Membership Number: 2721
Laboratory Name: City of Hamilton Environmental Laboratory
Parent Institution: City of Hamilton
Address: 700 Woodward Avenue Hamilton ON L8H 6P4
Contact: Ms. Shannon Overholster
Phone: (905) 546-2424
Fax: (905) 545-0234
Email: Shannon.Overholster@hamilton.ca

Standard: Conforms with requirements of ISO/IEC 17025
Clients Served: Specified Clients
Revised On: September 17, 2019
Valid To: September 5, 2021

Scope of Accreditation

Biosolids (Inorganic)
Ammonia - Biosolids (046)
P-011-I-068; modified from EPA 350.1 and EPA 351.2 and SKALAR
AUTO COLOR
Ammonia

Biosolids (Inorganic)
Anions - Biosolids (044)
P-011-I-067, P-011-P-093; modified from EPA 300.0
ION CHROMATOGRAPHY
Nitrate
Nitrate plus Nitrite (calculation)
Nitrite

Biosolids (Inorganic)
Conductivity - Biosolids (078)
P-011-I-028; modified from ON MOECC E3530
PC TITRATE
Conductivity

Biosolids (Inorganic)
pH - Biosolids (055)
P-011-IM-042; modified from ON MOECC E3530 and SM 4500-H+ B
ION SELECTIVE ELECTRODE
pH

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
### Biosolids (Inorganic)

**Solids - Biosolids (073)**

- P-011-I-055; modified from SM 2540 G
  - **GRAVIMETRIC**
    - Total Solids (TS)
    - Total Volatile Solids (TVS)

### Biosolids (Inorganic)

**Total Kjeldahl Nitrogen (TKN) - Biosolids (042)**

- P-011-I-072; modified from EPA 351.2 and SKALAR and SM 4500-NORG D
  - **AUTO COLOR - DIGESTION**
    - Total Kjeldahl Nitrogen (TKN)

### Biosolids (Inorganic)

**Total Mercury - Biosolids (048)**

- P-011-I-060; modified from SM 3112 B
  - **COLD VAPOUR AA - DIGESTION**
    - Mercury

### Biosolids (Inorganic)

**Total Metals - Biosolids (043)**

- P-011-I-066, P-011-I-119; modified from EPA 200.7 and SM 3030 D and SM 3030 E and SM 3030 F and SM 3120 B
  - ICP
  - Aluminum
  - Antimony
  - Arsenic
  - Barium
  - Beryllium
  - Bismuth
  - Boron
  - Cadmium
  - Calcium
  - Chromium
  - Cobalt
  - Copper
  - Iron
  - Lead
  - Lithium
  - Magnesium
  - Manganese
  - Molybdenum
  - Nickel
  - Phosphorus
  - Potassium
  - Selenium
  - Silver
  - Sodium
  - Strontium
  - Sulphur (Sulfur)
  - Thallium
  - Tin
  - Titanium
  - Tungsten
  - Vanadium
  - Zinc

---

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at [http://www.cala.ca/cala_directories.html](http://www.cala.ca/cala_directories.html)
**Biosolids (Inorganic)**

**Total Metals - Biosolids (085)**
P-011-I-119, P-011-I-124; modified from EPA 200.8 and SM 3030 D and SM 3030 E and SM 3030 F and SM 3125

ICP/MS
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Selenium
Silicon
Silver
Sodium
Strontium
Thallium
Tin
Titanium
Uranium
Vanadium
Zinc

**Biosolids (Microbiology)**

Escherichia coli (E. coli) - Biosolids (071)
P-011-M-038; modified from ON MOECC E3433
MEMBRANE FILTRATION (mFC-BCIG)
Escherichia coli (E. coli)

**Biosolids (Microbiology)**

Escherichia coli (E. coli) - Biosolids (092)
MOST PROBABLE NUMBER (COLILERT)
Escherichia coli (E. coli)

**Water (Inorganic)**

Alkalinity - Water [Drinking, Wastewater] (013)
P-011-I-028, P-011-P-093; modified from SM 2320 B
PC TITRATE
Alkalinity (pH 4.5)
Bicarbonate Alkalinity (calculation)

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Carbonate Alkalinity (calculation)
Hydroxide alkalinity (calculation)
Phenolphthalein Alkalinity (calculation)

**Water (Inorganic)**

Ammonia - Water [Wastewater] (010)
P-011-I-068; modified from EPA 350.1 and EPA 351.2 and SKALAR
AUTO COLOR
Ammonia

**Water (Inorganic)**

Anions - Water [Wastewater] (007)
P-011-I-067, P-011-P-093; modified from EPA 300.0
ION CHROMATOGRAPHY
Bromide
Chloride
Nitrate
Nitrate plus Nitrite (calculation)
Nitrite
Sulfate

**Water (Inorganic)**

Biochemical Oxygen Demand (BOD) - Water [Wastewater] (003)
P-011-I-024; modified from SM 5210 B
D.O. METER
BOD (5 day)
CBOD (5 day)
CBOD (5 Day), dissolved
Dissolved Oxygen (DO)

**Water (Inorganic)**

Chemical Oxygen Demand (COD) - Water [Wastewater] (019)
P-011-I-025; modified from HACH 8000 and SM 5220 D
COLORIMETRIC
Chemical Oxygen Demand (COD), dissolved
COD

**Water (Inorganic)**

Chlorine - Water [Wastewater] (031)
P-011-I-080, P-011-P-093; modified from HACH 8021 and HACH 8167
COLORIMETRIC
Combined Chlorine (Calculation)
Free Chlorine
Total Chlorine

**Water (Inorganic)**

Colour - Water [Wastewater] (051)
P-011-I-081; modified from HACH 8025
SPECTROPHOTOMETRIC
Apparent Colour
True Colour

**Water (Inorganic)**

Conductivity - Water [Wastewater] (056)
P-011-I-028; modified from SM 2510 B
PC TITRATE
Conductivity (25°C)

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Water (Inorganic)
Cyanide - Water [Wastewater] (011)
P-011-I-073; modified from ON MOECC E3015 and SKALAR
AUTO COLOR
Cyanide, Free
Cyanide (SAD)

Water (Inorganic)
Dissolved Metals - Water [Wastewater] (006)
P-011-I-066, P-011-P-093; modified from EPA 200.7 and SM 2340 B and SM 3120 B
ICP
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Chromium
Cobalt
Copper
Hardness (calculation)
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Selenium
Silver
Sodium
Strontium
Sulphur (Sulfur)
Thallium
Tin
Titanium
Tungsten
Vanadium
Zinc
Zirconium

Water (Inorganic)
Dissolved Metals - Water [Wastewater] (084)
P-011-I-124, P-011-P-093; modified from EPA 200.8 and SM 2340 B and SM 3125
ICP/MS
Aluminum
Antimony
Arsenic
Barium
Beryllium

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Bismuth
Boron
Cadmium
Calcium
Chromium
Cobalt
Copper
Hardness (calculation)
Iron
Lead
Magnesium
Manganese
Molybdenum
Nickel
Potassium
Selenium
Silicon
Silver
Sodium
Strontium
Thallium
Tin
Titanium
Total Phosphorus
Uranium
Vanadium
Zinc
Zirconium

**Water (Inorganic)**

Fluoride - Water [Wastewater] (057)
P-011-I-094; modified from SM 4500-F-C
PC TITRATE

Fluoride

**Water (Inorganic)**

Oil and Grease - Water [Wastewater] (015)
P-011-O-026, P-011-P-093; modified from EPA 1664
GRAVIMETRIC - EXTRACTION

Mineral Oil and Grease
Total Oil and Grease
Vegetable Oil and Grease (Calculation)

**Water (Inorganic)**

Organic Carbon - Water [Wastewater] (030)
P-011-I-075; modified from SKALAR and SM 5310 C
AUTO COLOR

Organic Carbon

**Water (Inorganic)**

pH - Water [Wastewater] (016)
P-011-IM-042; modified from SM 4500-H+B
ISE
pH

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Water (Inorganic)
pH - Water [Wastewater] (058)
P-011-I-028; modified from SM 4500-H+ B
PC TITRATE
pH

OSDWA †

Water (Inorganic)
Phenols - Water [Wastewater] (012)
P-011-I-037; modified from EPA 420.2 and SKALAR and SM 5530 A
AUTO COLOR
Total Phenolics

OSDWA †

Water (Inorganic)
Phosphate - Water [Drinking, Wastewater] (088)
P-011-I-126; modified from HACH 10209
COLORIMETRIC
Phosphate

OSDWA †

Water (Inorganic)
Reactive Silica - Water [Wastewater] (028)
P-011-I-069; modified from SKALAR and SM 4500-SIO2 E
AUTO COLOR
Reactive Silica

OSDWA †

Water (Inorganic)
Solids - Water [Wastewater] (002)
P-011-I-027, P-011-I-055, P-011-I-056; modified from SM 2540 B and SM 2540 C and SM 2540 D and SM 2540 E and SM 2540 G
GRAVIMETRIC
Total Dissolved Solids
Total Solids (TS)
Total Suspended Solids
Total Volatile Solids (TVS)
Volatile Suspended Solids

OSDWA †

Water (Inorganic)
Temperature - Water [Wastewater] (050)
P-011-I-028; modified from SM 2550 B
PC TITRATE THERMOMETER
Temperature

OSDWA †

Water (Inorganic)
Total and Dissolved Mercury - Water [Wastewater] (017)
P-011-I-060; modified from SM 3112 B
COLD VAPOUR AA - DIGESTION
Mercury

OSDWA †

Water (Inorganic)
Total Kjeldahl Nitrogen (TKN) - Water [Wastewater] (008)
P-011-I-072, P-011-P-093; modified from EPA 351.2 and SKALAR and SM 4500-NORG D
AUTO COLOR - DIGESTION
Dissolved Kjeldahl Nitrogen
Organic Nitrogen (calculation)
Total Kjeldahl Nitrogen

OSDWA †

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td></td>
</tr>
<tr>
<td>Antimony</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td></td>
</tr>
<tr>
<td>Barium</td>
<td></td>
</tr>
<tr>
<td>Beryllium</td>
<td></td>
</tr>
<tr>
<td>Bismuth</td>
<td></td>
</tr>
<tr>
<td>Boron</td>
<td></td>
</tr>
<tr>
<td>Cadmium</td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
<td></td>
</tr>
<tr>
<td>Cobalt</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td></td>
</tr>
<tr>
<td>Hardness</td>
<td>(calculation)</td>
</tr>
<tr>
<td>Iron</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td></td>
</tr>
<tr>
<td>Lithium</td>
<td></td>
</tr>
<tr>
<td>Magnesium</td>
<td></td>
</tr>
<tr>
<td>Manganese</td>
<td></td>
</tr>
<tr>
<td>Molybdenum</td>
<td></td>
</tr>
<tr>
<td>Nickel</td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td></td>
</tr>
<tr>
<td>Potassium</td>
<td></td>
</tr>
<tr>
<td>Selenium</td>
<td></td>
</tr>
<tr>
<td>Silver</td>
<td></td>
</tr>
<tr>
<td>Sodium</td>
<td></td>
</tr>
<tr>
<td>Strontium</td>
<td></td>
</tr>
<tr>
<td>Sulphur</td>
<td>(Sulfur)</td>
</tr>
<tr>
<td>Thallium</td>
<td></td>
</tr>
<tr>
<td>Tin</td>
<td></td>
</tr>
<tr>
<td>Titanium</td>
<td></td>
</tr>
<tr>
<td>Tungsten</td>
<td></td>
</tr>
<tr>
<td>Vanadium</td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
<td></td>
</tr>
<tr>
<td>Zirconium</td>
<td></td>
</tr>
</tbody>
</table>

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Chromium
Cobalt
Copper
Hardness (calculation)
Iron
Lead
Magnesium
Manganese
Molybdenum
Nickel
Potassium
Selenium
Silicon
Silver
Sodium
Strontium
Thallium
Tin
Titanium
Total Phosphorus
Uranium
Vanadium
Zinc
Zirconium

**Water (Inorganic)**

Turbidity - Water [Wastewater] (020)

P-011-I-074; modified from ASTM D7315 and SM 2130 B

**METER**

Turbidity

**Water (Inorganic)**

UV Transmittance - Water [Wastewater] (066)

P-011-I-101; modified from HACH 10054 and SM 5910 B

**UV SPECTROPHOTOMETRIC**

Absorbance at 254 nm

Percent Transmittance

**Water (Inorganic)**

Volatile Acids - Water [Wastewater] (080)

P-011-I-115; modified from HACH 10240

**ESTERIFICATION/COLORIMETRIC**

Volatile acids

**Water (Microbiology)**

Activated Sludge Counts - Water [Wastewater] (036)


**MICROSCOPY**

Filamentous Bacteria Identification and Count

Floc Characteristics

Protozoa Identification and Count

**Water (Microbiology)**

Coliforms - Water [Wastewater] (004)

P-011-M-038; modified from ON MOECC E3407

**MEMBRANE FILTRATION (DC-AGAR)**

Background Counts

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Escherichia coli
Total Coliforms

**Water (Microbiology)**
Coliforms - Water [Wastewater] (090)
P-011-M-129; modified from SM 9223
PRESENCE/ABSENCE (COLILERT)
Escherichia coli
Total Coliforms

**Water (Microbiology)**
Coliforms - Water [Wastewater] (091)
P-011-M-130; modified from SM 9223
MOST PROBABLE NUMBER (COLILERT)
Escherichia coli
Total Coliforms

**Water (Microbiology)**
Escherichia coli (E. coli) - Water [Wastewater] (063)
P-011-M-038; modified from ON MOECC E3371
MEMBRANE FILTRATION (mFC-BCIG)
Escherichia coli

**Water (Microbiology)**
Heterotrophic Plate Count (HPC) - Water [Wastewater] (064)
P-011-M-038; modified from ON MOECC E3408 and SM 9215 A and SM 9215 D
MEMBRANE FILTRATION
Heterotrophic Plate Count (HPC)

**Water (Microbiology)**
Microcystins - Water (081)
P-011-M-118; modified from ON MOECC E3469
ELISA
Microcystins

**Water (Organic)**
Geosmin and 2-Methylisoborneol (MIB) - Water (087)
P-011-O-125; modified from SM 6040 D
GC/MS - SOLID PHASE MICRO EXTRACTION
2-Methylisoborneol (MIB)
Geosmin

**Water (Organic)**
Semi-Volatile Organic Compounds (SVOC) - Water [Wastewater] (082)
P-011-O-122, P-011-P-093; modified from ON MOECC E3186 and SM 6410
GC/MS/MS - EXTRACTION
1-Methylnaphthalene
2-Methylnaphthalene
7H-Dibenzo(c,g)carbazole
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b,j)fluoranthene
Benzo(e)pyrene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Bis(2-ethylhexyl) phthalate (dioctyl phthalate)

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Chrysene
Di-n-butyl phthalate
Dibenzo(a,h)anthracene
Dibenzo(a,i)pyrene
Dibenzo(a,j)acridine
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene
Open Characterization (uncalibrated peaks)
Perylene
Phenanthrene
Pyrene
Total PAHs (calculation)
Total PCB

**Water (Organic)**

Total Petroleum Hydrocarbons (TPH) - Water [Wastewater] (054)
P-011-O-049; modified from ON MOECC E3186 and ON MOECC E3421
GC/MS - EXTRACTION
TPH Cold Extractable (Diesel Range Organics)

**Water (Organic)**

Volatile Organic Compounds (VOC) - Water [Wastewater] (014)
P-011-O-046, P-011-P-093; modified from ON MOECC E3144
GC/MS - PURGE AND TRAP
1,1-Dichloroethane
1,1-dichoroethylene
1,1,1-Trichloroethane
1,1,1,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
1,2-dichlorobenzene
1,2-dichloroethane
1,2-Dichloropropane
1,3-Dichlorobenzene
1,4-dichlorobenzene
Acetone (2-Propanone)
Benzene
Bromodichloromethane
Bromoform
Bromomethane
Carbon tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane (Ethyl Chloride)
Chloroform
Chloromethane (Methyl chloride)
cis-1,2-Dichloroethylene
cis-1,3-Dichloropropene
Dichloromethane
Ethylbenzene
Ethylene Dibromide
m,p-Xylene
Methyl Ethyl Ketone

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html
Methyl isobutyl ketone (MIBK)
Methyl t-butyl ether
o-Xylene
Open Characterization (uncalibrated peaks)
Purgeable Total Petroleum Hydrocarbons (TPH-Gas), C5-C10
Styrene
Tetrachloroethylene
Toluene
Total Trihalomethanes (TTHM) (calculation)
Total Xylenes (calculation)
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene
Trichloroethylene
Trichlorofluoromethane
Vinyl chloride

Water/Wastewater
Algae - Water [Wastewater] (089)
P-011-M-123; modified from ALGAE: SOURCE TREATMENT, AWWA M57 and STREAM PERiphyton MONITORING MANUAL, NZ MOE MICROSCOPY
Algae and Cyanobacteria

† “OSDWA” indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario “Safe Drinking Water Act” (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html