3.0 Lab Analysis

Because certain Class "A" Licensees have their own analytical laboratory and others rely on commercial laboratories, this section of the Guidelines is divided accordingly.

3.1 Outside Laboratories

3.1.1 Lab Accreditation

The Licensee will identify in the plan the name of the commercial laboratory that will be conducting the analyses. A letter must be provided from the commercial lab indicating that they are accredited to conduct analyses on each of the required sampling parameters. Ideally, the lab should be accredited by the Canadian Associated for Environmental Analytical Laboratories (C.A.E.A.L.) and should provide a certificate stating parameters for which they are accredited.

3.1.2 Detection Limits

Detection limits for the commercial lab should be identified for all parameters and should be reported when any SNP data is submitted.

3.1.3 Methodology

Descriptions should be included for any methods of analysis used that are not outlined in "Standard Methods for the Examination of Water and Wastewater".

3.2 In House Laboratories

3.2.1 Identification of Analytical Laboratory/Detection Limits

Licensees using in-house labs shall identify their detection limits for all parameters and report them when any SNP data is submitted. The Licensee shall also identify the commercial lab they use to check for quality control.

3.2.2 For Overall Analytical Methods, Precision and Accuracy

The plan must describe how the Licensee will ensure precision and accuracy in their analytical methods. This includes what action will be taken if any sample results are found to be outside the appropriate ranges.

All analyses should be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater" or by other approved methods. In addition, the lab should analyze standard reference material for each parameter measured. For each parameter (group) to be measured, a complete description of the sampling procedure must be documented and adhered to.

If any sample results are outside the appropriate QA/QC ranges, attempts should be made to correct the problem and the sample shall be immediately re-analyzed. If any analysis indicates a violation of a licence condition, an Inspector shall be notified of the violation, any corrective action taken, and the results of retests.

3.2.3 Accuracy Requirements

The plan should document how the Licensee will go about

ensuring accuracy in the laboratory. Accuracy is the measurement of how closely a value approximates a standard, or true value. The Licensee should identify the frequency at which certified or reference standards will be analyzed during each sampling period.

3.2.4 Precision Requirements

Precision is a measure of the closeness or repeatability of a set of values. This section will describe how and when replicate samples are taken to ensure lab precision. It is recommended that the Licensee take triplicates at one SNP station during each sampling period. If daily sampling is required at only one station, a duplicate sample should be taken each time, with a triplicate sample taken one a week.

3.2.5 Methodology

Descriptions should be included of any methods of analysis that are not taken from "Standard Methods for the Examination of Waste and Wastewater." Standard methods should be referenced.

4.0 Reporting Requirements

4.1 General Submission

The QA/QC plan will contain a section outlining what information will be reported in the monthly SNP reports. Any control charts or graphs which display the precision and accuracy of the methods used to analyze the samples should be submitted with the report. This includes warning and control limits used to determine acceptability of the data.

4.2 Outside Laboratories

The Licensee shall outline the number of replicate samples that will be collected and submitted with each SNP report. It is recommended that one set of duplicates or triplicates from an assigned SNP site, as well as the results from field blanks, be submitted with each required SNP report. This would serve as an internal/external check for the Licensee and the commercial lab.

4.3 In-House Laboratories

The Licensee shall outline the number of results from replicate samples that will be included with each required SNP report. It is recommended that two duplicate sets be collected per month at an assigned SNP site, with one set being sent to a commercial lab while the other is to be analyzed by the Licensee's lab. Analytical results from both labs should be submitted with each required SNP report. This would serve as an external check for the lab. Any results from a commercial lab should be presented on the lab's letterhead.

FOR FURTHER INFORMATION, CONTACT THE WATER RESOURCES DIVISION AT:

Box 1500
Yellowknife, NWT
X1A 2R3
(867) 669-2654 Phone
(867) 669-2716 Fax

Appendix 1
Table 1: General Summary of Special Sampling or Handling Techniques

Determination	Container	Minimum Sample Size (ml)	Preservation	Maximum Storage Recommended
BOD	Sterile polyethylene	1000	Refrigerate 4°C	24 hours
Conductivity	Polyethylene	500	Refrigerate 4°C	28 days
Total Cyanide	Polyethylene	500	Add NaOH to raise pH>12 refrigerate in dark	24 hours
Hardness	Polyethylene	100	Add Conc. HNO_3 to lower pH<2 OR (*) unpreserved	6 months
Metals, General	Polyethylene	250	For dissolved metals filter immediately, add Conc. $HN0_3$ to pH<2	6 months
Mercury	Glass (rinsed with 1 + 1 HNO_3)	500	Add Conc. HNO_3 or pH<2 or H_2SO_4 + 1 ml of 5% $K_2Cr_2O_7$, refrigerate 4°C	28 days
Nitrogen:				
Ammonia	Polyethylene	500	Analyze as soon as possible or add H_2S0_4 to pH<2, refrigerate OR (*) unpreserved	7 days
Nitrate	Polyethylene	100	Analyze as soon as possible or refrigerate	48 hours
Oil and Grease	Glass or wide-mouth calibrated	1000	Add H_2S0_4 to pH<2, refrigerate	28 days
pH	Polyethylene	--	Analyze immediately	2 hours
Suspended Solids	Polyethylene	--	Refrigerate	7 days
Temperature	Polyethylene	--	Analyze immediately	0
Turbidity	Polyethylene	--	Analyze same day; store in dark up to 24 hours, refrigerate	24 hours
Bacteria	Polyethylene (sterilized)	--	None: Keep cool	6 - 48 hours

(*) Unpreserved = check with lab that will be analyzing the samples

Appendix 2

References:

Gilbert, Andrew (1993). "Echo Bay Mines Ltd. Environmental Laboratory Quality Assurance Plan".

Soniassy, R. (1980). "A Guide for the Collection of Water and Effluent Samples"; pp 1-16; INAC

"Standard Methods for the Examination of Water and Wastewater" (1989); AHPA, AWWA and WPCF, 17th edition.

Water Resources Division, Indian and Northern Affairs Canada (1990). "Generic Quality Assurance (QA) Plan Guidelines for Use by the Licensees in Meeting SNP Requirements for Submission of a QA Plan"; INAC.

Appendix B

Example Forms

CHAIN OF CUSTODY RECORD

ACCUTEST LABORATORIES LTD.
☑ 146 Colonnade Rd., Unit 8
Ottawa, ON K2E 7Y1
Ph: (613) 727-5692 Fax: (613) 727-5222

☐ 608 Norris Court
Kingston, ON K7P 2R9
Ph: (613) 634-9307 Fax: (613) 634-9308

LABORATORY USE ONLY
Report #: _____

Company Name:	Address:	☐ Fax Results to: _____
Report Attention:	City/Prov: Postal Code:	☐ E-mail Results to: _____
Phone: Ext	Project # * Quotation #	☐ Copy of Results to: _____
* Waterworks Name:	* Waterworks Number:	*Note that for drinking water samples, all exceedances will be reported where applicable legislation requires.*

Invoice to:
(if different from above)

_____

_____

SAMPLE ANALYSIS REQUIRED

⇦ Indicate: F=Filtered or P=Preserved

Sample ID	* Date/Time Collected	Sample Matrix i.e. Water, Soil, Paint	* Sample Type (see "Codes" below)	* MOE Reportable? Y = Yes N = No	# of Containers	** Service Required R=Rush S=Standard								Criteria Required (i.e. Reg.170, Reg.153, CCME, PWQO etc.)	Laboratory Identification

Sample Type Codes for Drinking Water Systems: **RW** = Raw Water, **RWFC** = Raw Water For Consumption, **TW** = Treated Water at point of entry to distribution, **DW** = Distribution/Plumbing Water
"MOE Reportable" refers to the requirements under the SDWA for immediate reporting of results, which are indicators of adverse water quality, to the Owner/Operator, MOE, and MOH Medical Officer.

Sampled By:	Date/Time:	Relinquished By:	Date/Time:	Comments	**Cooler Temp (°C) on Receipt**
Work Authorized By (signature):	Date/Time:	Received By Lab:	Date/Time:		

*** Indicates a required field.** If not complete, analysis will proceed only on verification of missing information. A quotation number is required, if one was provided.
**** There may surcharges applied to "Rush" service.** Please check with lab prior to submission of samples for rush analysis to confirm availability and pricing.

Copies: White – Sampler, Yellow – Laboratory, Pink – With Report
Please print and submit, to the laboratory, 2 copies of this form with your samples.

Appendix C

Analytical Laboratory Accreditation

Appendix C

Reference Methods

All methodology to be used in the laboratory will be based on industry accepted standard methods as available in but not limited to the following sources:

- "Standard Methods for the Examination of Water and Wastewater" APHA,
- "Official Methods of Analysis" AOAC
- United States Environmental Protection Agency, 500,600 series, SW-846 etc.
- Ontario Ministry of Environment and Energy, MOEE
- Ontario Ministry of Agriculture and Food, OMAF
- Quebec Ministry of Environment, MENVIQ
- Canadian Standards Association, CSA
- American Society of Testing Materials, ASTM
- As well as any other official sources as required for specific analyses.

All references will be the most current available for the particular test. All SOPs will contain a reference to one of the above sources wherever possible. Any methods developed in house or by an outside agency (supplier) will be clearly marked as such.

We are currently adding ultra low level detection of metals to our scope of accreditation. **The following are the references in the new method :**

EPA Method 200.8, "Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma - Mass Spectrometry" (final acid concentration of standards and samples is higher),

EPA Method 6020, "Inductively Coupled Plasma - Mass Spectrometry" (Acid concentrations used may vary),

ThermoFisher iCAP Q -MS Instruction Manual

Accreditation and Certification:

Ottawa:

The Ottawa location is accredited by CALA (Canadian Association for Laboratory Accreditation Inc.) for testing of environmental parameters in water and soil (see CALA scope of accreditation for specific parameters –Lab registration # 2602).

Agricultural soil and plant tissue parameters are accredited under OMAFRA (Ontario Ministry of Agriculture, Food and Rural Affairs) Agronomic Lab Accreditation Program.

Manure parameters are accredited through the MAP (Minnesota Department of Agriculture) certification program.

We are licensed to test drinking water for specific parameters under the MOE (Ministry of the Environment of Ontario) Certificate of Drinking Water Testing License (see license for parameters).

Locations wordwide:

We operate in accordance with applicable national and international standards. Where appropriate, our laboratories comply with ISO/IEC 17025, the international standard against which the competence of testing and calibration laboratories is assessed. In addition, we hold EN 45011 (ISO/IEC Guide 65) and ISO/IEC 17020 for the certification and inspection services we provide.

Our testing, calibration, certification and inspection services are accredited through the National Accreditation Bodies of the various countries in which we operate, including:

- the United Kingdom Accreditation Service (UKAS);
- the American Association for Laboratory Accreditation (A2LA);
- the Swedish Board for Accreditation and Conformity Assessment (SWEDAC); and
- the Irish National Accreditation Board (INAB).
- Standards Council of Canada (SCC)

These Bodies are signatories to bilateral and multilateral recognition agreements ensuring international acceptance of the results generated by our laboratories, important in today's global marketplace.

- American Association for Laboratory Accreditation (A2LA)
- Belgian Accreditation Body (BELAC)
- Comité Français d'Accréditation (COFRAC)
- Danish Accreditation & Metrology Fund (DANAK)
- Deutsche Akkreditierungsstelle (DAkkS)
- Finnish Accreditation Service (FINAS)
- International Accreditation Service (IAS)
- Irish National Accreditation Board (INAB)
- Italian Accreditation Body (ACCREDIA)
- Laboratory Accreditation Bureau (L-A-B)
- National Association of Testing Authorities (NATA)
- Norsk Akkreditering (NA)
- RAAD VOOR ACCREDITATIE (RvA)
- Singapore Amalgamated Services Co-operative Organisation Ltd (SASCO)
- Standards Council of Canada (SCC)
- Swedish Board for Accreditation & Conformity Assessment (SWEDAC)
- United Kingdom Accreditation Service (UKAS)

Regulatory approval of our pharmaceutical laboratories is through the U.S. Food and Drug Administration (FDA); the UK Medicines and Healthcare products Regulatory Agency (MHRA), Health Canada and the Irish Medicines Board (IMB).

Regulatory approval of our Aerospace laboratories is through Nadcap who, in their own words, is the leading worldwide cooperative program of major companies designed to manage a cost-effective consensus approach to special processes and products and provide continual improvement within the aerospace industry.

Achieving and maintaining Nadcap approval in accordance with their very stringent requirements represents major on-going attainment and provides our customers with an assurance they can confidently depend. Exova holds Nadcap approval for metals and composite materials testing, NDT, chemical processing and aerospace quality systems.

CERTIFICATE OF ACCREDITATION

Standards Council of Canada
Conseil canadien des normes

CERTIFICAT D'ACCRÉDITATION

Exova Canada Inc.
LABORATOIRE DE QUEBEC
237 rue de Liverpool, Saint-Augustin-de-Desmaures, Québec, G3A 2C8

having been assessed by the Bureau de normalisation du Québec (BNQ), under the authority of the Standards Council of Canada (SCC), and found to conform with the requirements of ISO/IEC 17025:2005 (CAN-P-4E), and the conditions for accreditation established by the SCC is hereby recognized as an

ACCREDITED TESTING LABORATORY

ayant été soumis à une évaluation par le Bureau de normalisation du Québec (BNQ), sous l'autorité du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences d'ISO/CEI 17025:2005 (CAN-P-4E) et aux conditions établies par le CCN, est de fait reconnu comme étant un

LABORATOIRE D'ESSAIS ACCRÉDITÉ

BNQ
BUREAU DE NORMALISATION DU QUÉBEC

for the specific tests or types of tests listed in the scope of accreditation approved by SCC and found on the SCC website at www.scc.ca.

pour les essais ou types d'essais énumérés dans la portée d'accréditation approuvée par le CCN et figurant dans le site web du CCN au www.ccn.ca.

Accredited laboratory number: / Numéro de laboratoire accredité : 457

Accreditation date: / Date d'accréditation : 2002-08-01

Issued on: / Délivré le : 2012-04-19

Expiry date: / Date d'expiration : 2014-08-01

This certificate is valid until the date of expiration unless suspended, withdrawn or superseded by the SCC. / Le présent certificat est valide jusqu'à la date d'expiration, à moins qu'il ne soit suspendu, retiré ou remplacé par le CCN.

Chief Executive Officer / Directeur général

To verify the validity of this certificate, please see the Directory of Accredited clients on www.scc-ccn.ca.

Pour vérifier la validité du certificat, veuillez consulter le Répertoire des clients accrédités au www.ccn-scc.ca.

Canada

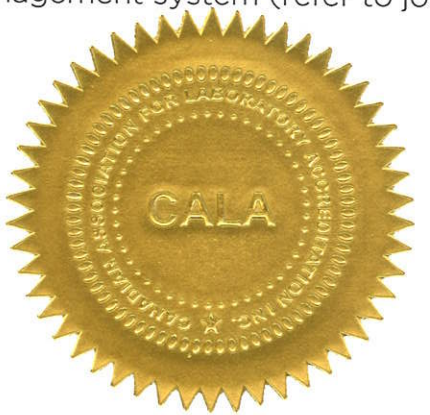
Canadian Association for Laboratory Accreditation Inc.

CALA

Certificate of Accreditation

Exova Accutest - Ottawa Laboratory
Exova Canada Inc.
Unit 8
146 Colonnade Road
Ottawa, Ontario

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).



Accreditation No.: A2602
Issued On: February 27, 2013
Accreditation Date: January 3, 2005
Expiry Date: August 28, 2015

President & CEO

ilac-MRA CALA

CALA
Canadian Association for Laboratory Accreditation Inc.

CALA Directory of Laboratories

Membership Number: 2602
Laboratory Name: Exova- Ottawa Laboratory
Parent Institution: Exova Canada Inc.
Address: Unit 8 146 Colonnade Road Ottawa ON K2E 7Y1
Contact: Mr. Ewan McRobbie
Phone: (613) 727-5692
Fax: (613) 727-5222
Email: ewan.mcrobbie@exova.com

Standard: Conforms with requirements of ISO/IEC 17025
Clients Served:
Revised On: May 1, 2013
Valid To: August 28, 2015

Scope of Accreditation

Oil (Organic)
Total PCBs - Oil (024)
AMPCBOE5; modified from EPA SW 846-8082, SW 846-3580 A
GC/ECD - SOLVENT DILUTION/DIRECT INJECTION
Total PCB

Soil (Inorganic)
Hexavalent Chromium - Soil (109)
AMCRVIE2; modified from EPA SW-846 3060A
FLAME AA - EXTRACTION
Hexavalent Chromium

Solids (Inorganic)
Alkali Metals - Soil (117)
AMAMFAE8, AMMARDE 2; modified from SM 3111 B
AA FLAME - DIGESTION
Calcium
Magnesium
Potassium
Sodium

Solids (Inorganic)
Anions - Soil (111)
AMEXTNA 2, AMN023E1; modified from 33-3 METHODS OF SOIL ANALYSIS
AUTO COLOR - EXTRACTION
Nitrate
Nitrite

† "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

Solids (Inorganic)
Chloride, Water Soluble- Soil (110)
AMCLRE8; modified from CSA A23.3-4B
ISE TITRATION
Chloride, water soluble

Solids (Inorganic)
Conductivity - Soil (114)
AMPHCNX2; modified from 84-003, ANALYTICAL METHODS MANUAL, AGRICULTURE CANADA, 1984
CONDUCTIVITY METER
Conductivity

Solids (Inorganic)
Mercury - Soil (023)
AMHGDAE2; modified from EPA 1631
COLD VAPOUR AA - DIGESTION
Mercury

Solids (Inorganic)
Metals - Soil (035)
AMMICPE8; modified from EPA 3050 B, SM 3120
ICP/AES - DIGESTION
Aluminum
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Cobalt
Copper
Iron
Lead
Manganese
Molybdenum
Nickel
Strontium
Vanadium
Zinc

Solids (Inorganic)
Metals - Soil (112)
AMEBORE2, AMMICPE8; modified from MOE E3062 AND E3073
HOT WATER EXTRACTION
Boron

Solids (Inorganic)
Metals - Soil, Solids (092)
AMMIMPE1; modified from EPA 200.8, EPA 6020, EPA 3050 B
ICP/MS - DIGESTION
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Cadmium

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Chromium
Cobalt
Copper
Iron
Lead
Manganese
Molybdenum
Nickel
Selenium
Silver
Strontium
Thallium
Tin
Uranium
Vanadium
Zinc

Solids (Inorganic)
Moisture - Soil (094)
AM CCME2; modified from ASTM 2216-05 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
GRAVIMETRIC
% Moisture

Solids (Inorganic)
pH - Soil (113)
AMPHCNX2; modified from 12-2.6 METHODS OF SOIL ANALYSIS, AMERICAN SOCIETY OF AGRONOMY INC., 1982
pH METER
pH
pH (buffer)
pH (CaCl2)

Solids (Inorganic)
Total Cyanide - Soil (104)
AMCNTDE1; modified from MOE CN-E3015
AUTO COLOR
Cyanide (total)

Solids (Inorganic)
Total Kjeldahl Nitrogen (TKN) - Soil, Sediment, Sludge (090)
AMTKNHX8; modified from SECTION 31 - METHODS OF SOIL ANALYSIS, PART 2, AMERICAN SOCIETY OF AGRONOMY INC., 1982.
DISTILLATION - TITRIMETRIC
Total Kjeldahl Nitrogen (as N)

Solids (Inorganic)
Total Phosphorus - Soil, Sediment, Sludge (089)
AMTPHIE8; modified from 84-016, ANALYTICAL METHODS MANUAL, LAND RESOURCE RESEARCH INSTITUTE, AGRICULTURE CANADA, 1984
COLORIMETRIC - DIGESTION
Total Phosphorus

Solids (Microbiology)
Escherichia coli (E. coli) - Soil, Sediment, Sludge (091)
AMBCOLM1; modified from KINGSTON MOE LABORATORY PROCEDURE FOR THE BACTEROLOGICAL ANALYSIS OF SEDIMENT SAMPLES BY MEMBRANE FILTRATION, A. LEY, MOE KINGSTON.
MEMBRANE FILTRATION (mFC-BCIG)
Escherichia coli (E. coli)

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Solids (Organic)
Glyphosate - Soil (106)
AMGLYPE1; PICKERING METHOD AND "IN-HOUSE" METHODOLOGY
HPLC/FLD - EXTRACTION
Glyphosate

Solids (Organic)
Organochlorine Pesticides (OCP)/Polychorinated Biphenyls (PCB) - Soil, Sediment, Sludge (088)
AMOCPCE1; modified from US EPA SW846 8081/8082
GC/ECD
a-chlordane
Aldrin
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
Dieldrin
Endosulfan I
Endosulfan II
Endrin
g-Chlordane
Heptachlor
Heptachlor Epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachloroethane
Lindane
Methoxychlor
Mirex
o,p'-DDT
o-Chlordane
p,p'-DDD
p,p'-DDE
p,p'-DDT
Total PCB

Solids (Organic)
Petroleum Hydrocarbons (PHC) - Soil (078)
AMCCME2; CCME
GC/FID - PURGE AND TRAP
F1: C6-C10

Solids (Organic)
Petroleum Hydrocarbons (PHC) - Soil (079)
AMCCME2; CCME
GC/FID - EXTRACTION
F2: C10-C16
F3: C16-C34
F4: C34-C50

Solids (Organic)
Petroleum Hydrocarbons (PHC) - Soil (093)
AM CCME2; CCME PHC
GRAVIMETRIC
F4: Gravimetric

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Solids (Organic)
Polycyclic Aromatic Hydrocarbons (PAH) - Soil (026)
AMPAMSE8; modified from EPA SW 846 8270
GC/MS - EXTRACTION
1-methyl naphthalene
2-methyl naphthalene
Acenaphthene
Acenaphthylene
Anthracene
Benzo (a) anthracene
Benzo (a) pyrene
Benzo (b) fluoranthene
Benzo (g,h,i) perylene
Benzo (k) fluoranthene
Chrysene
Dibenzo (a,h) anthracene
Fluoranthene
Fluorene
Indeno (1,2,3 - cd) pyrene
Napthalene
Phenanthrene
Pyrene

Solids (Organic)
Semi-Volatile Organic Compounds - Soil (115)
AMBNASE1; modified from U.S. EPA SW846# 8270
GC/MS - EXTRACTION
1,1-biphenyl
1,2,4-trichlorobenzene
2-chlorophenol
2,4-dichlorophenol
2,4-dimethylphenol
2,4-dinitrolphenol
2,4-dinitrotoluene
2,4,5-trichlorophenol
2,4,6-trichlorophenol
2,6-dinitrotoluene
3,3'-dichlorobenzidine
bis(2-chloroethyl)ether
bis(2-chloroisopropylether)
bis(2-ethylhexyl)phthalate
diethyl phthalate
dimethyl phthalate
hexachlorobenzene
hexachlorobutadiene
hexachloroethane
p-chloroaniline
Pentachlorophenol
Phenol

Solids (Organic)
Total Petroleum Hydrocarbons (TPH) - Soil (038)
AMCCME2; modified from MOE TPH-E3398A
GC/FID
Diesel Range Hydrocarbons C10-C24

† "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).

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Solids (Organic)
Total Petroleum Hydrocarbons (TPH) - Soil (072)
AMCCME2; modified from MOE TPH-E3398A
GC/MS - PURGE AND TRAP
Gasoline Range Hydrocarbons C5-C9

Solids (Organic)
Total Petroleum Hydrocarbons (TPH) - Soil (073)
AMOGSME2; modified from MOE TPH-E3398A
GRAVIMETRIC
Mineral Oil and Grease
Total Oil and Grease

Solids (Organic)
Volatile Organic Compounds (VOC) - Soil (044)
AMVOMSE8; modified from SW 846 EPA 8260
GC/MS - PURGE AND TRAP
1,1-Dichloroethane
1,1-dichloroethylene
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
1,3,5-Trimethylbenzene
1,4-dichlorobenzene
1,4-dioxane
Acetone (2-Propanone)
Benzene
Bromodichloromethane
Bromoform
Bromomethane
c-1,2-Dichloroethylene
c-1,3-Dichloropropylene
Carbon Tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroform
Chloromethane
dichlorodifluoromethane
Dichloromethane
Ethylbenzene
Ethylene Dibromide
Hexane
m/p-xylene
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl t-butyl ether
o-xylene
Styrene
t-1,2-Dichloroethylene
t-1,3-Dichloropropylene

† "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

Tetrachloroethylene
Toluene
Trichlorfluoromethane
Trichloroethylene
Vinyl Chloride

Water (Inorganic) OSDWA †
Alkalinity - Water (001)
AMAPCAE1; modified from SM 2320 B
AUTO TITRIMETRIC
Alkalinity (pH 4.5)

Water (Inorganic)
Alkalinity - Water (107)
AMALKTE1; modified from SM 2320
TITRATION
Alkalinity (pH 4.5)

Water (Inorganic) OSDWA †
Ammonia - Water (032)
AMNH3LE1; modified from SM 4500-GNH3
AUTO - PHENATE
Ammonia

Water (Inorganic) OSDWA †
Anions - Water (003)
AMANICE1; modified from SM 4110 C
ION CHROMATOGRAPHY
Bromide
Chloride
Fluoride
Nitrate
Nitrite
Sulfate

Water (Inorganic) OSDWA †
Biochemical Oxygen Demand (BOD) - Water (015)
AMBODE1; modified from SM 5210 B
D.O. METER
BOD (5 day)
CBOD (5 day)

Water (Inorganic) OSDWA †
Chemical Oxygen Demand (COD) - Water (054)
AMCODSE1; modified from SM 5220 D
COLOR - DIGESTION
COD

Water (Inorganic) OSDWA †
Chloride - Water (057)
AMCLCTE1; modified from SM 4500-Cl- D
POTENTIOMETRIC TITRATION
Chloride

Water (Inorganic) OSDWA †
Chlorine - Water (056)
AMCDPDE1; modified from SM 4500-Cl G
DPD - COLOR
Free Chlorine
Total Chlorine

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Water (Inorganic) OSDWA †
Colour - Water (052)
AMCOLSE1; modified from SM 2120 C
SPECTROPHOTOMETRIC
Colour

Water (Inorganic) OSDWA †
Conductivity - Water (004)
AMAPCAE1; modified from SM 2510 B
AUTO CONDUCTIVITY METER
Conductivity (25°C)

Water (Inorganic)
Conductivity - Water (103)
AMCONDE1; modified from SM 2510
CONDUCTIVITY METER
Conductivity (25°C)

Water (Inorganic) OSDWA †
Cyanide - Water (028)
AMCNTDE1; modified from MOE CN-E3015
DISTILLATION - AUTO COLOUR
Cyanide (SAD)

Water (Inorganic) OSDWA †
Cyanide - Water (082)
AMCNTDE1.110 ; modified from MOE CN-E3015
COLORIMETRIC
Cyanide (free)

Water (Inorganic) OSDWA †
Dissolved and Extractable Metals - Water (011)
AMMICPE8; modified from SM 3120 B
ICP/AES
Aluminum
Aluminum (High)
Barium
Barium (High)
Beryllium
Boron
Boron (High)
Cadmium
Calcium
Chromium
Chromium (High)
Cobalt
Cobalt (High)
Copper
Copper (High)
Iron
Iron (High)
Lead
Lead (High)
Magnesium
Manganese
Manganese (High)
Molybdenum
Molybdenum (High)

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Nickel
Nickel (High)
Potassium
Silicon
Silver
Sodium
Strontium
Strontium (High)
Thallium (High)
Titanium
Titanium (High)
Vanadium
Vanadium (High)
Zinc
Zinc (High)

Water (Inorganic) OSDWA †
Dissolved and Extractable Metals - Water (076)
AMMIMPE1; modified from EPA 200.8
ICP/MS
Aluminum
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Cobalt
Copper
Iron
Lead
Manganese
Molybdenum
Nickel
Selenium
Silicon
Silver
Strontium
Thallium
Tin
Titanium
Uranium
Vanadium
Zinc

Water (Inorganic) OSDWA †
Fluoride - Water (045)
AMFISEE1; modified from SM 4500-F C
SELECTIVE ION ELECTRODE
Fluoride

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Water (Inorganic) OSDWA †
Fluoride - Water (100)
AMAPCAE1; modified from SM 4500- F, A, C
AUTO ISE - DIGESTION
Fluoride

Water (Inorganic)
Hexavalent Chromium - Water (108)
AMCRVIE1; modified from SM 3500-Cr B
HACH COLORIMETRIC
Hexavalent Chromium

Water (Inorganic) OSDWA †
Mercury - Water (027)
AMHGCTE1; modified from SM 3112 B
COLD VAPOUR AA - DIGESTION
Mercury

Water (Inorganic) OSDWA †
Nitrate/Nitrite - Water (007)
AMNO23E1; modified from SM 4500-NO3-F
AUTO COLOR
Nitrate plus Nitrite
Nitrite

Water (Inorganic) OSDWA †
Oil and Grease - Water (039)
AMOGHXE1; modified from MOE METHOD DECPH-E3421
GRAVIMETRIC - EXTRACTION
Oil and Grease (Mineral)
Total Oil and Grease

Water (Inorganic) OSDWA †
Organic Carbon - Water (077)
AMDTOCE1; modified from SM 5310 C
HEATED PERSULPHATE
Organic Carbon

Water (Inorganic) OSDWA †
pH - Water (019)
AMAPCAE1; modified from SM 4500 - H+ B
AUTO - pH METER
pH

Water (Inorganic)
pH - Water (102)
AMPHELE1; modified from SM 4500 H+ B
pH METER
pH

Water (Inorganic) OSDWA †
Phenols - Water (055)
AMPHACE2; modified from SM 5530 D
4-AA P- AUTOMATED
Total Phenolics

Water (Inorganic) OSDWA †
Phosphate - Water (031)
AMTPMDE1; modified from SM 4500-P F
COLOR
Phosphate

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