



# CALA

Canadian Association for  
Laboratory Accreditation Inc.

## CALA Directory of Laboratories

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**Membership Number:** 3915  
**Laboratory Name:** AGAT Laboratories - Lloydminster  
**Parent Institution:** AGAT Laboratories Ltd.  
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**Standard:** Conforms with requirements of ISO/IEC 17025  
**Clients Served:** All Interested Parties  
**Revised On:** September 12, 2019  
**Valid To:** October 15, 2021

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### Scope of Accreditation

#### Leachate (Organic)

BTEX - Leachate (034)  
ORG-190-5107, ORG-190-5108, ORG-190-5109; EPA 5021A (PREPARATION) and EPA 8260C (ANALYSIS)  
GC/MS - HEADSPACE  
Benzene  
Ethylbenzene  
m,p-Xylene  
o-Xylene  
Toluene

#### Soil (Inorganic)

Ammonia - Solids [Soil] (010)  
INOR-190-6012; modified from SM 4500-NH3 F  
SPECTROPHOTOMETRIC  
Ammonia

#### Soil (Inorganic)

Anions - Solids [Soil] (001)  
INOR-190-6002, INOR-190-6008; modified from MANUAL ON SOIL SAMPLING & METHODS OF ANALYSIS,  
MCKEAGUE 3.21 and SM 4110 B  
IC - SATURATED PASTE EXTRACTION  
Chloride  
Fluoride  
Nitrate  
Nitrite  
Sulphate (Sulfate)

† "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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**Soil (Inorganic)**

Chromium - Solids [Soil] (029)

INOR-190-6016; modified from BARTLETT, R.J., JAMES, B.R. (1996), CHROMIUM PP. 683-701

COLORIMETRIC - DIGESTION

Chromium

**Soil (Inorganic)**

Conductivity - Solids [Sediment, Soil] (004)

INOR-190-6002, INOR-190-6011; modified from MANUAL ON SOIL SAMPLING & METHODS OF ANALYSIS, MCKEAGUE 3.21 and SM 2510 B

CONDUCTIVITY METER

Conductivity (saturated paste)

**Soil (Inorganic)**

Flashpoint - Solids [Ash, Soil] (009)

ORG-190-5100; ASTM D93-18

PENSKY MARTENS CLOSED CUP

Flashpoint

**Soil (Inorganic)**

Hot Water Soluble Boron - Solids [Soil] (028)

INOR-190-6009, INOR-190-6014; modified from SM 3120 B and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 2008

ICP/OES

Boron

**Soil (Inorganic)**

Particle Size Analysis (PSA) - Solids [Soil] (006)

INOR-190-6004; modified from SHELDRIK, B.H. & WANG, C, CARTER MO ED.

SIEVE ANALYSIS

Particle Size (75um)

**Soil (Inorganic)**

Particle Size Analysis (PSA) - Solids [Soil] (022)

INOR-190-6013; modified from SHELDRIK, B.H. & WANG, C, CARTER MO ED. 1993

HYDROMETER (2 PT)

Percent clay

Percent Sand

Silt

**Soil (Inorganic)**

Percent Saturation - Solids [Soil] (002)

INOR-190-6002; modified from MANUAL ON SOIL SAMPLING & METHODS OF ANALYSIS, MCKEAGUE 3.21

GRAVIMETRIC - SATURATED

Percent Saturation (Saturated Paste)

**Soil (Inorganic)**

pH - Solids [Sediment, Soil] (007)

INOR-190-6002, INOR-190-6010; SOIL SAMPLING & METHODS OF ANALYSIS, CARTER, 2ND ED.

pH METER

pH (1:1) soil:water

pH (saturated paste)

**Soil (Inorganic)**

Soluble Cations - Solids [Soil] (013)

INOR-190-6002, INOR-190-6009; modified from SM 3120 B and SOIL SAMPLING & METHODS OF ANALYSIS CHAPTER 15

ICP/OES - SATURATED PASTE EXTRACTION

Boron

Calcium

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Magnesium  
Potassium  
Sodium  
Sulphur (Sulfur)

**Soil (Inorganic)**

Specific Gravity - Solids [Soil] (003)  
INOR-190-6003; ASTM D4380, G50 and BAROID MUD BALANCE and DRILLING WASTE MANAGEMENT  
MUD BALANCE  
Specific Gravity

**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Solids [Soil] (012)  
ORG-190-5103; modified from EPA 5035 and EPA 8015C and EPA 8260  
GC/MS  
Benzene  
Ethylbenzene  
m,p-Xylene  
o-Xylene  
Toluene

**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Solids [Soil] (014)  
ORG-190-5110, ORG-190-5111; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD and  
EPA 8015D  
GC/FID - EXTRACTION COLD SHAKE  
F2: C10-C16  
F3: C16-C34  
F4: C34-C50

**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Solids [Soil] (015)  
ORG-190-5110, ORG-190-5111; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD  
GRAVIMETRIC - EXTRACTION COLD SHAKE  
F4: Gravimetric

**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Solids [Soil] (027)  
ORG-190-5103; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD  
GC/FID - PURGE AND TRAP  
F1: C6-C10

**Soil (Organic)**

Total Extractable Hydrocarbons (TEH) - Solids [Soil] (023)  
ORG-190-5110, ORG-190-5111; modified from AEC V92-G108 and AEC V92-M2 and BC MOE  
CONTAMINATED SITES REGULATION (CSR) and EPA CH. 4  
GC/FID - EXTRACTION  
Extractable Petroleum Hydrocarbons (EPH): C10-C19  
Extractable Petroleum Hydrocarbons (EPH): C19-C32  
SASK (C10-C22)  
SASK (C23-C60)  
Total Extractable Hydrocarbons (TEH): C11-C30

**Soil (Organic)**

Total Purgeable Hydrocarbons (TPH) - Solids [Soil] (025)  
ORG-190-5103; EPA 5035 (PREPARATION) and EPA 8015C (ANALYSIS) and EPA 8260 (ANALYSIS)  
GC/FID - PURGE AND TRAP  
TPGH (C5-C10)  
VH: C6-C10

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**Solids (Organic)**

BTEX - Solids [Soil] (011)

ORG-190-5101; IN-HOUSE

GC/MS - LEACHATE PURGE AND TRAP

Benzene

Ethylbenzene

m,p-Xylene

o-Xylene

Toluene

**Solids (Organic)**

BTEX - Solids [Soil] (033)

ORG-190-5107, ORG-190-5108, ORG-190-5109; modified from EPA 5021A (PREPARATION) and EPA 8260C (ANALYSIS)

GC/MS - HEADSPACE

Benzene

Ethylbenzene

F1: C6-C10

m,p-Xylene

o-Xylene

Styrene

Toluene

Total Purgeable Hydrocarbons

VH: C6-C10

**Waste (Inorganic)**

Free Liquid - Waste [Liquid] (005)

INOR-190-6006; modified from EPA 9095

PAINT FILTER TEST

Free Liquid

**Waste (Inorganic)**

Metals - Waste (008)

INOR-190-6005, INOR-190-6009; IN-HOUSE (PREPARATION) and SM 3120 B (ANALYSIS)

ICP/OES - EXTRACTION

Antimony

Arsenic

Barium

Boron

Cadmium

Chromium

Copper

Iron

Lead

Mercury

Selenium

Silver

Thallium

Uranium

Vanadium

Zinc

Zirconium

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**Water (Inorganic)**

Ammonia - Water (017)

INOR-190-6012; modified from SM 4500-NH3 F  
SPECTROPHOTOMETRIC

Ammonia

**Water (Inorganic)**

Anions - Water (016)

INOR-190-6008; SM 4110 B

ION CHROMATOGRAPHY

Chloride

Fluoride

Nitrate

Nitrite

Sulfate

**Water (Inorganic)**

Soluble Cations - Water (018)

INOR-190-6009; modified from SM 3120 B

ICP/OES

Calcium

Magnesium

Potassium

Sodium

**Water (Organic)**

BTEX - Water (032)

ORG-190-5107, ORG-190-5108, ORG-190-5109; modified from CCIW ENV. CANADA METHOD  
GC/MS - HEADSPACE

Benzene

Ethylbenzene

F1: C6-C10

m,p-Xylene

o-Xylene

Toluene

Total Volatile Hydrocarbons (TVH)

TPqH

**Water (Organic)**

Petroleum Hydrocarbons (PHC) - Water (019)

ORG-190-5103; modified from EPA 5030C and EPA 8260

GC/MS

Benzene

Ethylbenzene

m,p-Xylene

o-Xylene

Toluene

**Water (Organic)**

Petroleum Hydrocarbons (PHC) - Water (020)

ORG-190-5110, ORG-190-5111; EPA 3510 and EPA 3511

GC/FID - EXTRACTION COLD SHAKE

F2: C10-C16

F3: C16-C34

F4: C34-C50

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**Water (Organic)**

Total Extractable Hydrocarbons (TEH) - Water (024)

ORG-190-5110, ORG-190-5111; modified from AECV92-M2 and BC MOE CONTAMINATED SITES REGULATION (CSR) and EPA 3510 and EPA 3511

GC/FID - EXTRACTION

Extractable Petroleum Hydrocarbons (EPH): C10-C19

Extractable Petroleum Hydrocarbons (EPH): C19-C32

SASK (C10-C22)

SASK (C23-C60)

Total Extractable Hydrocarbons (TEH): C11-C30

**Water (Organic)**

Total Petroleum Hydrocarbons (TPH) - Water (026)

ORG-190-5103; modified from CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD and EPA 5035 and EPA 8015C

GC/MS - PURGE AND TRAP

F1: C6-C10

TPGH (C5-C10)

Volatile Hydrocarbons (VH): C6-C10

**Water (Toxicology)**

Microtox - Water (021)

TOX-190-19000; modified from EPS 1/RM/24

BIOLUMINESCENCE

Microtox IC50 (15 min)

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