                           | 1000      | 0.08                       | 0.12                           | 5.80                       | 0.22                      |
| Iron (µg/L)                             | 300       | 581                        | 150                            | 102                        | 311                       |
| Manganese (µg/L)                        | 50        | 3.70                       | 2.02                           | 3.07                       | 4.11                      |
| Zinc (µg/L)                             | 5000      | 2                          | 4                              | 20                         | 4                         |



**Table 13 – Aesthetic Objectives and Operational Guideline Results - Continued**

| Parameter                       | AO/OG | Blairs Grove Treated Water | Huronville South Treated Water | Murdock Glen Treated Water | Point Clark Treated Water |
|---------------------------------|-------|----------------------------|--------------------------------|----------------------------|---------------------------|
| Dissolved Organic Carbon (mg/L) | 5     | 1<MDL                      | 1<MDL                          | 1<MDL                      | 1<MDL                     |
| Methane (L/m <sup>3</sup> )     | 3     | 0.02<MDL                   | 0.02<MDL                       | 0.02<MDL                   | 0.02<MDL                  |
| Ethylbenzene (µg/L)             | 2.4   | 0.33<MDL                   | 0.33<MDL                       | 0.33<MDL                   | 0.33<MDL                  |
| Toluene (µg/L)                  | 24    | 0.36<MDL                   | 0.36<MDL                       | 0.36<MDL                   | 0.36<MDL                  |
| Xylene (µg/L)                   | 300   | 0.43<MDL                   | 0.43<MDL                       | 0.43<MDL                   | 0.43<MDL                  |
| m/p-xylene (µg/L)               | ---   | 0.43<MDL                   | 0.43<MDL                       | 0.43<MDL                   | 0.43<MDL                  |
| o-xylene (µg/L)                 | ---   | 0.17<MDL                   | 0.17<MDL                       | 0.17<MDL                   | 0.17<MDL                  |

AO/OG – Aesthetic Objective / Operational Guideline

MDL – Laboratory Method Detection Limit

## 4.0 WATER AND CHEMICAL USAGE

### 4.1 Chemical Usage

In 2017, 1,830.37 kg of 12% sodium hypochlorite (NaOCl) was used to treat the water that was provided to the distribution system with an average dosage of 3.56 mg/L. During the same time period, 7,466.25 kg of undiluted sodium silicate (Na<sub>2</sub>SiO<sub>3</sub>) was used for iron sequestering. Refer to **Table 14** for sodium hypochlorite usage and **Table 15** for sodium silicate usage.

**Table 14 – Sodium Hypochlorite Usage**

| Month          | BLAIRS GROVE |                       | HURONVILLE SOUTH |                       | MURDOCK GLEN |                       | POINT CLARK |                       |
|----------------|--------------|-----------------------|------------------|-----------------------|--------------|-----------------------|-------------|-----------------------|
|                | Usage (kg)   | Average Dosage (mg/L) | Usage (kg)       | Average Dosage (mg/L) | Usage (kg)   | Average Dosage (mg/L) | Usage (kg)  | Average Dosage (mg/L) |
| Jan            | 13.46        | 3.81                  | 25.37            | 3.36                  | 6.17         | 4.13                  | 49.62       | 3.05                  |
| Feb            | 0.56         | 3.66                  | 24.11            | 3.51                  | 4.77         | 3.69                  | 61.11       | 3.16                  |
| Mar            | 1.12         | 8.82                  | 39.95            | 3.37                  | 5.89         | 3.71                  | 65.74       | 2.96                  |
| Apr            | 1.54         | 3.41                  | 28.31            | 3.30                  | 5.75         | 3.37                  | 78.63       | 2.85                  |
| May            | 9.25         | 3.05                  | 56.62            | 3.35                  | 17.52        | 3.25                  | 93.63       | 2.76                  |
| Jun            | 1.40         | 4.95                  | 73.86            | 3.36                  | 11.07        | 3.5                   | 100.35      | 2.97                  |
| Jul            | 0.98         | 4.54                  | 83.40            | 3.43                  | 14.02        | 3.59                  | 111.99      | 2.94                  |
| Aug            | 0.84         | 4.38                  | 109.04           | 3.62                  | 19.20        | 3.75                  | 130.91      | 3.10                  |
| Sep            | 1.26         | 7.16                  | 79.19            | 3.78                  | 10.09        | 3.92                  | 98.81       | 3.19                  |
| Oct            | 0.42         | 5.12                  | 46.11            | 3.89                  | 9.67         | 4.12                  | 108.34      | 3.45                  |
| Nov            | 1.12         | 8.82                  | 39.95            | 3.37                  | 5.89         | 3.71                  | 65.74       | 2.96                  |
| Dec            | 1.68         | 5.94                  | 33.36            | 3.61                  | 5.61         | 3.93                  | 76.95       | 3.00                  |
| <b>TOTAL</b>   | 33.63        | ---                   | 639.27           | ---                   | 115.65       | ---                   | 1,041.82    | ---                   |
| <b>Average</b> | 2.80         | 5.31                  | 53.27            | 3.50                  | 9.64         | 3.72                  | 86.82       | 3.03                  |

Sodium Hypochlorite Grand Total Usage: 1,830.37 kg

**Table 15 - Sodium Silicate Usage**

| Month          | BLAIRS GROVE |                       | HURONVILLE SOUTH |                       | MURDOCK GLEN |                       | POINT CLARK |                       |
|----------------|--------------|-----------------------|------------------|-----------------------|--------------|-----------------------|-------------|-----------------------|
|                | Usage (kg)   | Average Dosage (mg/L) | Usage (kg)       | Average Dosage (mg/L) | Usage (kg)   | Average Dosage (mg/L) | Usage (kg)  | Average Dosage (mg/L) |
| Jan            | 85.03        | 24.09                 | 36.24            | 4.80                  | 27.88        | 18.67                 | 316.44      | 19.48                 |
| Feb            | 2.79         | 18.24                 | 37.64            | 5.48                  | 20.91        | 16.20                 | 331.77      | 17.14                 |
| Mar            | 4.18         | 32.91                 | 65.52            | 5.52                  | 26.49        | 16.68                 | 387.53      | 17.44                 |
| Apr            | 11.15        | 24.72                 | 43.21            | 5.03                  | 30.67        | 17.99                 | 433.53      | 15.72                 |
| May            | 44.61        | 14.10                 | 92.00            | 5.44                  | 96.19        | 17.85                 | 448.87      | 13.22                 |
| Jun            | 4.18         | 14.77                 | 122.67           | 5.58                  | 55.76        | 17.62                 | 536.69      | 15.90                 |
| Jul            | 4.18         | 19.35                 | 153.34           | 6.3                   | 71.09        | 18.20                 | 637.06      | 16.74                 |
| Aug            | 2.79         | 14.53                 | 239.77           | 7.95                  | 96.19        | 18.8                  | 717.91      | 17.00                 |
| Sep            | 4.18         | 23.75                 | 143.58           | 6.85                  | 50.18        | 19.49                 | 532.51      | 17.17                 |
| Oct            | 1.39         | 16.95                 | 55.76            | 4.7                   | 44.61        | 19.02                 | 561.78      | 17.88                 |
| Nov            | 4.18         | 32.91                 | 65.52            | 5.52                  | 26.49        | 16.68                 | 387.53      | 17.44                 |
| Dec            | 5.58         | 19.72                 | 64.12            | 6.94                  | 27.88        | 19.55                 | 306.68      | 11.95                 |
| <b>TOTAL</b>   | 174.24       | ---                   | 1,119.37         | ---                   | 574.34       | ---                   | 5,598.30    | ---                   |
| <b>Average</b> | 14.52        | 21.34                 | 93.28            | 5.84                  | 47.86        | 18.06                 | 466.53      | 16.42                 |

**Sodium Silicate Grand Total Usage:**            7,466.26 kg

#### 4.2 Annual Volumes

A summary of the water supplied to the distribution system in 2017 is provided in **Table 16**. This Table provides a breakdown of the monthly volumes provided to the distribution system.

Flow meters were calibrated on July 11<sup>th</sup> and 17<sup>th</sup>, 2017 by Corix Water Meter Service and were found to be acceptable. The water meters will be calibrated again by July 2018.

**Table 16 – Treated Water Volume**

#### BLAIRS GROVE

| Month          | Avg Daily Volume (m <sup>3</sup> ) | Max Daily Volume (m <sup>3</sup> ) | Total Monthly Volume (m <sup>3</sup> ) |
|----------------|------------------------------------|------------------------------------|--|
| Jan            | 113.86                             | 725.94                             | 3,529.60                               |
| Feb            | 5.53                               | 33.68                              | 154.83                                 |
| Mar            | 3.93                               | 16.45                              | 121.84                                 |
| Apr            | 15.02                              | 398.80                             | 450.56                                 |
| May            | 97.73                              | 952.18                             | 3,029.70                               |
| Jun            | 9.13                               | 174.98                             | 273.75                                 |
| Jul            | 6.80                               | 20.39                              | 210.90                                 |
| Aug            | 10.68                              | 29.07                              | 192.23                                 |
| Sep            | 5.84                               | 24.22                              | 175.06                                 |
| Oct            | 4.99                               | 10.52                              | 84.88                                  |
| Nov            | 5.11                               | 26.18                              | 153.43                                 |
| Dec            | 8.84                               | 79.42                              | 274.07                                 |
| <b>TOTAL</b>   | ---                                | ---                                | <b>8,650.85</b>                        |
| <b>Average</b> | 23.96                              | ---                                | ---                                    |
| <b>Maximum</b> | ---                                | 952.18                             | ---                                    |
| <b>PTTW</b>    | ---                                | 2,621.00                           | ---                                    |

Table 16 – Treated Water Volume - Continued

**HURONVILLE SOUTH**

| Month        | Avg Daily Volume (m <sup>3</sup> ) | Max Daily Volume (m <sup>3</sup> ) | Total Monthly Volume (m <sup>3</sup> ) |
|--------------|------------------------------------|------------------------------------|--|
| Jan          | 233.72                             | 270.13                             | 7,245.31                               |
| Feb          | 240.71                             | 273.90                             | 6,739.81                               |
| Mar          | 378.19                             | 2,174.51                           | 11,723.83                              |
| Apr          | 285.08                             | 388.91                             | 8,552.28                               |
| May          | 538.09                             | 862.10                             | 16,680.74                              |
| Jun          | 733.27                             | 1,184.12                           | 21,998.09                              |
| Jul          | 785.18                             | 994.31                             | 24,340.70                              |
| Aug          | 965.75                             | 1,912.67                           | 29,938.36                              |
| Sep          | 701.46                             | 902.56                             | 21,043.82                              |
| Oct          | 370.69                             | 643.39                             | 11,491.25                              |
| Nov          | 293.94                             | 524.28                             | 8,818.18                               |
| Dec          | 297.48                             | 338.51                             | 9,221.90                               |
| <b>TOTAL</b> | ---                                | ---                                | <b>177,794.27</b>                      |
| Average      | 485.30                             | ---                                | ---                                    |
| Maximum      | ---                                | 2,174.51                           | ---                                    |
| PTTW         | ---                                | 3,927.74                           | ---                                    |

**MURDOCK GLEN**

| Month        | Avg Daily Volume (m <sup>3</sup> ) | Max Daily Volume (m <sup>3</sup> ) | Total Monthly Volume (m <sup>3</sup> ) |
|--------------|------------------------------------|------------------------------------|--|
| Jan          | 48.33                              | 147.35                             | 1,498.15                               |
| Feb          | 45.87                              | 150.82                             | 1,284.37                               |
| Mar          | 53.13                              | 160.31                             | 1,647.06                               |
| Apr          | 59.12                              | 132.68                             | 1,773.58                               |
| May          | 166.39                             | 272.98                             | 5,157.95                               |
| Jun          | 107.78                             | 196.76                             | 3,233.37                               |
| Jul          | 126.70                             | 156.51                             | 3,927.85                               |
| Aug          | 160.68                             | 567.88                             | 4,980.98                               |
| Sep          | 87.13                              | 193.81                             | 2,613.98                               |
| Oct          | 76.00                              | 313.16                             | 2,356.03                               |
| Nov          | 50.81                              | 129.23                             | 1,524.38                               |
| Dec          | 45.97                              | 73.55                              | 1,425.08                               |
| <b>TOTAL</b> | ---                                | ---                                | <b>31,422.78</b>                       |
| Average      | 85.66                              | ---                                | ---                                    |
| Maximum      | ---                                | 567.88                             | ---                                    |
| PTTW         | ---                                | 1,814.40                           | ---                                    |

Table 16 – Treated Water Volume - Continued

**POINT CLARK**

| Month          | Avg Daily Volume (m <sup>3</sup> ) | Max Daily Volume (m <sup>3</sup> ) | Total Monthly Volume (m <sup>3</sup> ) |
|----------------|------------------------------------|------------------------------------|--|
| Jan            | 558.51                             | 837.64                             | 17,313.79                              |
| Feb            | 695.54                             | 884.53                             | 19,475.10                              |
| Mar            | 719.74                             | 836.79                             | 22,311.81                              |
| Apr            | 930.25                             | 1,217.36                           | 27,907.57                              |
| May            | 1,076.27                           | 1,574.81                           | 33,364.51                              |
| Jun            | 1,137.06                           | 1,821.62                           | 34,111.89                              |
| Jul            | 1,228.86                           | 1,611.34                           | 38,094.67                              |
| Aug            | 1,350.83                           | 1,860.78                           | 41,875.67                              |
| Sep            | 1,047.35                           | 1,449.30                           | 31,420.37                              |
| Oct            | 997.76                             | 1,521.94                           | 30,930.67                              |
| Nov            | 788.98                             | 1,069.98                           | 23,669.23                              |
| Dec            | 838.82                             | 1,025.76                           | 26,003.33                              |
| <b>TOTAL</b>   | ---                                | ---                                | <b>346,478.61</b>                      |
| <b>Average</b> | 947.50                             | ---                                | ---                                    |
| <b>Maximum</b> | ---                                | 1,860.78                           | ---                                    |
| <b>PTTW</b>    | ---                                | 3,273.12                           | ---                                    |

| Location   | Total Volume for 2017           |
|--|---------------------------------|
| Blairs Grove                                       | 8,650.85                        |
| Huronville South                                   | 177,794.27                      |
| Murdock Glen                                       | 31,422.78                       |
| Point Clark  | 346,478.61                      |
| Grand Total Flow, Actual (m <sup>3</sup> )         | <b>564,346.51 m<sup>3</sup></b> |
| Grand Total Rated Capacity, PTTW (m <sup>3</sup> ) | 4,247,234.90 m <sup>3</sup>     |
| Operating Capacity, Actual %                       | 13.29%                          |

## 5.0 IMPROVEMENTS TO SYSTEM AND ROUTINE AND PREVENTATIVE MAINTENANCE

The following summarizes water system improvements and routine and preventative maintenance for the Lakeshore Drinking Water System Supply:

### Point Clark:

Routine and preventative maintenance performed as per Jobs Plus schedule.

January 2017: Control module failure - replaced by Eramosa

May 2017: Standpipe in Point Clark was drained and cleaned

July 2017: Data gap due to a clock sync

One (1) chlorine pump and two (2) sodium silicate pumps were replaced

August 2017: Flow checker on chlorine system was replaced

September 2017: New limit switch on HLP 2

October 2017: Watermain break on Tanglewood - galvanized Tee failed

### Blairs Grove:

Routine and preventative maintenance performed as per Jobs Plus schedule.

August 2017: Communications failures - replaced modem

September 2017: HuronTel having communications problems

October 2017: Breaker switch for well pump causing problems - sourcing out a replacement

Lurgan Beach watermain construction project - continued into December

## 5.0 IMPROVEMENTS TO SYSTEM AND ROUTINE AND PREVENTATIVE MAINTENANCE- Continued

### Murdock Glen:

Routine and preventative maintenance performed as per Jobs Plus schedule.

- April 2017: New diesel tank - volume 1,110 L
- May 2017: Diesel generator annual service
- September 2017: Overhead crane/hoist inspection
- October 2017: Back-flow preventer inspection

### Huronville South:

Routine and preventative maintenance performed as per Jobs Plus schedule.

- March 2017: Supply to Kincardine - 3,609 m<sup>3</sup>
- August 2017: Emergency supply to Kincardine due to PLC failure - 1,335 m<sup>3</sup>  
Over-heating of high lift pumps during emergency supply to Kincardine
- October 2017: Back-flow preventer removed

### All Sites:

Semi-annual flushing in April - May, and again October – November.

Valve turning during spring flushing.

- April-May 2017: Eramosa visited sites for SCADA system field audit
- June 2017: SCADA Field Audit Report delivered to Township
- July 2017: SCADA Field Audit review meeting with Eramosa
- October 2017: Eramosa delivers SCADA upgrade progress report
- November 2017: Eramosa visited sites with HVAC engineer

## 6.0 MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE INSPECTIONS AND REGULATORY ISSUES

- An MOECC Drinking Water Inspection was conducted on January 11, 2017 and awarded a rating of 99.40% (previous rating was 88.07%). Another Inspection was conducted on December 6, 2017 and is in-progress at the time of this report.
- Flow meter calibrations were conducted on July 11<sup>th</sup> and 17<sup>th</sup>, 2017.
- A list of Capital Items was submitted to the Township of Huron-Kinloss of October 31<sup>st</sup>, 2017.
- DWQMS Internal Audit was conducted on December 5<sup>th</sup> and 6<sup>th</sup>, 2017.
- Emergency Response Exercise was conducted on December 20<sup>th</sup>, 2017, and related to chemical spills around the wellhead.
- A 36-month Risk Assessment was completed on October 20, 2016. The annual review was not started until January 2018.

Two adverse water quality events occurred at the Lakeshore DWS during 2017:

- **AWQI # 135640:** August 18, 2017 - fluoride exceedances on the treated water at Point Clark, Blairs Grove, Murdock Glen, and Huronville South
- **AWQI # 135888:** August 24, 2018 - 1 Total Coliform was reported for the treated water at Murdock Glen. Resample was all clear.

## 7.0 REGULATORY CHANGES

Changes to Ontario Regulation 170/03 and Ontario Regulation 169/03 that strengthen standards and clarify testing requirements, new sampling and testing parameters, reporting and re-sampling requirements, and the removal of 13 pesticides came into effect January 1, 2016. These are:

- Strengthen standards for Carbon Tetrachloride, Benzene, and Vinyl Chloride;
- Adopt new standards for Chlorate, Chlorite, 1-Methyl-4-Chlorophenoxyacetic acid (MCPA) and Haloacetic Acids (HAAs); (NOTE: Chlorate and Chlorite testing is only required for Municipal Drinking Water Systems using Chlorine Dioxide treatment equipment.)
- Clarify/optimize testing, sampling and reporting requirements for Trihalomethanes (THMs) and HAAs; and
- Remove 13 pesticides from testing requirements.

Some of the aforementioned amendments have been phased in, and over the next few years, the following amendments will be added. Refer to **Table 17** for the new Regulatory Requirements. Subsequent phase-in dates are:

- January 1, 2018: Updates to standards for Arsenic come into effect / require reporting
- January 1, 2020: New standards for HAAs and HAAs testing optimization rule for smaller systems will come into effect / require reporting.

**Table 17 –** Regulatory Requirements

| Parameter            | Current Requirement |           | Amended Requirement |            |
|----------------------|---------------------|-----------|---------------------|------------|
|                      | MAC                 | ½ MAC     | *New MAC            | *New ½ MAC |
| Arsenic              | 25 µg/L             | 12.5 µg/L | 10 µg/L             | 5 µg/L     |
| Benzene              | 5 µg/L              | 2.5 µg/L  | 1 µg/L              | 0.5 µg/L   |
| Carbon Tetrachloride | 5 µg/L              | 2.5 µg/L  | 2 µg/L              | 1 µg/L     |
| Vinyl Chloride       | 2 µg/L              | 1 µg/L    | 1 µg/L              | 0.5 µg/L   |

## 7.1 ARSENIC REVIEW

Historic Arsenic values were reviewed from 2003 to 2015 and are shown in **Table 18**.

**Table 18 –** Historic Arsenic Values

| Date     | Blairs Grove (µg/L) | Huronville South (µg/L) | Murdock Glen (µg/L) | Point Clark (µg/L) |
|----------|---------------------|-------------------------|---------------------|--------------------|
| Feb 2003 | 3                   | <2                      | <2                  | 2                  |
| Jun 2003 | <2                  | <2                      | <2                  | 3                  |
| Jun 2006 | 1.2                 | 0.5                     | 1.2                 | 7.3                |
| Jan 2008 | 1.1                 | 0.8                     | 1.7                 | 5.2                |
| Jun 2009 | 3.3                 | 1.6                     | 2.7                 | 6.7                |
| Nov 2010 | 1.5                 | 0.7                     | 1.8                 | 5.6                |
| Dec 2010 | 3.7                 | 0.9                     | 2.1                 | 5.6                |
| Aug 2011 | 3.7                 | 0.9                     | 1.8                 | 5.5                |
| Nov 2011 | 3.7                 | 1.0                     | 1.9                 | 5.7                |
| Aug 2012 | 3.3                 | 0.6                     | 1.7                 | 5.2                |
| Nov 2012 | 1.5                 | 0.8                     | 2.0                 | 5.8                |
| Sep 2013 | 1.9                 | 0.7                     | 2.0                 | 5.5                |
| Nov 2013 | 1.4                 | 0.6                     | 1.7                 | 5.1                |
| Sep 2014 | 3.6                 | 0.6                     | 1.9                 | 5.9                |
| Dec 2014 | 0.5                 | 0.5                     | 1.7                 | 6.0                |
| Jun 2015 | 3.9                 | 0.4                     | 1.6                 | 5.5                |

### 7.1.1 ARSENIC SAMPLING IMPACT

A review of the sample results between 2003 and 2015 indicates that Arsenic may be in exceedance of the amended ½ MAC requirements at the Point Clark facility (highlighted in yellow). This would require quarterly sampling to be conducted (see note below).

Historic values of the other parameters (Benzene, Carbon Tetrachloride, and Vinyl Chloride), are all below the amended standards prescribed.

Arsenic testing will commence in the first quarter of 2018.

**NOTE:**

***O. Reg. 170/03, Schedule 13: Increased frequency under ss. 13-2 and 13-4***

*13-5. (1) If a test result obtained under section 13-2 or 13-4 for a parameter exceeds half of the standard prescribed for the parameter in Schedule 2 to the Ontario Drinking Water Quality Standards, the frequency of sampling and testing for that parameter under that section shall be increased so that at least one water sample is taken and tested every three months.*

### 8.0 WELL LEVELS

Each of the four sub-systems has a Permit To Take Water, which dictates the capacity in which each well supply is permitted to supply, as well as specific monitoring parameters. In addition to flow, well levels are taken on a monthly basis to monitor the performance of the aquifer. **Table 19** provides a summary of the well levels recorded for 2017.

**Table 19 -** Well Levels

| Month | Blairs Grove (m) | Huronville South (m) | Murdock Glen (m) | Point Clark Well 2 (m) | Point Clark Well 3 (m) |
|-------|------------------|----------------------|------------------|------------------------|------------------------|
| Jan   | 1.93             | 10.06                | 10.15            | 7.31                   | 7.92                   |
| Feb   | 2.11             | 10.06                | 8.95             | 7.01                   | 8.23                   |
| Mar   | 2.39             | 10.06                | 8.85             | 6.70                   | 7.62                   |
| Apr   | 2.39             | 10.36                | 8.75             | 7.31                   | 5.79                   |
| May   | 2.81             | 10.36                | 8.89             | 7.01                   | 7.62                   |
| Jun   | 2.11             | 10.36                | 8.95             | 7.92                   | 11.88                  |
| Jul   | 2.11             | 10.05                | 8.95             | 4.27                   | 7.62                   |
| Aug   | 1.76             | 10.97                | 9.45             | 10.06                  | 7.62                   |
| Sep   | 1.83             | 10.67                | 9.39             | 3.96                   | 7.62                   |
| Oct   | 2.11             | 10.67                | 9.30             | 7.31                   | 7.92                   |
| Nov   | 2.11             | 10.36                | 9.10             | 4.27                   | 7.31                   |
| Dec   | 2.11             | 10.06                | 8.85             | 3.96                   | 7.31                   |
| Min   | 1.76             | 10.05                | 8.75             | 3.96                   | 5.79                   |
| Max   | 2.81             | 10.97                | 10.15            | 10.06                  | 11.88                  |
| Avg   | 2.15             | 10.34                | 9.13             | 6.42                   | 7.87                   |