A139 – CALA GUIDANCE ON MEETING PROFICIENCY TESTING REQUIREMENTS

Revision 1.0

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CALA

Trust, measured accurately

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1.0 SCOPE

P02-03 – CALA *Proficiency Testing Policy for Accreditation* sets out the proficiency testing requirements for applicant and accredited laboratories. The purpose of this document is to provide guidance on Option i PT, selection of PT providers, and other factors to consider when choosing a PT provider to meet PT requirements for accreditation.

2.0 LIST OF OPTION i ANALYTES

The lists below provide a quick reference for customers, where CALA is aware that Option i PT is available and appropriate (i.e., 4 samples, twice per year). Please note that this list is primarily focused on the environmental sector and includes, but is not limited to:

Anions and Nutrients

Analyte	Water	Soil
Alkalinity to pH 4.5	X	
Ammonia	X	X
Bromide	X	X
Chloride	X	X
Conductivity	X	
Calcium	X	
Fluoride	X	X
Hardness	X	
Inorganic Carbon	X	
Magnesium	X	
Nitrate	x	X
Nitrate pus Nitrite	X	
Nitrite	X	
Organic Carbon	X	X
Phosphate	X	X
Potassium	X	
Reactive Silica	X	
Sodium	X	
Sulfate	X	X
Total Kjeldahl Nitrogen	X	X
Total Phosphorus	X	X
Percent Saturation		X

Metals

Analyte	Water	Soil
Aluminum	X	X
Antimony	X	X
Arsenic	X	X
Barium	X	X
Beryllium	X	X
Boron	X	X
Cadmium	X	X
Chromium	X	X
Cobalt	X	X
Copper	X	X
Iron	x	X
Lead	X	X
Manganese	X	X
Mercury	X	X
Molybdenum	X	
Nickel	X	X
Selenium	X	
Silver	X	
Strontium	X	X
Thallium	X	
Tin	X	X
Titanium	X	X
Uranium	X	X
Vanadium	X	X
Zinc	X	X

Solids

Analyte	Water	Soil
Fixed Solids		X
Percent Moisture		X
Total Dissolved Solids	X	
Total Solids		X
Total Suspended Solids	X	
Volatile Solids		X
Volatile Suspended Solids	X	

General Chemistry – Water

Analyte	Water	Soil
Acidity	X	
Biochemical Oxygen Demand (BOD)	X	
Carbonaceous Biochemical Oxygen Demand (CBOD)	X	
Chlorine (Free and Total)	X	
Chemical Oxygen Demand (COD)	X	
Cyanide (SAD)	X	
Hexavalent Chromium	X	X
Mineral (non-polar) Oil and Grease	X	
Particle Size		X
pH	X	
Sulphide	X	
Total Oil and Grease	X	X
Total Phenolics	X	
True Colour	X	
Turbidity	X	

PCBs – Water, Soil and Oil

Total PCB
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

Organochlorine Pesticides - Water

alpha-BHC
Endosulfan I
Endosulfan II
Endrin
Heptachlor Epoxide
Lindane (gamma-BHC)
Mirex
o,p' – DDT
p,p' – DDT
p,p' Methoxychlor
Aldrin
Dieldrin
Heptachlor
a – Chlordane
g – Chlordane

Polycyclic Aromatic Hydrocarbons (PAHs) – Water and Soil

Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(b+j)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene
Phenanthrene
Pyrene

Volatile Organic Compounds – Water and Soil

1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Acetone (2-Propanone)
Benzene
Bromodichloromethane
Bromoform
Carbon Tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroform
cis-1,2-Dichloroethylene

Volatile Organic Compounds – Water and Soil (Continued)

cis-1,3-Dichloropropene
Dichloromethane
Ethylbenzene
Ethylene Dibromide
m/p-xylene
Methyl Ethyl Ketone
Methyl t-butyl ether (MTBE)
Methyl isobutyl Ketone (MIBK)
o-xylene
Styrene
Tetrachloroethylene
Toluene
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene
Trichloroethylene
Trichlorofluoromethane
Vinyl Chloride (Note: Vinyl Chloride appears only to be available in a water matrix)

Organophosphorus Pesticides - Water

Atrazine
Azinphos-methyl
Bendiocarb
Carbaryl
Carbofuran
Chlorpyriphos (ethyl)
Cyanazine
Diazinon
Dimethoate
Diuron
Malathion
Metolachlor
Metribuzin
Parathion (ethyl)
Phorate
Simazine
Terbufos
Trifluralin

Aryloxy Acid Pesticides - Water

2,4-Dichlorophenoxyacetic Acid

2,4,5-Trichlorophenoxyacetic Acid
Bromoxynil
Dicamba
Diclofop-methyl (as free acid)
Dinoseb
Picloram

Phenolic Compounds - Water

2,4,6-Trichlorophenol
2,3,4,6-Tetrachlorophenol
2,4-Dichlorophenol
Pentachlorophenol

Petroleum Hydrocarbons

Analyte	Water	Soil
Benzene	X	X
Ethylbenzene	X	X
F1: C6-C10	X	X
F2: C10-C16	X	X
F3: C16-C34	X	X
F4: C34-C50	X	X
F4: Gravimetric		X
m/p-Xylene	X	X
o-Xylene	X	X
Toluene	X	X
VH (C6-C10)	X	X

Haloacetic Acids - Water

Bromochloroacetic acid
Dibromoacetic acid
Dichloroacetic acid
Monobromoacetic acid
Monochloroacetic acid
Trichloroacetic acid

Glyphosate - Water

Aldicarb - Water

Microbiology - Water

Escherichia coli (Quantitative and Presence/Absence)
Total Coliforms (Quantitative and Presence/Absence)
Fecal (Thermotolerant) Coliforms (Quantitative only)
Heterotrophic Plate Count (Quantitative only)

Occupational Health and Safety Tests

Metals on Air Filters (e.g., cadmium, copper, lead, zinc)
Asbestos

Toxicology - Water

Rainbow Trout LC50
Daphnia LC50
Microtox

Analytes in Leachate Methods (e.g., EPA 1311)

Note: Proficiency testing samples must test the extraction process (not just the analysis of prepared leachates). Therefore, only two (2) samples are required at a frequency of twice per year.

Fluoride
Nitrate-N
Nitrate and Nitrite as N
Cyanide (WAD)
Arsenic
Boron
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver
Uranium

Analytes in Leachate Methods (e.g., EPA 1311) (Continued)

1,2-Dichlorobenzene
1,2-Dichloroethane
1,4-Dichlorobenzene

Benzene
Carbon Tetrachloride
Chlorobenzene
Chloroform
Dichloromethane
Methyl Ethyl Ketone
Tetrachloroethylene
Trichloroethylene

3.0 POTENTIAL PT PROVIDERS

To assist applicant and accredited laboratories find appropriate PT, CALA has composed a list of PT providers that were accredited to ISO/IEC 17043 by an ILAC signatory at the time of publication of this document. Please note that this list is not exhaustive and that accreditation status may change at any time. Therefore, it is incumbent on the laboratory to ensure that the following PT providers are still accredited to ISO/IEC 17043 for the analytes of interest.

- Proficiency Testing Canada (formerly, CALA PT Program)
- Phenova
- Centre D'Expertise en Analyze, Environnementale du Québec
- Environmental Resources Associates
- Environmental Science and Technology Laboratories, Environment Canada (Burlington)
- American Industrial Hygiene Association (AIHA)
- Clinical Microbiology Proficiency Testing, University of British Columbia
- Sigma-Aldrich RTC, Inc.
- Canmet Mining and Mineral Sciences Laboratories
- Absolute Standards, Inc.
- AOAC Laboratory Proficiency Testing Program
- FERA Science Ltd. (FAPAS, FEPAS, GeMMA & LEAP)
- LGC Limited
- NSI Solutions Inc.
- WI State Laboratory of Hygiene, University of Wisconsin
- Bureau Interprofessionnel D'Edudes (BIPEA)
- American Proficiency Institute (API)
- Food and Environmental Proficiency Testing Unit (FEPTU)
- Quasimeme Laboratory Performance Studies

Other accredited PT providers may be available and appropriate. Two (2) databases that may be useful in the search for an appropriate PT provider are:

http://www.eptis.org

http://arpt.cnas.org.cn

4.0 GUIDANCE ON SELECTION AND ANALYSIS OF PT SAMPLES

Use of whole volume samples is encouraged, where ever possible, as whole volume samples are more reflective of actual samples received at a laboratory.

Zero concentrations may be used for one or more analytes within any PT sample, to include testing for false positive. However, laboratories must be mindful that zero concentrations are not preferred for demonstration of initial proficiency (see P02-03 – Proficiency Testing Policy for Accreditation, Section 3.3).

If a reference material is being prepared in-house, a standard reference method should be used (e.g., ISO Guide 80) as a reference document to aid in the production.