Quality Assurance & Quality Control Plan

Ulu Gold Project

(including Hood River, Roma and other licenced projects)

Kitikmeot Region, Nunavut

March 2022

BLUE STAR GOLD CORP.

SUMMARY

This *Quality Assurance and Quality Control Plan* describes methods to collect, handle and analyse water samples that we are required to collect under the water licence to ensure the data we get back from the lab is correct, useful and represents the conditions on site.

REVISION HISTORY

Revision #	Date	Section	Summary of Changes	Author	Approver
2BM-ULU2030					
2	Mar 2022	Throughout	Updated throughout to reflect current ownership and licence conditions, Blue Star management plan format, edits for clarity and restructuring to reflect the Guide (DIAND 1996), and consideration of available analytical suppliers.	S. Hamm	D. Lindsay
		1.2	Updated reference and throughout to reflect guidance for Class B licence		
		Table 1	Added to reflect current lab supplier		
		Table 2	Updated to reflect current licence		
		Tables 2 & 3 (old)	Removed, replaced instead with reference to current licence		
		3.0	Updated to reflect current licence and consideration of future licence changes.		
		Section 4 (old)	Removed discussion of field parameter methodology as this is outside the scope of the Plan		
		5.3.1	Updated to reflect Chain of Custody form is provided by the analytical lab		
		6 (old)	Discussion of reporting requirements has been abbreviated and revised to instead refer to the licence requirements		
		Appendix A&B, Figure 1, Section 5.3.2	New		

2BM-ULU0914				
1	Jun 2014	Quality Assurance and Quality Control Plan, Water Sampling	-	Bonito Capital Corp.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

Blue Star Gold Corp. (Blue Star) is undertaking exploration activities and conducting progressive reclamation in the Kitikmeot Region of Nunavut, including the Ulu Gold Project (Ulu), that previously defined as the Hood River Gold Project area and regional exploration areas of interest (Hood River, Roma); the majority of activities are based out of the Ulu camp and undertaken in the local area (the Project).

Blue Star's near-term plans are to continue mineral exploration locally and regionally and to undertake progressive reclamation of the Ulu site. This *Quality Assurance and Quality Control Plan* (QAQC; the Plan) is intended exclusively for use by Blue Star and its contractors. Its purpose is to ensure that best practices associated with compliance water sampling, handling, analysis and reporting are undertaken when fulfilling the current water licence monitoring program requirements.

1.1 OVERVIEW

The Ulu site is located in the Kitikmeot region of Nunavut, approximately 200 km southeast of Kugluktuk, Nunavut and 523 km north–northeast of Yellowknife, Northwest Territories. Underground exploration at Ulu was conducted in 1996, 1997, 2005, and 2006. Since 2006, the Ulu camp has been reopened to support surface exploration and progressive reclamation activities in 2012, 2014, and annually since 2018. Blue Star acquired the Ulu Project in late 2019.

The Project is accessible by aircraft, with weekly flights between Yellowknife and the Ulu camp. The Ulu camp is operated seasonally, typically from May to October, to support ongoing exploration. The camp is comprised of accommodations, exploration facilities a shop and office. There is no on-site analytical lab. Freight handling and resupply occurs largely through Yellowknife, where various suppliers and regional transportation hubs are based, including receiving depots for two analytical laboratories (labs), being Bureau Veritas and ALS. The Taiga Environmental Laboratory (Taiga), owned and operated by the Government of the Northwest Territories, is based in Yellowknife.

1.2 SCOPE

The Plan includes both field and laboratory requirements required to satisfy the compliance monitoring program in the Licence(s). The QA/QC plan has been developed as a standardized procedure for water quality sampling, laboratory analysis, and reporting to ensure precision of the data, confidence in the results, and accuracy in the reporting. This Plan is developed in accordance with the Indian and Northern Affairs Canada's (1996) *Quality Assurance (QA) and Quality Control (QC) Guidelines for Use by Class "B" Licensees in Collecting Representative Water Samples in the Field and for Submission of a QA/QC Plan* (the Guide).

The Guide defines QA and QC as follows:

- **Quality Assurance**: the system of activities designed to better ensure that quality control is done effectively.
- **Quality Control**: the use of established procedures to achieve standards of measurement for the three principal components of quality: precision, accuracy and reliability.

1.3 OBJECTIVES

Blue Star's team endeavours to fulfill its compliance requirements for the Project. Accordingly, the objectives of this Plan are to:

- Outline required sampling and sample handling methodology.
- Outline considerations for maintaining sample integrity when shipping to and from a remote site.
- Ideintify appropriate analytical services for use by the Project.

1.4 PLAN MANAGEMENT

The Plan is reviewed annually by Blue Star's Project Manager and is updated as needed following receipt of or amendments to licences and permits, to ensure alignment with relevant terms and conditions. When material changes occur, the updated document will be provided to parties in accordance with the *Engagement Plan*.

1.5 PLAN IMPLEMENTATION

This Plan is effective upon approval and is valid throughout all phases of the Project. The Project Manager or their designate is responsible for Plan implementation. A copy of this Plan is posted in key locations at the site while the camp is open.

2.0 ROLES & RESPONSIBILITIES

Blue Star is responsible for activities associated with the Project, including implementation and management of this Plan. Blue Star's contact information is provided below.

Blue Star Gold Corp.
Suite 507-700 W. Pender Street
Vancouver BC V6C 1G8
Phone: 1 778-379-1433

Contact: Darren Lindsay, Vice President of Exploration
Phone: 1 778-379-1433
Email: d.lindsay@bluestargold.ca

2.1 MANAGERS AND SUPERVISORS

Managers and supervisors have a responsibility to ensure that staff and contractors carrying out compliance program aspects have been trained in Blue Star procedures. Additional supervisor and manager responsibilities include:

- Maintaining a no blame work environment;
- Ensuring site-, task- and material-specific training is provided to all departments and staff; and
- Ensuring adequate resources, including supplies, equipment and personnel, are available on site to support safe, timely and complete compliance program execution.

2.2 ENVIRONMENTAL COORDINATOR

The Environmental Coordinator or designate is responsible for carrying out monitoring aspects of the compliance program, as outlined in the water licence(s). Specifically, these include:

- Liaising with the analytical lab to obtain adequate sampling supplies;
- Maintaining an adequate inventory of lab-supplied bottles, preservatives, deionized water, distilled water, coolers and ice packs;
- Maintaining an adequate inventory of other required materials including field meters, calibration solution, batteries, vacuum filtration pumps, filters and powderless nitrile gloves;
- Storing all related supplies in a designated secure and clean environment, away from potential sources of contamination;
- Ensuring sample integrity upon collection, including storage at the right temperature (i.e. refrigerate until shipping);
- Liaising with expediting and logistics staff and contractors to ensure timely pick up of supplies and delivery of samples, expending best efforts to meet hold times;
- Documenting all sampling events in accordance with established protocols;
- Carrying out required reporting pursuant to licence(s);
- Reviewing all lab-issued communications for correctness and following up in a timely manner where needed;
- Managing data in a coordinated and redundant system to ensure integrity of the dataset over time and availability upon the Inspector's request; and
- Maintaining chain of custody until samples are relinquished to outbound aircraft.

2.3 CAMP MANAGER

The Camp Manager or designate is responsible for:

- Coordinating and communicating flight timing and freight requirements to ensure inbound supplies are received in a timely manner and outbound samples are expedited to laboratory depots; and
- Paying special attention to coordinating around holidays and weekends when laboratory depots may have limited hours.

2.4 EXPEDITOR

The Expeditor is responsible for:

- Picking up lab-supplied inbound freight and ensure timely transfer to site;
- Preparing Dangerous Goods paperwork where required (typically for acid preservatives);
- Receiving samples at the point of disembarkation (typically Yellowknife) and transferring to lab depots in a timely and priority manner;
- Maintaining chain of custody; and
- In the event of temporary holding or storage, maintaining temperature requirements to the greatest extent possible.

3.0 MONITORING PROGRAM

At the time of writing, there are 16 water quality monitoring stations located at Ulu under the water licence Monitoring Program; these are listed in Table 1. Stations may change from time to time with licence amendments. Similarly, depending on site activities, not all stations will be active at all times. In addition, depending on weather conditions water may not be present at all times at various stations. Accordingly, the methodology outlined in the Plan is intended to be applicable to water sampling at all current active Monitoring Program stations and where other licence conditions require water quality sampling and may be applied to other water quality sampling that may be undertaken, such as for drinking water testing, baseline environmental studies or other monitoring.

Further, some stations have effluent quality criteria pursuant to terms and conditions in the licence; these parameters, by station, are also identified in Table 1.

Table 1. Monitoring Program Water Quality Sampling Stations[1]

Station ID	Station Description	Station Location	Sampling Frequency		Required Analysis	
			Active Site	Inactive Site		
ULU-2	Sewage Effluent Discharge Point at East Lake or to land with indirect flow to East Lake	-	Inactive due to the decommissioning of the Sewage Treatment Plant	Inactive due to the decommissioning of the Sewage Treatment Plant	Fecal Coliforms Total Suspended Solids BOD_5 pH Total Phosphorous Total Dissolved Phosphorus	Total Nitrogen Nitrate Nitrite Total Kjedahl Nitrogen
ULU-3	Sludge removed from Sewage Treatment Facility	-	Inactive due to the decommissioning of the Sewage Treatment Plant	Inactive due to the decommissioning of the Sewage Treatment Plant	Chemical characterization required to determine suitable disposal method for Sludge	
ULU-4b	Surface Retention Pond	12w 0501435 UTM 7421040	Prior to discharge and weekly during discharge	Prior to discharge	Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc	Total Suspended Solids pH Conductivity Chloride Sodium Calcium Oil and Grease[2]
ULU-5	Settling/ Neutralization Pond 1	Not yet constructed	Monthly during open water season, prior to discharge, and weekly during discharge	Twice annually during open water season and prior to discharge	Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc	Total Suspended Solids pH Conductivity Chloride Sodium Calcium Oil and Grease[2]

Station ID	Station Description	Station Location	Sampling Frequency		Required Analysis	
			Active Site	Inactive Site		
ULU-6	Settling/ Neutralization Pond 2	Not yet constructed	Monthly during open water season, prior to discharge, and weekly during discharge	Twice annually during open water season and prior to discharge	Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc	Total Suspended Solids pH Conductivity Chloride Sodium Calcium Oil and Grease[2]
ULU-7	Runoff from the waste rock storage area	12w 0501429 UTM 7420938	Monthly during periods of flow	Annually during open water period if flow is present	Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH Conductivity	Chloride Sodium Calcium Alkalinity Sulphate Turbidity TDS Ammonia Nitrate Nitrite Oil and Grease[2]
ULU-8	Runoff from the ore storage area	12w 0501252 UTM 7420804	Monthly during periods of flow	Annually during open water period if flow is present	Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids pH	Conductivity Alkalinity Chloride Sulphate Turbidity TDS Ammonia Nitrate Nitrite Oil and Grease[2]

Station ID	Station Description	Station Location	Sampling Frequency		Required Analysis	
			Active Site	Inactive Site		
ULU-9	Outflow East Lake	12w 0501773 UTM 7420901	Monthly during open water season. Weekly during open water season, if receiving discharge from ore runoff collection ponds	Annually during open water period when discharge to East Lake is planned	Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead	Total Zinc Total Suspended Solids pH Fecal Coliforms
ULU-10	Inflow Ulu Lake from East Lake	-	Inactive due to the decommissioning of the Sewage Treatment Plant	Inactive due to the decommissioning of the Sewage Treatment Plant	Fecal Coliforms Total Suspended Solids BOD_5 pH Total Phosphorus	Total Dissolved Phosphorus Total Nitrogen Nitrate Nitrite Total Kjedahl Nitrogen
ULU-11	Outflow Ulu Lake	12w 0502389 UTM 7421348	Monthly during open water season. Weekly during open water season, if receiving discharge from ore runoff collection ponds.	Annually during open water period when discharge to East Lake is planned	Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium	Total Lead Total Zinc Total Suspended Solids pH Fecal Coliforms
ULU-13	Soil Treatment Facility water holding pond	Not yet constructed	Prior to discharge	Prior to discharge	BETX F1 to F4 Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids	pH Alkalinity Chloride Sulphate Turbidity Conductivity Total suspended solids Ammonia Nitrite Nitrate Oil and Grease[2]

Station ID	Station Description	Station Location	Sampling Frequency		Required Analysis	
			Active Site	Inactive Site		
ULU-14	Bulk Fuel Storage Facility	12w 0499557 UTM 7418831	Prior to discharge	Prior to discharge	BETX F1 to F4 Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids	pH Alkalinity Chloride Sulphate Turbidity Conductivity Total Suspended Solids Ammonia Nitrite Nitrate Oil and Grease[2]
ULU-15	Landfill Facility	12w 0501524 UTM 7421075	When runoff or seepage is observed	When runoff or seepage is observed	BETX F1 to F4 Total Arsenic Total Copper Total Nickel Total Mercury Total Cadmium Total Lead Total Zinc Total Suspended Solids	pH Alkalinity Chloride Sulphate Turbidity Conductivity Total Suspended Solids Ammonia Nitrite Nitrate

Station ID	Station Description	Station Location	Sampling Frequency		Required Analysis	
			Active Site	Inactive Site		
Monitoring wells MW1, MW-2, MW-3, etc.	Monitoring wells established at Soil Treatment Facility	Not yet constructed	Twice annually at each the start and end of the open water season, while the Facility is in Operation	-	Dissolved Arsenic Dissolved Copper Dissolved Nickel Dissolved Mercury Dissolved Cadmium Dissolved Lead Dissolved Zinc pH Conductivity	Alkalinity Chloride Sulphate Turbidity TDS Ammonia Nitrate Nitrite

[1] As per Schedule J of 2BM-ULU2030
[2] Indicates effluent quality criteria only, not a monitoring station parameter
Underlined values indicate effluent quality criteria

4.0 SAMPLE COLLECTION

As outlined in Section 2.0, samples are collected by trained, qualified personnel acting as the Environmental Coordinator.

4.1 LOCATIONS

All stations are identified in the field with permanent signage, established and maintained to the satisfaction of the Inspector. Coordinates for current active stations are listed in Table 1 and locations illustrated in Figure *1*.

4.2 EQUIPMENT

Only new, lab-supplied bottles and deionized water are used during sample collection. Filter apparatus may include disposable non-metallic vacuum filter flasks or syringes, and reusable non-metallic vacuum flasks. Disposable apparatus are disposed of after each use, while reusable apparatus are rinsed three times with commercial distilled water between uses.

Sample bottle sizes and styles may vary with supplier, however, typical bottles supplied by Blue Star's current analytical lab are listed in Table *2*.

4.3 METHODS

4.3.1 COLLECTION

At each station, sample collection occurs prior to field measurements to avoid potential for disturbance of sediments by field meters. Samplers wear a new pair of powder-free nitrile gloves for each sample and avoid touching other things once sample collection has started. Lids are removed from bottles just prior to sampling and are protected from contamination. Samplers avoid touching the lip of the bottle and inside of the bottle lid. If these are compromised, bottles are disposed of and replaced with a new bottle.

When collecting a sample, the sampler stands downstream of the sampling location, pointing the mouth of the bottle upstream into the direction of flow. If the water is deep enough to allow the bottle to be placed in the water without disturbing sediment, then bottles are filled directly (except for dissolved metals samples, and bottles pre-filled with preservative) by submerging the entire mouth of the bottle to avoid collection of anything floating on the surface of the water. Where water is too shallow to fill the bottle all at once or where bottles are pre-charged with preservatives, water is collected either with a disposable syringe or a new smaller lab-supplied plastic bottle and decanted into larger bottles.

Disposable syringes and filters are rinsed three times prior to use with water collected from the sample station. New lab-supplied bottles are not rinsed prior to use.

4.3.2 METHOD BLANKS

Method blanks (or field blanks) are prepared in the field to monitor potential effects from the sampling procedure. Method blanks are collected and filtered exactly the same way as regular water samples

except the water source is not the stream or seep, but instead deionized water from bottles supplied by the lab and carried into the field.

One method blank sample is collected for every 10 samples (or part thereof).

4.3.3 TRAVEL BLANKS

Travel blanks (or trip blanks) are prepared by the laboratory to monitor potential effects from bottle materials. Travel blanks travel with the field crew in the same way as the bottle sets. Travel blanks are not opened in the field. The travel blanks should be set aside while sampling, then labelled and shipped with the samples.

Each shipment should have one travel blank set.

4.3.4 DUPLICATES

Duplicates (or replicates) are collected exactly the same way as regular water samples. The duplicate is collected by the same person that collected the original sample and at stations with a reasonable amount of flow.

One duplicate sample is collected for every 10 samples (or part thereof).

5.0 SAMPLE HANDLING

5.1 FILTRATION AND PRESERVATION

Filtration and preservations occurs in the field wherever possible. If it is impractical due to cold temperatures, excessive wind/dust/rain/insects (that may get into the sample bottles), or samples that clog the filter easily, extra water is collected to support filtration occurring in camp on the same day as sample collection.

When filtering with a vacuum flask filter, rinse the upper filter cup three times with water collected from the sample station. After rinsing, decant an additional 25 mL of the water sample into the upper filter cup and apply a vacuum using the pump. Wait for the water to be drawn through the filter as a steady stream, rinse and discard, repeating this process three times. Re-attach the pump to the filter unit and add approximately 100 mL of water to the upper cup. Apply a vacuum again, filter the sample, transfer the filtrate to the appropriate lab-supplied bottle and discard the filter.

Once all samples have been collected, preserve the necessary samples as directed by the analytical laboratory. Chemical preservative types and volumes are specified by the lab, and are unique to each parameter and analytical method employed; Blue Star utilizes pre-measured lab-supplied chemical preservatives only. **Error! Reference source not found.** lists typical preservatives currently used.

Physical preservation requires samples to be maintained at 4°Celcius. Accordingly, upon completion of sampling, filtration and chemical preservation, samples are transferred to a clean cooler or refrigerator as soon as possible, ensuring samples remain at 4°Celcius.

Table 2. Typical bottles and preservatives used

Parameter	Container	Preservative	Other
Alkalinity (PP as $CaCO_3$, CO_3, HCO_3, OH)	1x 500 mL plastic	n/a	
Chloride (Cl)			
Conductivity			
pH			
Sulphate (SO_4)			
Nitrite (N)			
Nitrate plus Nitrite (N)			
Nitrate (N)			
Total Dissolved Solids			
Turbidity	1x 250 mL plastic		
Total Suspended Solids	1x 1 L plastic		
Total Ammonia (N)	1x 40 mL glass vial	Sulphuric acid	No headspace
Total Mercury (Hg)	40 mL vial	Hydrochloric acid	Field filtered Field preserved
Dissolved Mercury (Hg)	40 mL vial	Hydrochloric acid	-
Total Metals + Hardness	1x 120 mL plastic	Nitric acid	-
Dissolved Metals + Hardness	1x 120 mL plastic	Nitric acid	Field filtered Field preserved
Total Oil and Grease	1x 1L Clear glass	Sulfuric Acid	-
BTEX, F1	2x 40 mL glass vial	Sodium bisulfate	No headspace
F2-F4	2 x 100 mL amber	Sodium bisulfate	-
Fecal Coliform	1x 240 mL plastic	Sodium thiosulphate	-

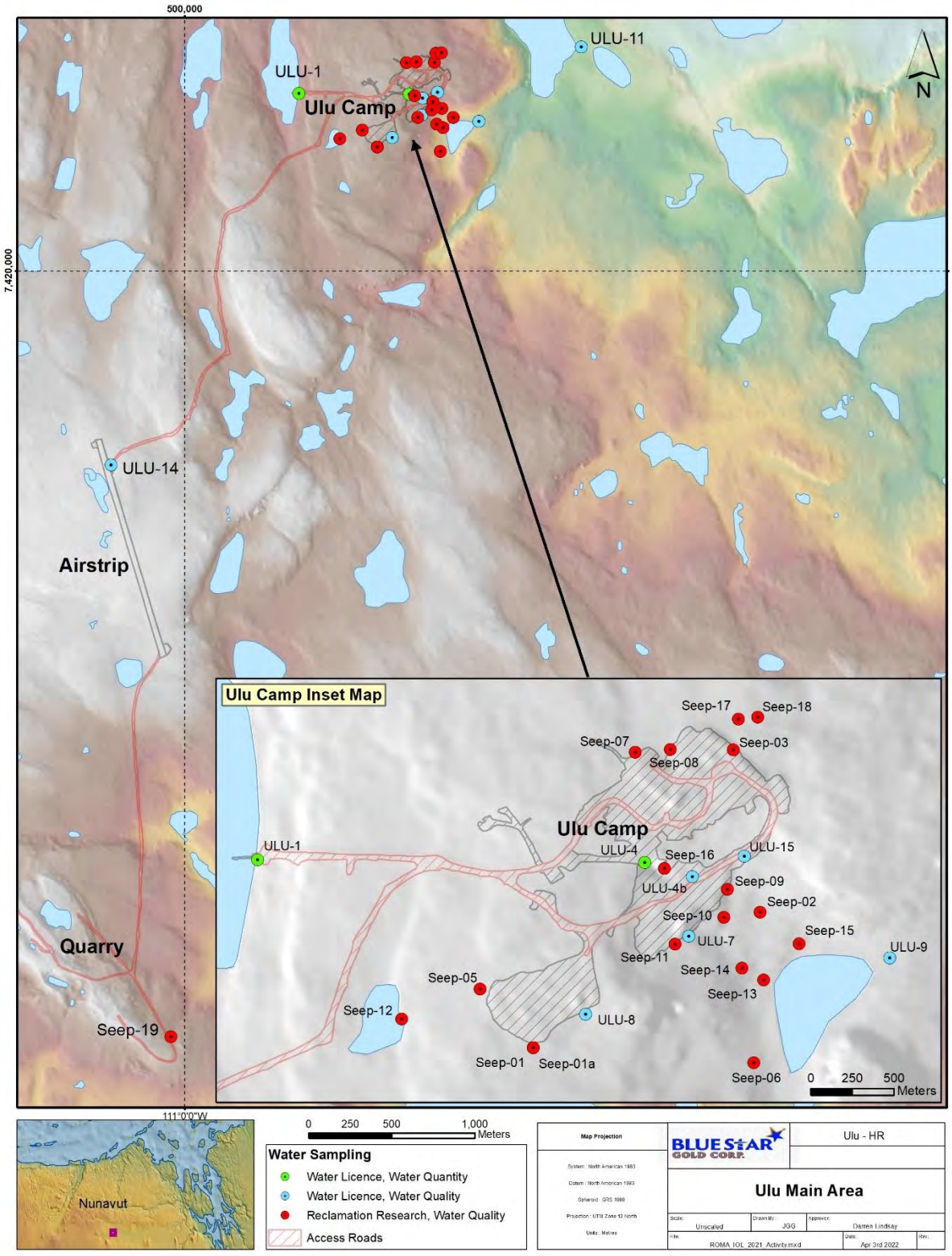

Figure 1. Ulu Water Monitoring Stations

5.2 IDENTIFICATION

Each sample bottle is labelled clearly and consistently with a waterproof, non-smear pen or pre-made waterproof labels. Each label includes the following information:

- Company name;
- Project site name;
- Unique sample identification, including station name, in accordance with established sample naming protocols;
- Sample date and time;
- Analysis required.

Each sampling event is documented in a field notebook, with copies of all field notes made at the end of each sampling event to ensure adequate back-up.

5.3 TRANSPORTATION

5.3.1 CHAIN OF CUSTODY

A Chain of Custody Form containing the following information is completed by the sampler for every cooler shipment of samples. This form includes:

- Company name and contact information;
- Analytical laboratory name, address, and contact person;
- Invoicing instructions;
- Report format requested;
- Project information;
- Sampler's name;
- Sample identification number, time and date of sampling, sample type, and analyses requested;
- Any special instructions; and
- Name of person releasing the shipment as well as date and time of release.

Each person relinquishing and receiving the samples must sign the Chain of Custody form. Each cooler shipped must have a Chain of Custody form indicating those samples contained in the particular cooler. Chain of Custody forms should be enclosed in a Ziploc bag to protect them from possible water damage during shipment, and may additionally be submitted by email or through a online lab management information system. One copy of the Chain of Custody form is included with the shipment and one copy must remain at the Project site for recording keeping. Standard Chain of Custody Forms are provided by in both digital and hardcopy be the lab.

5.3.2 PACKAGING

Samples are transported from the site to the lab in a clean, secure cooler. Bottles are packed tightly and upright in a cooler. Along with the samples, adequate ice packs and a copy of the chain of custody form are included inside the cooler.

Full coolers are secured with packing tape to ensure chain of custody; the tape seal is only removed by lab personnel upon receipt.

Coolers are labelled as needed for shipping, including identification of the number of coolers in each shipment.

Samples are relinquished to freight handlers upon arrival of the inbound aircraft at the Ulu airstrip. Should samples not be relinquished as planned due to unforeseen circumstances, such as a plane not landing as planned, samples are returned to the Environmental Coordinator, refrigerated and repackaged in preparation for a future flight as needed.

If possible, samples are shipped offsite on a weekday, excluding Friday, to avoid possible shipping delays over weekends. Hold times of some parameters are short therefore samples should be shipped frequently during multi-day sampling events.

5.4 ANALYSIS

Due to proximity and based on availability, one of three labs will typically be used to conduct analysis: Bureau Veritas; ALS; Taiga. All are appropriately accredited (see Appendix A) and use standard methods. Further details on the QA/QC procedures employed by Blue Star's current analytical provider, Bureau Veritas, can be found in Appendix B.

5.5 REPORTING

Completed chain of custody forms, sample receipt confirmation and results are provided digitally by the lab to Blue Star personnel.

All are reviewed upon receipt and uploaded to the corporate data management system. Any anomalies are discussed with the lab and appropriate resolution sought as needed, including reanalysis if needed.

Reporting is undertaken in accordance with the water licence, including reporting of analytical results for each station, results for any duplicates or blanks, and listing of detection limits

6.0 REFERENCES

Department of Indian and Northern Affairs Canada (DIAND). 1996. Quality Assurance (QA) and Quality Control (QC) Guidelines for Use by Class "B" Licensees in Collecting Representative Water Samples in the Field and For Submission of a QA/QC Plan. Water Resources Division and the Northwest Territories Water Board.

Appendix A: Lab Accreditations

Certificate of Accreditation

Certificat d'accréditation

Bureau Veritas

Burnaby Laboratory

4606 Canada Way, Burnaby, BC V5G 1K5

SCC file number: / Dossier du CCN nº : 15188

Initial accreditation date: / Date de la première accréditation :1993-06-08

having been assessed by the Standards Council of Canada (SCC) and found to conform with the requirements of ISO/IEC 17025:2017 and the conditions for accreditation established by SCC is hereby recognized as an

ACCREDITED TESTING LABORATORY

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.

ayant fait l'objet d'une évaluation du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences énoncées dans ISO/IEC 17025:2017 et aux conditions d'accréditation établies par le CCN, est de ce fait reconnu comme étant un

LABORATOIRE D'ESSAIS ACCRÉDITÉ

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.

Vice-President – Accreditation Services / Vice-président – Services d'accréditation

Issued on: / Délivré le :2022-02-16

The validity of this certificate, including the date of last re-accreditation and its expiry can be confirmed by the accompanying Scope of Accreditation document in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. The 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 April 2017).

Pour vérifier la validité du présent certificat, y compris la date de la dernière réaccréditation et la date d'expiration du certificat, consulter la portée d'accréditation qui se trouve dans le répertoire des laboratoires accrédités dans le site Web du CCN au www.ccn.ca.

Ce laboratoire est accrédité conformément à la Norme internationale reconnue ISO/IEC 17025:2017. Cette accréditation démontre la compétence technique d'un organisme pour une portée définie et l'exploitation d'un système de management de la qualité de laboratoire (cf. communiqué conjoint ISO-ILAC-IAF date d'avril 2017).

Standards Council of Canada
Open a world of possibilities.

Conseil canadien des normes
Un monde de possibilités à votre portée.

Canada

TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

Scope of Accreditation

Accredited Laboratory No. 117

Legal Name of Accredited Laboratory:	**Bureau Veritas**
Location Name or Operating as (if applicable):	Burnaby Laboratory
Contact Name:	Stephanie Chang
Address:	4606 Canada Way Burnaby, BC V5G 1K5
Telephone:	604 734 7276
Website:	www.bvna.com
Email:	Burnaby-QualityAssuranc@bureauveritas.com

SCC File Number:	15188
Accreditation Standard(s):	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories
Fields of Testing:	Biological Chemical/Physical Forensic
Program Specialty Area:	Agriculture Inputs, Food, Animal Health and Plant Protection (AFAP) Environmental Testing (ET) Forensic Test Method Development and Non-routine Testing (TMDNRT)
Initial Accreditation:	1993-06-08
Most Recent Accreditation:	2021-08-21
Accreditation Valid to:	2025-06-08

Canada

Remarque: La présente portée d'accréditation existe également en français, sous la forme d'un document distinct.
Note: This scope of accreditation is also available in French as a separately issued document.

TEST METHOD DEVELOPMENT AND NON_ROUTINE TESTING

Note: The laboratory accredited under this PSA has demonstrated that it meets ISO/IEC 17025 requirements for non-routine testing under the following product classification.

Description of activities – chemical analysis:

1. Development and validation of new testing methodology for the screening and determination of chemical compounds in food samples.
2. Development and validation of mass spectral techniques in food samples.

Description of techniques – chemical analysis:

1. GC, GC-MS and GC-MS-MS
2. HPLC, LC-MS and LC-MS-MS

FORENSICS

Description of activities- forensic equine drug testing

1.Screening and confirmatory analysis for drugs and metabolites in equine body fluids, including quantification where required.

2.Testing of known and unknown substances including powders, liquids, dosage forms, feeds, drug administration paraphernalia and other materials for the presence of drugs in horse hair, urine and blood.

Description of techniques - forensic equine drug testing

a. High-performance liquid chromatography (HPLC)
b. Immunoassay
c. Mass spectrometry
d. Sample preparation, extraction and general chemical tests

ANIMAL AND PLANTS (AGRICULTURE)

Foods and Edible Products (Human and Animal Consumption):

Feeds

BBY4SOP-00105	Determination of 17-a-Methyltestosterone in Feed

Food Methods: Proximate Analysis

BBY4SOP-00104	Determination Histamine in Fish

Fruits and Vegetables, Processed Foods, Animal Tissue, Meat, Fish, Dairy, Honey, Eggs and Egg Products and Animal Derived Foods

BBY4SOP-00048	Determination of Tetracyclines in Tissue and Animal Derived Foods
BBY4SOP-00052	Determination of Phenol in Honey
BBY4SOP-00061	Determination of Halofuginone in Tissue and Animal Derived Foods
BBY4SOP-00066	Determination of Pesticides in Animal Derived Foods
BBY4SOP-00118	Determination of Herbicides in Food
BBY4SOP-00121	Fumonisins in Grains, Corn Products and Processed Foods
BBY7SOP-00011	Analysis of Metals in Meat, Fruit and Vegetables, Processed Foods and Animal Derived Foods by ICP-MS
BBY7SOP-00021	Digestion of Tissue, Vegetation for Analysis of Heavy Metals

Microbiological

AOAC 2014.05	Enumeration of Yeast and Moulds in Food using 3M™ Petrifilm™ Rapid Yeast And Mold Count (RYM) Plate
Assurance GDS® MPX Top 7 STEC Assay	BioControl Assurance GDS® MPX Top 7 STEC
COR1SOP-00019	Enumeration of Coliforms, Faecal Coliforms and *E.coli* in Foods by using the MPN Method(Modified MFHPB-19; option of standard 3-tube and 10-tube MPN Method)
FDA BAM Chapter 5	BAM FDA Isolation and Identification of *Salmonella* in Food and Environment Samples
MFHPB-10	Isolation of *Escherichia coli* O157:H7/NM from foods and environmental surface samples
MFHPB-18	Determination of Aerobic Colony Count in Foods
MFHPB-19	Enumeration of Coliforms, Faecal Coliforms and *E. coli* in Foods by using the MPN Method
MFHPB-20	Isolation and Identification of *Salmonella* from Foods and Environmental Samples
MFHPB-21	Enumeration of *Staphylococcus aureus* in Foods
MFHPB-22	Enumeration of Yeasts and Molds in Foods
MFHPB-23	Enumeration of *Clostridium perfringens* in Foods
MFHPB-29	VIDAS Detection of *Listeria spp*. in Food, Environmental Samples

MFHPB-30	Isolation of *Listeria monocytogenes* and *Listeria spp*. from Foods and Environmental Samples
MFHPB-33	Enumeration of Total Aerobic Bacteria in food Products and Food Ingredients Using 3M™ Petrifilm™ Aerobic Count Plates
MFHPB-34	Enumeration of *E. coli* and Coliforms in Food Products and Food Ingredients using 3M™ Petrifilm™ *E. coli Count* Plates
MFHPB-35	Enumeration of Coliforms in Food Products and Food Ingredients using 3M™ Petrifilm™ Coliform Count Plates
MFLP-09	Enumeration of *Enterobacteriaceae* Species in Food and Environmental Samples Using 3M Petrifilm *Enterobacteriaceae* Count Plates
MFLP-16	Detection of *Escherichia coli* O157:H7 in Foods - Assurance GDS® for *E. coli* O157:H7 Gene Detection System
MFLP-21	Enumeration of *Staphylococcus aureus* in Foods and Environmental Samples Using 3M™ Petrifilm™ Staph Express Count (STX) Plates
MFLP-25	Isolation and Identification of *Shigella spp*. From Foods
MFLP-28	The Qualicon BAX ®System Method for the Detection of *Listeria monocytogenes* in a Variety of Food
MFLP-29	The Qualicon BAX® System for the Detection of *Salmonella* in Foods and Environmental Surface Samples
MFLP-30	Detection of *E. coli* O157:H7 in select foods using the BAX® system *E. coli* O157:H7 MP
MFLP-33	Detection of *Listeria monocytogenes* in Foods by the VIDAS LMO 2™ Method
MFLP-37	Part 1: Detection of Halophilic Vibrio Species in Seafood Part 2: Detection of *Vibrio cholerae*
MFLP-38	Detection of *Salmonella spp*. from All Foods and Selected Environmental Surfaces using IQ-Check™ Salmonella Real-time PCR Test Kit
MFLP-39	Detection of *Listeria spp*. from Environmental Surfaces and heat processed RTE Meat and Poultry Using iQ-Check™ *Listeria spp*. Real-Time PCR Test Kit
MFLP-42	Isolation and Enumeration of *Bacillus cereus* Group in Foods

MFLP-46	Isolation of Thermophilic *Campylobacter* from Food
MFLP-49	Detection of Salmonella *spp* in Food Products and environmental surfaces by the VIDAS® UP Salmonella (SPT) Method
MFLP-54	Detection of *Listeria monocytogenes* from selected foods using iQ-Check™ *Listeria monocytogenes* Real-Time PCR Test Kit
MFLP-59	Detection of *Listeria spp.* in food products and environmental surface samples with VIDAS® UP *Listeria* (LPT)
MFLP-74	Enumeration of *Listeria monocytogenes* in Food
MFLP-77	Detection of *Listeria* spp. in food products and environmental samples by the VIDAS® *Listeria* species Xpress (LSX) method
MFLP-79	Detection of *Listeria* spp. in Environmental Surface Samples Using the BAX® System Real-Time PCR Assay for *Listeria* Genus
MLG4	FSIS Procedure for the Isolation and Identification of *Salmonella* from Meat, Poultry, Pasteurized egg and Siluriformes (Fish) products and Carcass and Environmental Sponge samples
MLG41	Isolation, Identification of Campylobacter jejuni/coli/lari from Poultry Rinse and Sponge and Raw Product Samples
COR1SOP-00089	USP: Enterobacterial Count in NHP by MPN Method
COR1SOP-00093	USP: Detection and Enumeration for *Pseudomonas aeruginosa* in NHP

Natural Health Products

BBY4SOP-00150	Determination of Pesticides in Natural Health Products
USP40-NF35 S1. Dietary Supplements Chapters: 2021	Microbial Enumeration Tests-Nutritional and Dietary Supplements. Total Aerobic Microbial Count by Plate Method
USP40-NF35 S1. Dietary Supplements Chapters: 2021	Microbial Enumeration Tests-Nutritional and Dietary Supplements Total Combined Molds and Yeast Count by Plate Method

USP40-NF35 S1. Dietary Supplements Chapters: 2022	Microbiological Procedures for absence of specified microorganisms - Nutritional and Dietary Supplements Test for Absence of *Staphylococcus aureus*
USP40-NF35 S1. Dietary Supplements Chapters: 2022	Microbiological Procedures for absence of specified microorganisms - Nutritional and Dietary Supplements Test for Absence of *Salmonella species*
USP40-NF35 S1. Dietary Supplements Chapters: 2022	Microbiological Procedures for absence of specified microorganisms - Nutritional and Dietary Supplements Test for Absence of *Escherichia coli*

Other

BBY4SOP-00032	Determination of Aminoglycocides in Tissue and Animal Derived Foods
BBY4SOP-00033	Determination of Dithiocarbamates (EBDC) in Fruits and Vegetables, Processed Foods and Animal Derived Foods by CS2 Evolution
BBY4SOP-00035	Determination of Chlorinated Phenols in Tissue and Animal Derived Foods
BBY4SOP-00036	Determination of Fluoroquinolones and Quinolones in Tissue and Animal Derived Food
BBY4SOP-00037	Determination of Synthetic Pyrethrins in Animal Tissue and Animal Derived Foods
BBY4SOP-00038	Determination of Carbamates in Tissue and Animal Derived Foods
BBY4SOP-00043	Determination of Ethylenebisdithiocarbamate (EBDC) in Fruits and Vegetables, Processed Foods and Animal Derived Foods
BBY4SOP-00044	Determination of Daminozide (ALAR) in Fruits and Vegetables, Processed Foods and Animal Derived Foods
BBY4SOP-00045	Determination of Ethylenethiourea in Fruits and Vegetables, Processed Foods and Animal Derived Foods
BBY4SOP-00046	Determination of Coccidiostats in Tissue and Animal Derived Foods
BBY4SOP-00047	Determination of Gestagens in Animal Tissue and Dairy
BBY4SOP-00050	Determination of Sulfonamides in Tissue and Animal Derived Foods

BBY4SOP-00051	Determination of Amitraz and Metabolites in Fruits and Vegetables, Processed Foods and Animal Derived Foods
BBY4SOP-00054	Determination of Dipyrone Related Residues in Tissue and Animal Derived Foods
BBY4SOP-00055	Determination of Free and Total Residues of Beta Agonists in Tissue and Animal Derived Foods
BBY4SOP-00056	Determination of Virginiamycin in Tissue and Animal Derived Foods
BBY4SOP-00059	Determination of Ceftiofur-Related Residues in Tissue and Animal Derived Foods
BBY4SOP-00060	Determination of Benzimidazoles in Tissue and Animal Derived Foods
BBY4SOP-00062	Determination of Endectocides in Tissue, Feed and Animal Derived Foods
BBY4SOP-00063	Determination of Phenylbutazone in Tissue and Animal Derived Foods
BBY4SOP-00064	Determination of Protein Bound Metabolites of Nitrofurans in Tissue and Animal Derived Foods
BBY4SOP-00068	Determination of Tranquilizers and Carazolol in Tissue and Animal Derived Foods
BBY4SOP-00069	Determination of Morantel and Pyrantel Drug Related Metabolites in Tissue and Animal Derived Foods
BBY4SOP-00070	Determination of Zeranol and Stilbenes in Tissue and Animal Derived Foods
BBY4SOP-00079	Determination of Volatile Pesticides in Tissue
BBY4SOP-00080	Detection of Thyreostats in Animal Tissue, Eggs and Dairy
BBY4SOP-00082	Determination of Triphenylmethane Dyes in Tissue
BBY4SOP-00083	Determination of Carbadox and Olaquindox-Related Metabolites in Tissue
BBY4SOP-00084	Determination of Amphenicols in Tissue and Animal Derived Foods
BBY4SOP-00085	Determination of Bacitracin A in Tissue and Animal Derived Foods
BBY4SOP-00086	Determination of Nitroimidazoles in Tissue and Animal Derived Foods
BBY4SOP-00087	Determination of Aflatoxin in Dairy
BBY4SOP-00089	Determination of Beta Lactams in Animal Tissue and Animal Derived Foods

BBY4SOP-00091	Determination of Non-Steroidal Anti-Inflammatory Drugs (NSAIDS), Hormones and Corticosteroids in Animal Tissue, Eggs and Dairy
BBY4SOP-00092	Determination of Melamine in Eggs, Dairy and Processed Foods
BBY4SOP-00093	Determination of Bisphenol A in Dairy and Processed Foods
BBY4SOP-00094	Determination of Ochratoxin A in Cereals and Processed Foods
BBY4SOP-00095	Determination of Deoxynivalenol (Vomitoxin) in Cereal and Cereal Products
BBY4SOP-00099	Determination of Macrolides in Tissue and Animal Derived Foods
BBY4SOP-00100	Determination of Trenbolone in Tissue and Animal Derived Foods
BBY4SOP-00111	Aflatoxins in Food and Animal Feed
BBY4SOP-00123	Determination of Pesticides in Process Foods by GCMSMS and LCMSMS
BBY4SOP-00128	Determination of Pesticides in FV Products and Honey by GC/LC
BBY4SOP-00129	Determination of Pesticides in Tissue by GCMSMS and LCMSMS
BBY4SOP-00130	Determination of Tiamulin in Animal Tissue
BBY4SOP-00131	Determination of 3-monochloropropane-1,2-diol (3-MCPD) in Food and Food Ingredients
BBY4SOP-00132	Multi-Residue Determination of Multi-Class Drugs in Urine
BBY4SOP-00134	Determination of Ethyl Carbamate in Alcoholic Beverages
BBY4SOP-00135	Determination of Diquat and Paraquat in Fruit, Vegetables and Processed Foods
BBY4SOP-00136	Determination of Glyphosate and Metabolites in Fruit, Vegetables and Processed Foods
BBY4SOP-00137	Determination of Alternaria Mycotoxins in Beverages and Honey
BBY4SOP-00138	Multi-Residue Determination of Multi-Class Drugs in Animal Tissue and Animal Derived Foods
BBY4SOP-00139	Multi-Residue Determination of Multi-Class Antibiotics in Honey
BBY4SOP-00142	Determination of Steroids and Stilbenes in Fish
BBY4SOP-00144	Multi-Residue Determination of Multi-Class Drugs in Animal Feed and Pre-Feed

BBY4SOP-00145	Determination of 4-Methylimidazole in Processed Foods
BBY4SOP-00146	Determination of T-2 and HT2 Mycotoxins in Processed Foods
BBY4SOP-00147	Determination of Zearalenone and Related Mycotoxins in Processed Foods
BBY4SOP-00149	Multi-residue determination of Mycotoxins in Processed Foods
BBY7SOP-00014	Determination of Mercury in Tissue Digests
BBY4SOP-00151	Phthalates in Food by LC-MS/MS
BBY4SOP-00152	Determination of Polar Pesticides in Food

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Microbiological

BBY4SOP-00001	Total and Fecal Coliform and *E. coli* in Water by Membrane Filtration
BBY4SOP-00003	Heterotrophic Plate Count in Water
BBY4SOP-00005	*Pseudomonas aeruginosa* Count in Water by Membrane Filtration
BBY4SOP-00006	*Enterrococcus* Count in Water by Membrane Filtration
BBY4SOP-00143	Enumeration of Coliforms and *E. coli* by MF using Chromocult

Biological Tissues

BBY4SOP-00108	Determination of Polycyclic Aromatic Hydrocarbons in Tissue by GC/MS
BBY7SOP-00002	Determination of Metals in Environmental Samples Using CRC ICPMS
BBY7SOP-00012	Determination of Hg in Solids, Tissues and Miscellaneous Solids by CVAFS

Air

BBY5SOP-00005	Analysis of Total Suspended Particulates (TSP), PM2.5, and PM10 in Air [modified from BC Environmental Laboratory Manual Section G and EPA 600/R-94/038B] Particulate>2.5 microns (gravimetric)

BBY7SOP-00016	Preparation of Air Filters for Metals Analysis [modified from NIOSH 7303]
BBY7SOP-00002	Determination of Metals in Environmental Samples Using CRC ICPMS [modified from EPA 6020] Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Molybdenum Nickel Phosphorus Potassium Selenium Sodium Strontium Sulphur (Sulfur) Tin Titanium Uranium Vanadium Zinc Zirconium

BBY7SOP-00018	Analysis of Various Sample Types by ICP-OES [EPA 6010] Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Molybdenum Nickel Phosphorus Potassium Selenium Sodium Strontium Sulphur (Sulfur) Tin Titanium Vanadium Zinc Zirconium

BBY8SOP-00027	Determination of Polycyclic Aromatic Hydrocarbons in Air by GC/MS [modified from BC Environmental Laboratory Manual (Preparation) and EPA 8270 (Analysis)] Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo(a)pyrene Benzo(b,j)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo (a,h) anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene

BBY8SOP-00058	VOCs In Air/vapour Using TD Tubes with Analysis by GC/MS [modified from BC Environmental Laboratory Manual Section H] 1,1-Dichloroethane 1,1-Dichloroethene 1,1-Dichloropropene 1,1,1-Trichloroethane 1,1,1,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1,2,2-Tetrachloroethane 1,2-Dibromo-3-chloropropane (DBCP) 1,2-Dibromoethane (Ethylene dibromide) 1,2-Dichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,3-Trimethylbenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3-Butadiene 1,3-Dichlorobenzene 1,3-Dichloropropane 1,3,5-Trimethylbenzene 1,4-Dichlorobenzene 2-Butanone (Methyl ethyl ketone, MEK) 2-Chlorophenol 2-Chlorotoluene 2-Hexanone (Methyl butyl ketone, MBK) 2-Propanol (Isopropyl alcohol) 4-Chlorotoluene (p-Chlorotoluene) 4-isopropyltoluene (p-Cymene) 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromobenzene Bromodichloromethane Bromoform Bromomethane Carbon Disulphide Carbon tetrachloride Chlorobenzene Chloroethane (Ethyl Chloride)

	Chloroethene (Vinyl chloride) Chloroform cis-1,2-Dichloroethylene cis-1,3-Dichloropropene Dibromochloromethane Dibromomethane Dichlorodifluoromethane (Freon12) Dichloromethane Ethyl Acetate Ethylbenzene Hexachlorobutadiene Isopropanol Isopropylbenzene (Cumene) m,p-Xylene Methyl tert-butyl ether (MTBE) Methylcyclohexane n-Butylbenzene n-Decane n-Hexane n-Propylbenzene Naphthalene o-Xylene sec-Butylbenzene Styrene tert-Butylbenzene Tetrachloroethylene Toluene trans-1,3-Dichloropropene Trichloroethene Trichlorofluoromethane Trichlorotrifluoroethane Volatile Hydrocarbons (VH): C6-C13

Soil/Solid/Water/Wastewater

BBY6SOP-00010	Nitrite and Nitrite Plus Nitrate by Automated Colourimetric Method [modified from SM 4500-NO3- I] Nitrate + Nitrite Nitrogen Nitrite
BBY6SOP-00017	Determination of Sulfate by Konelab [modified from SM 4500-SO4 2-] Sulphate

BBY8SOP-00010	Determination of BTEX in Soil and Waters by Headspace-GC-MS [modified from EPA 5021 and EPA 5035 and EPA 8260] Benzene Ethylbenzene m,p-Xylene Methyl t-butyl ether o-Xylene Styrene Toluene
BBY8SOP-00011	VH Analysis in Soils and Waters by Headspace GC/FID [modified from BC Environmental Laboratory Manual Section D] VH: C6-C10 VPH: C6-C10 – BTEX
BBY8SOP-00029	Extractable Hydrocarbons (Water, Soils, Product, TPH) [modified from BC Environmental Laboratory Manual Section D] Extractable Petroleum Hydrocarbons (EPH): C10-C19 Extractable Petroleum Hydrocarbons (EPH): C19-C32 Total Extractable Hydrocarbons (TEH): C10-C30
BBY8SOP-00030	Determination of CCME (F2-F4) in Water and Soil [CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD] F2: C10-C16 F3: C16-C34 F4: C34-C50
BBY8SOP-00012	F1 and LH Analysis for Soils and Waters by Headspace GC/FID [CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD] F1: C6-C10 F1-BTEX: C6-C10 – BTEX

BBY8SOP-00054	CP, NCP, HydroxyPhenol in water (MTBE extraction) and soil by GC/MS [modified from BC Environmental Laboratory Manual Section D] 2-Chlorophenol 2-Hydroxyphenol (Catechol) 2-Methyl-4,6-dinitrophenol (4,6-Dinitro-o-cresol, DNOC) 2-Methylphenol (o-Cresol) 2-Nitrophenol 2,3-Dichlorophenol 2,3,4-Trichlorophenol 2,3,4,5-Tetrachlorophenol 2,3,4,6-Tetrachlorophenol 2,3,5-Trichlorophenol 2,3,5,6-Tetrachlorophenol 2,3,6-Trichlorophenol 2,4 + 2,5-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol 2,6-Dichlorophenol 2,6-Dimethylphenol 3 + 4-Chlorophenol 3 + 4-Methylphenol 3-Hydroxyphenol (Resorcinol) 3,4-Dichlorophenol 3,4-Dimethylphenol 3,4,5-Trichlorophenol 3,5-Dichlorophenol 4-Chloro-3-methylphenol 4-Hydroxyphenol (Hydroquinone) 4-Nitrophenol Pentachlorophenol Phenol
BBY8SOP-00060	Determination of Tetraethyllead in Soil and Water by GC/MS [modified from BC Environmental Laboratory Manual Section D and EPA 8000, EPA 8270] Tetraethyl lead

BBY8SOP-00009	Analysis of VOC's in Solids and Waters by Static Headspace GC/MS [modified from EPA 5021 and EPA 8260] 1,1-Dichloroethane 1,1-dichloroethylene 1,1-Dichloropropene 1,1,1-Trichloroethane 1,1,1,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1,2-Trichloropropane 1,1,2-Trichloro-1,2,2-Triflouroethane (Freon 113) 1,1,2,2-Tetrachloroethane 1,2-Dibromo-3-chloropropane (DBCP) 1,2-Dibromoethane (Ethylene dibromide) 1,2-dichlorobenzene 1,2-dichloroethane 1,2-Dichloropropane 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,3-Trichloropropene 1,2,3-Trimethylbenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3-Butadiene 1,3-Dichlorobenzene 1,3-Dichloropropane 1,3,5-Trichlorobenzene 1,3,5-Trimethylbenzene 1,4-dichlorobenzene 2-Butanone 2-Chlorotoluene 4-Methyl-2Pentanone 4-Chlorotoluene (p-Chlorotoluene) 4-isopropyltoluene (p-Cymene) Acetone Benzene Bromobenzene Bromodichloromethane Bromoform Bromomethane Carbon tetrachloride Chlorobenzene Chlorodibromomethane

	Chloroethane (Ethyl Chloride) Chloroethene (Vinyl Chloride) Chloroform Chloromethane (Methyl chloride) cis-1,2-Dichloroethylene cis-1,3-Dichloropropene Dibromomethane Dichlorodifluoromethane Dichloromethane Ethylbenzene Ethylene Dibromide Hexachlorobutadiene Hexane Isopropylbenzene (Cumene) m,p-Xylene Methyl t-butyl ether Methylcyclohexane n-Butylbenzene n-Decane n-Propylbenzene Naphthalene o-Xylene Pentachloroethane sec-Butylbenzene Styrene tert-Butylbenzene Tetrachloroethylene Toluene trans-1,2-Dichloroethylene trans-1,3-Dichloropropene Trichloroethylene Trichlorofluoromethane

BBY8SOP-00040	VOC Extra Compounds in Soil and Water by Headspace-GC-MS [BC Environmental Laboratory Manual Section D] 1-Butanol (n-Butanol) 1-Chlorobutane 1,4-Dioxane (p-dioxane) 2-Hexanone (Methyl butyl ketone, MBK) 2-Propanol (Isopropyl alcohol) Acrolein (Propenal) Acrylonitrile Allyl chloride (3-chloropropene) Alpha-Diisobutylene Beta-Diisobutylene Butylated hydroxytoluene (BHT) Carbon disulfide Chloroprene (2-Chloro-1,3-butadiene) Cyclohexanone Cyclohexene Dicyclopentadiene Ethyl acrylate Ethyl ether Hexachloroethane Isobutanol (2-Methyl-1-propanol) Methyl methacrylate Methylacrylonitrile Tetrabromomethane Tetrahydrofuran (THF) Vinyl acetate

Soil/Solid/Waste

BBY7SOP-00004	Digestion of Soil, Sediment and Sludge for Total Recoverable Metals [modified from BC Environmental Laboratory Manual Section C]
BBY7SOP-00012	Determination of Hg in Solids, Tissues and Miscellaneous Solids by CVAFS [modified from EPA 245.7 and BC Environmental Laboratory Manual Section C] Mercury

BBY7SOP-00018	Analysis of Various Sample Types by ICP-OES [modified from EPA 6010 and BC Environmental Laboratory Manual Section B] 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 Tin Titanium Vanadium Zinc Zirconium
BBY8SOP-00003	Gravimetric Heavy Hydrocarbon-CCME F4G in Soils by AME [CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD] F4: Gravimetric
BBY8SOP-00006	Total Oil and Grease in Soils by Sonification Extraction-Dichloromethane [modified from BC Environmental Laboratory Manual Section D] Total Oil and Grease

BBY8SOP-00007	Mineral Oil and Grease in Solid Samples by Sonification Extraction [modified from BC Environmental Laboratory Manual Section D] Mineral Oil and Grease
BBY8SOP-00008	Waste Oil Quantification in Solids, Liquids by Petroleum Ether Extraction [BC Environmental Laboratory Manual Section D] Waste Oil Content
BBY8SOP-00017	Determination of Moisture Content in Solid Samples [modified from BC Environment Laboratory Manual] Percent Moisture

BBY8SOP-00022	Determination of Polycyclic Aromatic Hydrocarbons in Soil by GC/MS [modified from BC Environmental Laboratory Manual Section D] 1-Methylnaphthalene 2-Chloronaphthalene 2-Methylnaphthalene 3-Methylcholanthrene 4-Nitropyrene 7,12-Dimethylbenz(a)anthracene 9,10-Anthraquinone Acenaphthene Acenaphthylene Acridine Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(c)phenanthrene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(j)fluoranthene Benzo(k)fluoranthene Chrysene Dibenzo(a,e)pyrene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3 - cd)pyrene N-Methylaniline Naphthalene Perylene Phenanthrene Pyrene Quinoline
BBY8SOP-00050	Determination of Tributyltin in Soil and Sediment by GC-MS [modified from RESTEK CORP APPLICATION NOTE# 59550] Tributyltin Dibutyltin

Water/Wastewater/Soil Extract/Soil Leachate

BBY0SOP-00003	Determination of pH in Waters, Leachates and Extracts by pH Meter [modified from SM 4500-H+ B] pH
BBY0SOP-00006	Determination of Conductivity in Waters, Leachates and Extracts by Meter [modified from SM 2510 B] Conductivity (25˚C)
AB SOP-00007	Ammonia-Nitrogen by Automated Phenate Colorimetric method [modified from EPA 350.1] Ammonia
BBY6SOP-00011	Determination of Chloride by Konelab [modified from SM 4500-CL- E and BC Environmental Laboratory Manual Section B] Chloride
BBY6SOP-00013	Ortho-, Total Dissolved, and Total Phosphate by Automated Method [modified from SM 4500-P E] Phosphate Total Dissolved Phosphorus Total Phosphorus
BBY6SOP-00016	Determination of Total and Total Dissolved Nitrogen by Automated Method [modified from SM 4500-N C] Total Dissolved Nitrogen Total Nitrogen
BBY6SOP-00021	Determination of Apparent Colour in Water Samples [modified from SM 2120 B] Apparent Colour
BBY6SOP-00024	Chemical Oxygen Demand (COD) by Closed Reflux, Colorimetric Method [modified from SM 5220 D] COD
BBY6SOP-00025	Determination of pH in Saturated Paste Extract [modified from SM 4500-H+ B] pH
BBY6SOP-00026	pH, Conductivity, Salinity, Alkalinity (Total, Phenolphthalein) in Water [modified from SM 2320 B, SM 2510 B, SM 4500-H+ B] Alkalinity (pH 4.5) Conductivity (25˚C) PH

BBY6SOP-00027	Determination of Turbidity in Water Samples [modified from SM 2130 B] Turbidity
BBY6SOP-00028	Determination of pH in Soil Leachate [modified from BC Environmental Laboratory Manual Section B] pH
BBY6SOP-00029	Specific Conductance in Satpaste and 1:5 DI Leach by Conductivity Cell [modified from SM 2510 B] Conductivity
BBY6SOP-00030	Satpaste Extract Preparation for Saturation Percent, Salinity Analyses [modified from BC Environmental Laboratory Manual Section B] Percent Saturation Saturated Paste
BBY6SOP-00033	Determination of Total Dissolved Solids in Waters and Wastewaters [modified from SM 2540 C] Total Dissolved Solids
BBY6SOP-00034	Determination of Total Suspended Solids in Waters and Wastewaters [modified from SM 2540 D] Total Suspended Solids
BBY6SOP-00035	Determination of Total Solids and Total Solids Fixed in Waters [modified from SM 2540 A] Fixed Solids Total Solids (TS)
BBY6SOP-00037	Determination of Total Acidity pH 8.3, Acidity to pH 4.5, in Waters [modified from SM 2310 B] Acidity
BBY6SOP-00045	Total and Carbonaceous BOD, DO, and pH Analysis [modified from SM 5210 B] BOD (5 day) CBOD (5 day)
BBY6SOP-00048	Determination of Fluoride in Waters, Soil Extracts, Leachates by ISE [modified from BC MOE ENVIRONMENTAL MANAGEMENT ACT HAZARDOUS WASTE REGULATION (EMA/HWR) SCHEDULE 4, PART 2 (Preparation) and SM 4500-F- C (Analysis)] Fluoride

BBY6SOP-00057	Determination of True Colour in Water Samples by Konelab [modified from SM 2120 C] True Colour
BBY7SOP-00001	Determination of Metals in Solids by ICPMS [modified from EPA 6020] Antimony Arsenic Barium Beryllium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Manganese Mercury Molybdenum Nickel Selenium Silver Thallium Tin Vanadium Uranium Zinc Zirconium
BBY7SOP-00005	Procedure for the Preparation of Solids and Soil using TCLP [EPA 1311]
BBY7SOP-00009	Procedure for the Preparation of Leachates Using BC MLEP [modified from BC MOE ENVIRONMENTAL MANAGEMENT ACT HAZARDOUS WASTE REGULATION (EMA/HWR) SCHEDULE 4, PART 2]

BBY8SOP-00021	Determination of Polycyclic Aromatic Hydrocarbons in Waters by GC/MS [modified from BC Environmental Laboratory Manual Section D] 1-Methylnaphthalene 2-Chloronaphthalene 2-Methylnaphthalene 3-Methylcholanthrene 4-Nitropyrene 7,12-Dimethylbenz(a)anthracene 9,10-Anthraquinone Acenaphthene Acenaphthylene Acridine Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b,j)fluoranthene Benzo(c)phenanthrene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,e)pyrene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene N-Methylaniline Naphthalene Perylene Phenanthrene Pyrene Quinoline

BBY7SOP-00018	Analysis of Various Sample Types by ICP-OES [modified from EPA 6010] Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Molybdenum Nickel Phosphorus Potassium Selenium Silicon Silver Sodium Strontium Sulphur (Sulfur) Tin Titanium Vanadium Zinc Zirconium

BBY7SOP-00002	Determination of Metals in Environmental Samples Using CRC ICPMS [modified from EPA 6020 and BC Environmental Laboratory Manual Section C] Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Cesium Chromium Cobalt Copper Gold Iron Lanthanum Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Palladium Phosphorus Platinum Potassium Rubidium Selenium Silicon Silver Sodium Strontium Sulphur (Sulfur) Tellurium Thallium Thorium Tin Titanium

	Tungsten Uranium Vanadium Zinc Zirconium
BBY7SOP-00003	Digestion of Aqueous Samples for Metals by ICPMS or ICP-OES [modified from EPA 6020 and BC Environmental Laboratory Manual Section C]
AB SOP-00084	Mercury in Water, Leachates and Liquids by Bromination and Cold Vapour [modified from BC Environmental Laboratory Manual Section C) Mercury
BBY7SOP-00022	Determination of Ultra-Low Level Mercury in Water by CVAFS [modified from EPA 1631] Mercury
BBY8SOP-00004	Oil and Grease in Water Samples by Hexane Extraction and Gravimetry [modified from BC Environmental Laboratory Manual Section D] Mineral Oil and Grease Total Oil and Grease
BBY8SOP-00059	Determination of Tributyltin in Water by GC-MS [modified from RESTEK CORP LIT. CAT#59550] Dibutyltin Tributyltin

BBY8SOP-00025	Chlorinated Phenols in Water (DCM extraction) by GC/MS [modified from BC Environmental Laboratory Manual Section D] 2-Chlorophenol 2,3-Dichlorophenol 2,3,4-Trichlorophenol 2,3,4,5-Tetrachlorophenol 2,3,4,6-tetrachlorophenol 2,3,5-Trichlorophenol 2,3,5,6-Tetrachlorophenol 2,3,6-Trichlorophenol 2,4 + 2,5-Dichlorophenol 2,4,5-Trichlorophenol 2,4,6-trichlorophenol 2,6-Dichlorophenol 3 + 4-Chlorophenol 3,4-Dichlorophenol 3,4,5-Trichlorophenol 3,5-Dichlorophenol 4-Chloro-3-Methylphenol Pentachlorophenol

Seawater

BBY7SOP-00002	Determination of Metals in Environmental Samples Using CRC ICPMS [modified from EPA 6020] Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Molybdenum Nickel Phosphorus Potassium Selenium Silicon Silver Sodium Strontium Sulphur (Sulfur) Tellurium Tin Thallium Titanium Uranium Vanadium Zinc Zirconium

Soil/Soild – Toxicology

BBY2SOP-00010	*Chironomids dilutus* 10-Day Survival and Growth Test [EPS 1/RM/32] *Chironomids* (10d)

BBY2SOP-00011	*Hyalella azteca* 14-Day Survival and Growth Test [EPS 1/RM/33] *Hyalella azteca* (14d)
BBY2SOP-00012	Marine or Estuarine Amphipod 10 Day Survival and Reburial Test [EPS 1/RM/26 and EPS 1/RM/35] Marine Amphipods (10d)
BBY2SOP-00014	Microtox - Acute Solid Phase Analysis [EPS 1/RM/42] Microtox IC50
BBY2SOP-00030	*Neanthes arenaceodentata* Survival and Growth Test *Neanthes* (20d)
BBY2SOP-00032	Bivalve Larval Development Sediment Test [PUGET SOUND ESTUARY PROGRAM 1995 B] Bivalves (48hr)
BBY2SOP-00062	Echinoderm Embryo / Larval Development Test [EPS 1/RM/58] Echinoid Larval Development (48hr)

Water – Toxicology

BBY2SOP-00001	*Ceriodaphnia dubia* Chronic Survival and Reproduction Test [EPS 1/RM/21] *Ceriodaphnia dubia* (7d)
BBY2SOP-00002	Fathead Minnow 7 Day Survival and Growth Test [EPS 1/RM/22] Fathead Minnow (7d)
BBY2SOP-00004	Rainbow Trout Acute Survival Test (Environment Canada) [EPS 1/RM/13 and EPS 1/RM/9] Single Concentration (96hr) Trout LC50 (96hr)
BBY2SOP-00006	*Pseudokirchneriella Subcapitata* 72H Growth Inhibition Test [EPS 1/RM/25] *Pseudokirchneriella subcapitata* (72hr)
BBY2SOP-00007	*Daphnia magna* 48 Hour Acute Test [EPS 1/RM/11 and EPS 1/RM/14] *Daphnia* LC50 (48hr) *Daphnia* Single Concentration (48hr)
BBY2SOP-00009	Echinoid 20 Minute Fertilization Test [EPS 1/RM/27] Echinoderm Fertilization (20 min)

BBY2SOP-00053	*Lemna minor* 7 Day Growth Inhibition Test [EPS 1/RM/37] *Lemna minor* (7d)
BBY2SOP-00061	Rainbow Trout Acute Survival Test with pH Stabilization [EPS 1/RM/50] Single Concentration (96hr) - pH Stabilization Trout LC50 (96hr) - pH Stabilization
BBY2SOP-00069	Marine Copepod 48 Hour Acute Test [EPS 1/RM/60] Marine Copepod LC50 (48hr) Marine Copepod Single Concentration (48hr)

Number of Scope Listings: 138

Number of TMDNRT Techniques: 2

Number of Forensic Techniques: 4

Notes:

(Medical Gases Piping Systems)

The Medical Gas Piping System inspection portion of Bureau Veritas' scope of accreditation has recently been transferred to SCC's Inspection Body program. A scope listing may be found at: https://www.scc.ca/en/accreditation/programs/inspection-bodies/directory

RG_FORENSIC: *SCC Requirements and Guidance for the Accreditation for Forensic Testing Laboratories*

All laboratory standard operating procedures are developed in house.

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

Elias Rafoul
Vice-President, Accreditation Services
Publication on: 2022-03-10

Certificate of Accreditation

Certificat d'accréditation

Bureau Veritas
Calgary Laboratory
2021 – 41st Avenue, N.E., Calgary, Alberta, T2E 6P2, Canada

SCC file number: / Dossier du CCN nº : 151043

Initial accreditation date: / Date de la première accréditation :2016-08-30

having been assessed by the Standards Council of Canada (SCC) and found to conform with the requirements of ISO/IEC 17025:2017 and the conditions for accreditation established by SCC is hereby recognized as an

ACCREDITED TESTING LABORATORY

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.

ayant fait l'objet d'une évaluation du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences énoncées dans ISO/IEC 17025:2017 et aux conditions d'accréditation établies par le CCN, est de ce fait reconnu comme étant un

LABORATOIRE D'ESSAIS ACCRÉDITÉ

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.

Vice-President – Accreditation Services / Vice-président – Services d'accréditation

Issued on: / Délivré le :2022-02-16

The validity of this certificate, including the date of last re-accreditation and its expiry can be confirmed by the accompanying Scope of Accreditation document in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. The 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 April 2017).

Pour vérifier la validité du présent certificat, y compris la date de la dernière réaccréditation et la date d'expiration du certificat, consulter la portée d'accréditation qui se trouve dans le répertoire des laboratoires accrédités dans le site Web du CCN au www.ccn.ca.

Ce laboratoire est accrédité conformément à la Norme internationale reconnue ISO/IEC 17025:2017. Cette accréditation démontre la compétence technique d'un organisme pour une portée définie et l'exploitation d'un système de management de la qualité de laboratoire (cf. communiqué conjoint ISO-ILAC-IAF date d'avril 2017).

Standards Council of Canada
Open a world of possibilities.

Conseil canadien des normes
Un monde de possibilités à votre portée.

Canada

TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

Scope of Accreditation

Accredited Laboratory No. 836

Legal Name of Accredited Laboratory: **Bureau Veritas**

Location Name or Operating as (if applicable): Calgary Laboratory

Contact Name: Natalia Gonzalez

Address: 2020-41st Avenue, N.E., Calgary AB R2E 6P2

Telephone: +1-403 735-2271

Fax: +1-403-291-9468

Website: www.bvna.com

Email: Calgary-QA-Staff-AB@bureauveritas.com

SCC File Number:	151043
Accreditation Standard(s):	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories
Fields of Testing:	Biological Chemical/Physical
Program Specialty Area:	Agriculture Inputs, Food, Animal Health and Plant Protection (AFAP) Environmental Testing (ET)
Initial Accreditation:	2016-08-30
Most Recent Accreditation:	2021-04-15
Accreditation Valid to:	2024-08-30

SCC Group Accreditation:
This laboratory is a part of a Group Accreditation with the following facilities in accordance with SCC's policy on Group Accreditation documented in the Accreditation Services Accreditation Program Overview.

15229 - Bureau Veritas - 6744 - 50 Street NW, Edmonton, AB, T6B 3M9, Accredited Laboratory No. 160
151039 - Bureau Veritas - Unit D, 675 Berry St., Winnipeg, MB, R3H 1A7, Accredited Laboratory No. 837

Testing is performed at the following locations:

Air testing: #1 2080-39th Avenue N.E. Calgary, AB. T2E 6P7
Inorganic, organic chemistry and water microbiology: 4000-19 Street N.E. Calgary, AB T2E 6P8 and #3-4 2080-39th Avenue N.E. Calgary, AB. T2E 6P7, and 2021 – 41 Avenue NE, Calgary, AB T2E 6P2
Food testing: #112, 3442-118 Ave S.E. Calgary, AB T2Z 3X1.

ANIMAL AND PLANTS (AGRICULTURE)

Foods and Edible Products (Human and Animal Consumption):

(Microbiology)

Assurance GDS ® MPX Top 6 STEC Assay	Assay BioControl Assurance GDS ® MPX Top 6 STEC
Assurance GDS ® MPX Top 7 STEC Assay	BioControl Assurance GDS ® MPX Top 7 STEC
MFHPB-10	Isolation of Escherichia coli O157:H7/NM from foods and environmental surface samples
MFHPB-18	Determination of Aerobic Colony Counts in Foods
MFHPB-20	Isolation and Identification of *Salmonella* from Food and Environmental Samples
MFHPB-22	Enumeration of Yeast and Moulds in Foods
MFHPB-30	Isolation of *Listeria monocytogenes* and *Listeria* spp. from foods and environmental samples
MFHPB-33	Enumeration of Total Aerobic Bacteria in Food Products and Food Ingredients Using 3M™ Petrifilm™ Aerobic Count Plates
MFHPB-34	Enumeration of *Escherichia coli* and Coliforms in Food Products and Food Ingredients Using 3M™ Petrifilm™ *E. coli* Count Plates
MFLP-09	Enumeration of *Enterobacteriaceae* species in Food and Environmental Samples Using 3M™ Petrifilm™ *Enterobacteriaceae* Count Plates
MFLP-16	Detection of *Escherichia coli* O157:H7 in foods - Assurance GDS® for *E. coli* O157:H7 Tq Gene Detection System
MFLP-21	Enumeration of *Staphylococcus aureus* in Foods and Environmental Samples Using 3M™ Petrifilm™ *Staph.* Express Count (STX) Plates
MFLP-28	The Qualicon Bax® System Method for the Detection of *Listeria monocytogenes* in a Variety of Food.
MFLP-29	The BAX® System Method for the detection of Salmonella in foods and environmental surface samples.

MFLP-30	Detection of *Escherichia coli* O157:H7 in Select Foods using the BAX® System *E. coli* O157:H7 MP.
MFLP-36	Detection of *Salmonella* in Foods and Environmental Surface Samples-Assurance GDS® for *Salmonella* Tq Genetic Detection System
MFLP-54	Detection of *Listeria monocytogenes* from selected foods using iQ-Check™ *Listeria monocytogenes* Real-Time PCR Test Kit
MFLP-74	Enumeration of *Listeria monocytogenes* in foods
MFLP-79	Detection of *Listeria* spp. in Environmental Surface Samples using the BAX®System Real-Time PCR Assay for *Listeria* genus
MLG4	Isolation and Identification of *Salmonella* from Meat, Poultry, Pasteurized Egg and Siluriformes (fish) Products and Carcass and environmental sponges
MLG41	Isolation and Identification of *Campylobacter jejuni/coli/lari* from Poultry Rinse, Sponge and Raw Product Samples

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Soil/Solid/Waste

AB SOP-00045	Specific Gravity (Modified SM 2710 F and Petroleum and Natural Gas Industries- Field Testing of Drilling Fluids water inorganic) Gravimetric Specific Gravity
AB SOP-00047	Free Liquid (Paint Filter Test) (Modified EPA 9095 B) Volumetric Free Liquid in Waste Samples

Water

AB SOP-00011	Silica (Reactive) by Konelab - Molybdate/ANSA Reduction Method (Modified EPA 370.1) Colorimetric Reactive Silica
*AB SOP-00016	Chemical Oxygen Demand (Total and Dissolved) (Modified SM 5220 D) Colorimetric COD
AB SOP-00017	Biochemical Oxygen Demand (Modified SM 5210 B) D.O. Meter BOD (5 day) CBOD (5 day)

AB SOP-00024	Total Phosphorus by Konelab - Ascorbic Acid Reduction Method (Modified from SM 4500-P, A, B, F) Colorimetric Inorganic phosphorus Total Phosphorus
AB SOP-00032	The Determination of Residual Chlorine in Waters (Modified SM 4500 CL G) Colorimetric Free Chlorine Total Chlorine
AB SOP-00041	Ferrous and Ferric Iron in Water-Colorimetric Determination (Modified SM 3500-Fe A, B) Colorimetric Ferrous Iron
AB SOP-00058	Dissolved Oxygen- Modified Winkler Method (Modified SM 4500-O C) Titrimetric Dissolved Oxygen
AB SOP-00060	Naphthenic Acids in water by FTIR (Modified EPA 3510C R3/FTIR) IR Naphthenic Acids
*AB SOP-00061	Total Suspended Solids, Total Fixed Solids, Total Volatile Solids (Modified SM 2540 D, E) Gravimetric Total Suspended Solids Total Suspended Solids Fixed Total Suspended Solids Volatile
AB SOP-00065	Total Dissolved Solids (TDS) [Modified SM 2540 C] Gravimetric Total Dissolved Solids
AB SOP-00070	Extraction and Analysis of Naphthenic Acids in Water (DCM Extraction) [Modified from Syncrude 1995 m] IR DCM Extraction Naphthenic Acids
AB SOP-00084	Mercury in Waters, Leachates and Liquids by Bromination and Cold Vapour [Modified BC MOE LABORATORY MANUAL SECTION C and EPA 245.7] Mercury
AB SOP-00087	Organic Carbon by Technicon - Persulfate UV Oxidation (Modified Methods Manual for Chemical Analysis of Water and

	Wastes, Method Code 119) Colorimetric Organic Carbon
AB SOP-00092	Oil and Grease Water Analysis by Gravimetric Hexane Extraction Method (Modified SM 5520 B, Gravimetric) Total Oil and Grease Total Petroleum Hydrocarbons (TPH)
CAL SOP-00040	Bromate, Chlorate, and Chlorite by IC – Conductivity detection (Modified SM 4110 D) Ion Chromatography Bromate Chlorate Chlorite
CAL SOP-00049	Color by Konelab (Modified SM 2120C) Spectrophotometric Apparent colour True Color
CAL SOP-00055	Glycolic and Lactic Acid by reversed-phase chromatography (Modified from Dionex ICE-AS6 DOC NO 34961) Ion Chromatography Glycolic Acid Lactic Acid
CAL SOP-00057	Iodide,Thiocyanate, and Thiosulfate by Ion Chromatography (Modified DIONEX, DOC NO 034035) Ion Chromatography Iodide Thiocyanate Thiosulfate
CAL SOP-00063	Organic Acids by reversed-phase chromatography (conductivity detection) (Modified DIONEX ICE-AS1 DOC NO 031181) Ion Chromatography Acetic Acid Butyric Acid Formic Acid Propionic Acid
CAL SOP-00065	Oxalic Acid by Ion Chromatography - Conductivity Detection (Modified from SM 4110B) Ion Chromatography Oxalic Acid

CAL SOP-00071	Sulfite by Ion Chromatography – conductivity detection(Modified SM 4110 B) Ion Chromatography - Conductivity Detector Sulfite
CAL SOP-00076	Total and Dissolved Inorganic Carbon by Automated Colourimetry (Modified AE 2411) Inorganic Carbon
CAL SOP-00081	Turbidity – Nephelometric Method (Modified SM 2130 B) Nephelometric Turbidity
CAL SOP-00099	Extraction and analysis of Resin and Fatty Acids in water by GCMS (Modified AE 129.0 and EPA 8270E) GC/MS 12,14-Dichlorodehydroabietic Acid 12-Chlorodehydroabietic Acid 14-Chlorodehydroabietic Acid 9,10-Dichlorostearic Acid (C18) Abietic Acid Decanoic Acid C10 Dehydroabietic Acid Docosanoic Acid C22 Docosanoic Acid C12 Eicosanoic Acid C20 Hexadecanoic Acid C16 Isopimaric Acid Linoleic Acid C18:2 Linoleic Acid C18:3 Neoabietic Acid Octadecanoic Acid C18 Oleic Acid C18:1 Palustric Acid Pimaric Acid Sandaracopimaric Acid Tetradecanoic Acid (C14) Undecanoic Acid (C11) Total of Resin Acids Total of Fatty Acids
CAL SOP-00273	Determination of Chlorophyll and Pheophytin (Modified SM 23 10200 H) Chlorophyll A Chlorophyll B Chlorophyll C Pheophytin

Emissions (Air)

EMS SOP-00009	Sorbent traps for the determination of Mercury Emissions (Field) (Modified US EPA Method 30B) Spectrometer - Atomic Absorption Detector Mercury (Hg)

EMS SOP-00110	Anions-Water (Modified Methods Manual for Chemical Analysis of Atmospheric Pollutants method 52121) Ion Chromatography - Conductivity Detector Chloride Fluoride Nitrate Sulfate
EMS SOP-00111	Ammonia – Water (Modified Methods Manual for Chemical Analysis of Atmospheric Pollutants method 52626] Ion Chromatography - Conductivity Detector Ammonia
EMS SOP-00112	Fixed Gases - Air (Modified Method 3, Alberta Stack Sampling Code, 1995, Publication Number: REF.89 and EPA 3C) GC/TCD CO CO_2 N_2 O_2
EMS SOP-00113	Formaldehyde – Water (Modified from Methods Manual for Chemical Analysis of Atmospheric Pollutants, method 12525) Colorimetric Formaldehyde
EMS SOP-00114	Hydrocarbons – Air (Modified AENV18) GC/FID Total Hydrocarbons as Methane
EMS SOP-00115	Total Particulates - Air Filter (Modified method 5, Determination of Particulate Emissions from Stationary Sources, Alberta Stack Sampling Code, 1995, Publication Number: REF.89) Gravimetric Particulates
EMS SOP-00116	Total/Trace Reduced Sulfur - Air (Field) (Modified from AENV.TRS.P&P-1 and AENV.TRS.SGP-1) GC/PID Carbon disulfide Carbonyl sulfide Dimethyl disulfide Dimethyl sulfide Hydrogen sulphide Methyl mercaptan

EMS SOP-00122	Chlorine and Chlorine Dioxide – Air (Field) (Modified Alberta Environment Stack Code, 1995, Publication Number REF 89) Iodometric Determination Chlorine Chlorine Dioxide

Soil/Solid

*AB SOP-00002	Moisture Content in Soil (Modified CCME Petroleum Hydrocarbons in Soil - Tier 1 Method Section 13) Gravimetric % Moisture
*AB SOP-00003	Analysis of PAH in Water, Soil, Oil and Leachates by GC/MS (Modified EPA 8270E, EPA 3540C, EPA 8270E) - Soils and water 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Acridine Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b, j) fluoranthene Benzo (g,h,i) perylene Benzo (k) fluoranthene Benzo(c)phenanthrene Benzo(e)pyrene Chrysene Dibenzo (a,h) anthracene Fluoranthene Fluorene Indeno (1,2,3 - cd) pyrene Naphthalene Perylene Phenanthrene Pyrene Quinoline
*AB SOP-00004	Determination of Electrical Conductivity by Manual Meter (Modified SM 2510B) - Soils and waters Conductivity Meter (Manual) Conductivity
AB SOP-00005	Alkalinity Acidity Conductivity Fluoride and pH by PC-Titrate (Modified SM 2510 B, SM 4500 H+B, SM 2320 B, SM 4500-F C, SM 2310 B) - Soil & Waters PC Titrate Conductivity (25 °C) Alkalinity Fluoride pH Acidity

*AB SOP-00006	pH by Manual Meter and PC-Titrate (Modified from SM 4500-H+ B) – Soils and Waters pH Meter pH
*AB SOP-00007	Ammonia-Nitrogen by Automated Phenate colorimetric method (Modified SM4500-NH3 A&G) – Soils and Waters Colorimetric Ammonia Ammonia – Extraction
AB SOP-00008	TKN by Konelab (Modified EPA 351.1, EPA 351.2) – Soils and Waters Colorimetric Total Kjeldahl Nitrogen
AB SOP-00012	Total Organic Carbon and Organic Matter in Soil (Modified Methods Manual for Soil and Plant Analysis) Reflux – Titrimetric Organic Matter – Calculation Total Organic Carbon
AB SOP-00019	Calcium Carbonate Equivalence by pH (Modified SSMA 20.2) pH Meter Calcium Carbonate Equivalence (CCE)
AB SOP-00020	Chloride and Sulfate Analysis by Discrete Autoanalyzer (Modified SM 4500 Cl E & SM 4500 SO4 E) – Soils and Waters Chloride *Sulfate
AB SOP-00022	Particle Size Distribution by Sieve Analysis (Modified ASTM D6913) Gravimetric/SIEVE Grain size Particle size by sieve (Special)
AB SOP-00023	Nitrite and Nitrate by Ion Chromatography (Modified SM 4110 B) – Soil and Waters Ion Chromatography Nitrate Nitrite
AB SOP-00025	Ortho-phosphate (Dissolved) by Automated Ascorbic Acid Reduction Method (Modified SM 4500-P, A and F) - Soils and Waters Colorimetric Auto Color Ortho-phosphate
*AB SOP-00026	Chloride and Sulphate by Ion Chromatography (Modified SM 4110B] – Soils and Waters

	Ion Chromatography Chloride Sulfate
AB SOP-00030	PSA by Hydrometer - Texture (Sand, Silt, Clay and gravel) Analysis (Modified SSMA 55.3) Hydrometer % clay % gravel % sand % Silt
*AB SOP-00033	Preparation of Saturation and Water-Soil Ratio Samples [Modified from SSMA Method 15.2] Gravimetric % Saturation
AB SOP-00039	Extraction and Analysis of BTEX/F1 and select Volatiles by HS/GC/MS/FID Water, Soil and Oil (BTEX: Modified EPA 8260D, GC/MS – HEADSPACE) (F1/PHC: Modified CCME Petroleum Hydrocarbons - Tier 1 Method and EPA5021A) – Soils and Waters (BTEX TCLP: EPA 1311) GC/MS - HEADSPACE 1,2,4-Trimethyl Benzene Benzene C5-C10 Ethylbenzene F1: C6-C10 Hexane m/p-xylene Methyl tert-butyl ether (MTBE) o-xylene Styrene Toluene
*AB SOP-00040	Analysis of Extractable Hydrocarbons in Water and Soils by GC/FID (Modified Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil – Tier 1 Method) Modified EPA 1617)- Sheen C6-C50 Hydrocarbons F2 (C10-C16 Hydrocarbons) F3 (C16-C34 Hydrocarbons) F3A (C16-C22 Hydrocarbons) F3B (C22-C34 Hydrocarbons) F4 (C34-C50 Hydrocarbons) Reached Baseline at C50 F4G-SG (Heavy Hydrocarbons-Grav) Total Extractables C10 to C30 Total Extractables C11 to C22 Total Extractables C23 to C60 F4 HTG (>C34 – High Temp GC) Total Petroleum Hydrocarbon Visible Sheen
*AB SOP-00042	Metals on Liquids and Solids by ICPOES (Modified EPA 6010 D) - Soils and Waters ICP/OES Aluminum Barium Boron Calcium Chromium Iron Lithium Magnesium Manganese Phosphorus Potassium Silicon

	Sodium	Strontium	Sulfur	
*AB SOP-00043	Metals Analysis on Soils and Waters Using ICPMS (Modified EPA 6020 B) - Soils and Waters [TCLP: EPA 1311] ICP/MS Aluminum Beryllium Calcium Iron Manganese Silver Tellurium Tungsten Zirconium	Antimony Bismuth Chromium Lead Mercury Potassium Sodium Thallium Uranium	Arsenic Boron Cobalt Lithium Molybdenum Selenium Strontium Tin Vanadium	Barium Cadmium Copper Magnesium Nickel Silicon Sulphur Titanium Zinc
AB SOP-00049	Particle Size Distribution by Hydrometer (Modified ASTM D7928) Hydrometer Particle Size Distribution			
AB SOP-00050	Dry Bulk Density and Wet Bulk Density 9Modified McKeague and MSSMA Section 2.21) Gravimetric Bulk Density			
AB SOP-00052	Bromide by Ion Chromatography - UV Detection (Modified from SM 4110 B) – Soils and Waters Ion Chromatography/UV Detector Bromide			
AB SOP-00056	Preparation and Analysis VOC -Water and Soil by HS/GC/MS (Modified from EPA8260D and EPA5021A) (VOC TCLP: EPA 1311) - Soils and Waters GC/MS (Headspace) 1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,1-Dichloroethane 1,2 dibromoethane 1,2,4-Trichlorobenzene 1,2-dichlorobenzene 1,2-Dichloropropane 1,3,5-Trimethylbenzene 1,4-dichlorobenzene Bromodichloromethane Bromomethane		1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1-dichloroethylene 1,2,3-Trichlorobenzene 1,2,4-Trimethylbenzene 1,2-dichloroethane 1,3,5 Trichlorobenzene 1,3-Dichlorobenzene Benzene Bromoform Carbon Tetrachloride	

	Chlorobenzene Chloroethane Chloromethane cis-1,3-Dichloropropene Ethylbenzene Methyl methacrylate o-xylene Tetrachloroethylene trans-1,2-Dichloroethylene Trichloroethylene Vinyl Chloride	Dibromochloromethane Chloroform cis-1,2-Dichloroethylene Dichloromethane m/p-xylene Methyl t-butyl ether Styrene Toluene trans-1,3-Dichloropropene Trichlorofluoromethane
AB SOP-00062	Flashpoint by Small Scale Closed Cup Tester (SetaFlash) (Modified ASTM D3828) Seta Flash Closed Cup Flashpoint	
AB SOP-00063	Hexavalent Chromium by Konelab (Modified SM 3500-Cr B and EPA 3060) – Soil and Water Colorimetric Hexavalent Chromium	
AB SOP-00067	Elemental Sulfur (Modified Canadian Journal of Soil Science, 65, Pages 811-813, 1985) Colour-Extraction Elemental Sulphur	
*AB SOP-00076	BTEX/F1 in Water and Soil by GC Headspace PID/FID - On-Site Testing (BTEX: Modified EPA 8021B] – GC/PID - Headspace (F1: CCME Hydrocarbons Tier 1, BCMOE Section D, BCMELP] - GC/FID – Headspace) Benzene Ethylbenzene m/p-xylene O-xylene-C10 Toluene	C6 o-xylene F1:C6-C10 o-xylene Styrene Total C6-C10
AB SOP-00080	Sulphide, Low level Sulfide (Modified SM 4500-S2D, A, F) – Soil and Water Colorimetric Sulphide	
AB SOP-00088	Phenol Phenolics-Automated 4--Aminoantipyrine Colorimetry (Modified SSMA Chapter 40 & EPA 9066) - Water Colorimetric – Distillation Extraction Phenol	

AB SOP-00091	NO_2 and TON by Gallery Plus (Modified SM 4500-NO3-H and 4500-NO2) Nitrite Total Oxidized Nitrogen (TON)
AB SOP-00093	Total Nitrogen by Konelab (Modified SM 4500-N C) – Soil and Water Colorimetric Total Nitrogen (water) Total Nitrogen (Dissolved, water) Total Nitrogen (Soluble, soil) Total Nitrogen (Available, soil)
CAL SOP-00032	Spontaneous combustion (Self Heating) (Modified Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria. Sixth Revised edition. United Nations.2015 sections 33.3.1.3 and 33.3.1.6) Combustion Spontaneous Combustion
CAL SOP-00054	Ethanolamines and DIPA by reversed-phase chromatography (amperometry) (Modified IC US6-0193-062014) – Soil and Water Diethanolamine (DEA) Methyldiethanolamine (MDEA) Monoethanolamine (MEA) Diisopropanolamine (DIPA) Triethanolamine (TEA) – Water only 2-(2-Aminoethoxy)-ethanol (DGA) – Water only
CAL SOP-00093	Preparation and Analysis of Glycols and Sulfolane in Water, Soil and oil by GC-FID (Modified from EPA 8015D) – Soils Waters and Oil GC/FID – Extraction Diethylene Glycol — Ethylene Glycol Propylene Glycol — Sulfolane Tetraethylene Glycol — Triethylene Glycol
CAL SOP-00094	Herbicides (Modified EPA 8151A and EPA 8270E) – Soils and Waters GC/MS – Extraction 2,4,5-Trichlorophenoxyacetic acid (2,4,5-T) 2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP) 2,4-Dichlorophenoxyacetic acid (2,4-D) 2,4-Dichlorophenoxybutyric acid (2,4-DB) 3,5-Dichlorobenzoic Acid Bentazon — Bromoxynil Chloramben — Dicamba Dichlorprop — Diclofop-methyl Dinoseb (DNBP) — MCPA

	MCPP Pentachlorophenol Picloram
CAL SOP-00096	Extraction and Analysis of OG and TPH in Water and Soil by FTIR (Modified SM 23 5520 C m) – Soils and Waters IR – Extraction Oil and Grease Total Petroleum Hydrocarbons
CAL SOP-00104	Preparation and Analysis of Extended VOC in Water and Soils by HS/GC/MS (Modified EPA 8260D, EPA 5021A &VOC TCLP: EPA 1311) – Soils and Waters GC/MS – HS/Extraction 1,2,3-trichloropropane 1,1-dichloropropene 1,2-dibromo-3-chloropropane 1,3-dichloropropane 2,2-dichloropropane 2-butanone (MEK) 2-chlorotoluene 2-hexanone 2-nitropropane 4-chlorotoluene 4-methyl-2-pentanone (MIBK) Acetone Acetonitrile Acrolein Acrylonitrile Bromobenzene Bromochloromethane Carbon disulphide Cyclohexane Cyclohexanone Dibromomethane Dichlorodifluoromethane Dicyclopentadiene Ethyl acetate Ethyl ether Ethyl methacrylate Hexachlorobutadiene Hexane Iodomethane Isopropylbenezene Naphthalene n-Butylbenzene Nitrobenzene n-Propylbenzene p-Isopropyltoluene sec-Butylbenzene tert-Butylbenezene
CAL SOP-00149	Polychlorinated Biphenyls (PCB) (Modified EPA 8082A) – Soils, Waters and Oil GC/ECD – Extraction Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260 Aroclor 1262 Aroclor 1268 Total PCB
CAL SOP-00164	Semi Volatile Phenols (Modified EPA 8270E) – Soils and Waters GC/MS – Extraction 2,3,4,5-tetrachlorophenol 2,3,4,6-tetrachlorophenol 2,3,4-trichlorophenol 2,3,5,6-tetrachlorophenol 2,3,5-trichlorophenol 2,3,6-trichlorophenol 2,3-dichlorophenol 2,4,5-trichlorophenol

	2,4,6-trichlorophenol	2,4-dichlorophenol
	2,4-dimethylphenol	2,4-dinitrophenol
	2,5-dichlorophenol	2,6- dimethylphenol
	2,6-dichlorophenol	2-chlorophenol
	2-methylphenol	2-nitrophenol
	3&4-chlorophenol	3&4-methylphenol
	3,4,5-trichlorophenol	3,4-dichlorophenol
	3,4-dimethylphenol	3,5-dichlorophenol
	4,6-dinitro-2-methylphenol	4-chloro-3-methylphenol
	4-nitrophenol	Pentachlorophenol
	Phenol	
CAL SOP-00184	Aliphatic and Aromatic fractionation and analysis for >C10-C50 PHC (Modified from Atl RBCA m) – Soils and Waters GC/FID	
	>C10-C12 Aliphatic	>C10-C12 Aromatic
	>C12-C16 Aliphatic	>C12-C16 Aromatic
	>C16-C21 Aliphatic	>C16-C21 Aromatic
	>C21-C34 Aliphatic	>C21-C34 Aromatic
	>C34 Aliphatic (Up to C50)	>C34 Aromatic (Up to C50)
*CAL SOP-00239	BC Extractable Petroleum Hydrocarbons in Water and Soil by GC/FID (Modified BCMOE EPH S 12/16) – Soils and Waters GC/FID EPH: C10-C19 EPH: C19-C32 TEH: C10-C30 (Water Only)	
CAL SOP-00240	Fractionation for C6-C10 and BC method VPH by Headspace GC/FID/MS (Modified volatile HC in soils by GC/FID and EPA method 5021A, BC MELP VH; Atl. RBCA) – Soils and Waters GC/FID	
	Benzene	C6-C8
	C6-o-xylene	C8-C10 aromatic
	Ethylbenzene	Methyl-ter-butylether
	o-xylene	o-xylene-C10
	Styrene	Toluene
	m&p-xylene	
CAL SOP-00243/CAL SOP-00263	Carbon, Organic Carbon, Nitrogen and Sulphur in Solids by LECO TruMac Elemental Analysis of Soil by Elementar Vario Cube EL(Modified LECO Corporation Form No. 203-821-498, 203-821-165 and Vario El Cube No AN-A-030609, Total Organic Carbon (TOC/FOC) in	

	soil/sediment by combustion (PBM)) IR Combustion Carbon Nitrogen Organic Carbon Sulphur
CAL SOP-00250	Preparation and analysis of Alkylated PAH in soils and water (Modified SM 8270 E and ESTD-OR-20) – Soils and Waters GC/MS – Extraction 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Acridine Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (g,h,i) perylene Benzo (k) fluoranthene Benzo (b&j) fluoranthene Benzo(c)phenanthrene Benzo(e)pyrene Biphenyl C1-Acenaphthene C1-Benzo(bjk)fluoranthene / Benzo[a]pyrene C1-Biphenyl C1-Benzo(a) anthracene/ Chrysene C1-Dibenzothiopene C2-Fluorene C2-Naphthalene C2-Phenanthrene/ anthracene C2- Fluoranthene / Pyrene C3-Benzo(a)anthracene / Chrysene C3-Dibenzothiophene C3-Fluorene C3-Naphthalene C3-Phenanthrene/ anthracene C3- Fluoranthene / Pyrene C4- Benzo(a)anthracene / Chrysene C4-Dibenzothiophene C4-Naphthalene C4-Phenanthrene/ anthracene Chrysene Dibenzo (a,h) anthracene Dibenzothiophene Fluoranthene Fluorene Indeno (1,2,3 - cd) pyrene Indeno (1,2,3-cd) fluoranthene Naphthalene Perylene Phenanthrene Pyrene Quinoline Retene
CAL SOP-00251	Extraction and analysis of low level Sulfolane in water and soil by GCMS (Modified EPA 8270E) GC/MSD – Extraction Sulfolane

CAL SOP-00264	Preparation and Analysis of Alcohol/Solvents (Water, soil, oil) by GCFID (Modified EPA 8015D) – Soils and Waters GC/FID – Extraction 2-Methylphenol 3- Methylphenol 4- Methylphenol Acetone (2-propanone) Ethanol Isobutanol Isopropanol ***** Methanol n-butanol Pyridine
CAL SOP-00265	ICPMS Analysis for Low Level Metals (Modified EPA SW846 6020B) – Soils and Waters ICP/MS Aluminum, Antimony, Arsenic, Barium Beryllium, Bismuth, Boron, Cadmium Calcium, Cesium, Chromium, Cobalt Copper, Iron, Lanthanum, Lead Lithium, Magnesium, Manganese, Mercury Molybdenum, Nickel, Phosphorus, Potassium Rubidium, Selenium, Silicon, Silver Sodium, Strontium, Sulphur, Tellurium Thallium, Thorium, Tin, Titanium Tungsten, Uranium, Vanadium, Zinc Zirconium
CAL SOP-00266	Determination of Free Cyanide (Modified EPA 9016) - Water Colorimetric- Distillation Free cyanide
CAL SOP-00270	Determination of cyanide by automated colourimetry (Modified SM 23 4500-CN-,O) – Soil and Water Colorimetric- Distillation Cyanide SAD Cyanide WAD
CAL SOP-00275	Extraction and Analysis of Hydroxyphenols in Water and Soil by GCMS (Modified BC MOE Laboratory Manual and EPA SW 846 8270) – Water and Soil 2-Hydroxyphenol (Catechol) 3-Hydroxyphenol (Resorcinol) 4-Hydroxyphenol (Hydroquinone)

Water (Microbiology)

AB SOP-00085	Determination of Iron Related and Sulfate Reducing Bacteria using BART™(Modified Dbi Env Tech Verification of the Irb Bart Tester for the Detection and Evaluation of Iron Bacteria in Water and Dbi Enviro Tech Verification of the Srb Bart Tester for the Detection and Verification of Sulphate Reducing Bacteria in Water) Iron Related Bacteria (IRB) Sulfate Reducing Bacteria (SRB)
AB SOP-00089	Total and Fecal Coliforms and E. Coli by defined substrate technique (Modified SM 9223 A, B) Most Probable Number (Colilert) *Escherichia coli* (*E. coli*) Total Coliforms Fecal (Thermotolerant) Coliforms
CAL SOP-00012	Heterotrophic Plate Count – Pour Plate Method (Modified SM 9215 A, B) Pour Plate Heterotrophic Plate Count (HPC)

Number of Scope Listings: 117

Notes:

ISO/IEC 17025:2017: General Requirements for the Competence of Testing and Calibration Laboratories

MFHPB: Microbiological Foods Health Protection Branch, Health Canada

MFLP: Microbiological Food Laboratory Procedure, Health Canada

MLG: Food Safety and Inspection Services Microbiology Laboratory Guidebook, U.S. Department of Agriculture

SM: Standard Methods for Examination of Water and Wastewater, American Public Health Association (APHA)

EPA: Environment Protection Agency

TCLP: toxicity characteristic leaching procedure

AB SOP: Internal test method (Alberta)

CAL SOP: Internal test method (Calgary)

CCME: Canadian Council of Ministers of the Environment

* These test methods can be performed on-site as per RG--Lab.

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

Elias Rafoul
Vice-President, Accreditation Services
Published on: 2022-02-10

Canada

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

ALS Environmental (Edmonton)
ALS Canada Ltd.
9450-17th Ave. NW
Edmonton, Alberta

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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 April 2017).

Accreditation No.: A1352
Issued On: August 18, 2020
Accreditation Date: January 3, 2005
Expiry Date: February 16, 2023

President & CEO

CALA
Canadian Association for
Laboratory Accreditation Inc.

CALA Directory of Laboratories

Membership Number: 1352
Laboratory Name: ALS Environmental (Edmonton)
Parent Institution: ALS Canada Ltd.
Address: 9450-17th Ave. NW Edmonton AB T6N 1M9
Contact: Ms. Sarah Stilson
Phone: (780) 413-5226
Fax: (780) 437-2311
Email: alsed.quality@alsglobal.com; David.Gurdibaniuk@alsglobal.com

Standard: Conforms with requirements of ISO/IEC 17025
Clients Served: All Interested Parties
Revised On: March 18, 2021
Valid To: September 16, 2023

Scope of Accreditation

Air (Inorganic)
Dustfall - Air [Dustfall] (120)
ED-TM-1030; modified from ALBERTA ENVIRONMENT 32020
GRAVIMETRIC
Fixed Dustfall
Total Dustfall

Air (Inorganic)
Fluoride - Air (188)
ED-TM-1028; modified from ALBERTA ENVIRONMENT and SM 4500-F- C
ION SELECTIVE ELECTRODE (ISE)
Fluoride

Air (Inorganic)
Fluoride - Air [Filter] (219)
ED-TM-1008, NA-TM-1001; modified from NIOSH 7906
ION CHROMATOGRAPHY (IC)
Hydrogen Fluoride (as F)

Air (Inorganic)
Mercury - Air [Filter] (190)
ED-TP-2001, NA-TM-1005; modified from EPA 1631E and NIOSH 6009
COLD VAPOUR ATOMIC ABSORPTION (CVAA) - DIGESTION
Mercury

† "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

Air (Inorganic)
Metals - Air [Filter] (016)
ED-TP-2001, NA-TM-1002; modified from EPA 6020A and NIOSH 7303
ICP/MS - DIGESTION
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Selenium
Silver
Sodium
Strontium
Sulphur (Sulfur)
Thallium
Tin
Tungsten
Uranium
Vanadium
Zinc
Zirconium

Air (Inorganic)
Particulates - Air [Particulate] (223)
ED-TM-1140; modified from NIOSH 0500 and NIOSH 0600
GRAVIMETRIC
Particulates

† "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

Air (Inorganic)
Total Solids - Air [Impinger] (205)
ED-TM-1157; modified from EPA 5
GRAVIMETRIC
Total Solids (TS)

Air (Organic)
Formaldehyde - Air (221)
ED-TM-1151; modified from EPA TO-11A and NIOSH 2016
HPLC/UV - EXTRACTION
Formaldehyde

Air (Organic)
Gas - Air [Compressed Breathing Air] (218)
ED-TM-1144; modified from ASTM D1946 and CSA 180 and EPA 3C
GC/TCD
Nitrogen
Oxygen

Air (Organic)
Hydrocarbons - Air (217)
ED-TM-1142, ED-TM-1144; modified from CSA Z180 and EPA 18
GC/FID
Carbon dioxide (CO2)
Carbon monoxide (CO)
Ethane
Methane
Total Volatile Hydrocarbons (TVH): C1-C16

Air (Organic)
Volatile Organic Compounds (VOC) - Air (216)
ED-TM-1142; modified from EPA 018 and EPA 25C
GC/FID
Benzene
Ethylbenzene
Non-methane organic carbons
Toluene
Xylenes

Oil (Organic)
Polychlorinated Biphenyls (PCB) - Oil (002)
ED-TM-1104, ED-TM-1116; modified from ASTM D4059 and EPA 8082
GC/ECD - EXTRACTION
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
Aroclor 1262
Aroclor 1268

† "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

Total PCB

Soil (Inorganic)
Ammonia - Solids [Soil] (225)
ED-TM-1024, NA-TP-2008; modified from EPA 350.1 and SM 4500-NH3 and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1
COLORIMETRIC - SATURATED PASTE
Ammonia

Solids (Inorganic)
Anions - Solids [Soil] (176)
NA-TM-1001, NA-TP-2008; modified from EPA 300.1 and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1
ION CHROMATOGRAPHY (IC) - SATURATED PASTE
Chloride
Nitrate-N
Nitrite
Sulphate

Solids (Inorganic)
Asbestos - Solids [Bulk] (222)
ED-TM-1152; modified from EPA 600/R-93/116 and NIOSH 9002
POLARIZED LIGHT MICROSCOPY (PLM)
Bulk Asbestos

Solids (Inorganic)
Barium - Solids [Soil] (172)
ED-TM-1021, ED-TM-1055; modified from EPA 200.7 and SSSA PART 3, 1996, PG 202
ICP - FUSION
Barium

Solids (Inorganic)
Chloride - Solids [Saturated Paste, Soil] (168)
ED-TM-1032, NA-TP-2008; modified from SM 4500-CL- E and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1
COLORIMETRIC
Chloride

Solids (Inorganic)
Conductivity - Solids [Soil] (156)
ED-TM-1004, NA-TP-2008; modified from SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1 and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.3
METER - SATURATED PASTE
Conductivity

Solids (Inorganic)
Density - Solids [Soil] (170)
ED-TM-1025; modified from ASTM D5057
GRAVIMETRIC
Density

Solids (Inorganic)
Extractable Barium - Solids [Soil] (182)
ED-TM-1021, ED-TM-1051; modified from BARITE WASTE GUIDELINES
ICP - EXTRACTION
Barium

† "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)
Grain Size - Solids [Soil] (028)
ED-TM-1014; modified from ASTM D422-63
GRAVIMETRIC - SIEVE
PSA% >75um

Solids (Inorganic)
Hexavalent Chromium - Solids [Soil] (148)
ED-TM-1023; modified from EPA 3060A
ION CHROMATOGRAPHY (IC) - DIGESTION
Hexavalent Chromium

Solids (Inorganic)
Mercury - Solids [Soil] (164)
NA-TM-1005, NA-TP-2004; modified from EPA 1631E and EPA 200.2
COLD VAPOUR ATOMIC ABSORPTION (CVAA) - DIGESTION
Mercury

Solids (Inorganic)
Metals - Solids [Soil] (023)
NA-TM-1002, NA-TP-2004; modified from EPA 200.2 and EPA 6020
ICP/MS - DIGESTION
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

† "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

Tin
Titanium
Tungsten
Uranium
Vanadium
Zinc
Zirconium

Solids (Inorganic)
Oil and Grease - Solids [Soil] (029)
ED-TM-1131; modified from SM 5520
GRAVIMETRIC - EXTRACTION
Total Oil and Grease

Solids (Inorganic)
Paint Filter - Solids [Paint, Soil] (231)
ED-TM-1042; EPA 9095A
FILTRATION
Paint Filter (Free Liquid)

Solids (Inorganic)
Particle Size Analysis (PSA) - Solids [Soil] (110)
ED-TM-1010; modified from SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 55.3
PARTICLE SIZE
Percent Clay
Percent Sand
Percent Silt

Solids (Inorganic)
Percent Moisture - Solids [Soil] (179)
NA-TM-1200; modified from ASTM D2216-80
GRAVIMETRIC
Percent Moisture

Solids (Inorganic)
Percent Saturation - Solids [Soil] (169)
NA-TP-2008; modified from SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1
GRAVIMETRIC
Percent Saturation

Solids (Inorganic)
pH - Solids [Soil] (099)
ED-TM-1003, NA-TP-2008; modified from SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1 and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER16.2
METER - SATURATED PASTE
pH

Solids (Inorganic)
pH - Solids [Soil] (100)
ED-TM-1003; modified from SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 16.2
PH METER - EXTRACTION
pH (1:1) soil:water
pH (1:2) soil:water

† "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)
pH - Solids [Soil] (163)
ED-TM-1015; modified from SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 16.3
PH METER - 1:2 CACL2 EXTRACTION
pH (1:2) soil:CaCl2

Solids (Inorganic)
Salinity - Solids [Soil] (160)
ED-TM-1021, NA-TP-2008; modified from EPA 200.7 and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1
ICP - SATURATED PASTE
Boron
Calcium
Magnesium
Potassium
Sodium
Sulphate
Sulphur (Sulfur)

Solids (Inorganic)
Sulfate - Solids (173)
ED-TM-1046, NA-TM-1001; modified from CSA A23.2
ION CHROMATOGRAPHY (IC) - DIGESTION
Sulphate (Sulfate)

Solids (Organic)
Petroleum Hydrocarbons (PHC) - Solids [Soil] (154)
NA-TM-1102, NA-TP-2102; EPA 8260
GC/MS-HEADSPACE
Benzene
Ethylbenzene
m,p-Xylene
o-Xylene
Toluene

Solids (Organic)
Petroleum Hydrocarbons (PHC) - Solids [Soil] (155)
NA-TM-1102, NA-TP-2102; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD and EPA 5021 and EPA 8260
GC/FID-HEADSPACE
F1: C6-C10

Solids (Organic)
Petroleum Hydrocarbons (PHC) - Solids [Soil] (158)
NA-TM-1100, NA-TP-2100; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD
GC/FID - TUMBLER EXTRACTION
F2: C10-C16
F3: C16-C34
F4: C34-C50

† "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 (Organic)
Petroleum Hydrocarbons (PHC) - Solids [Soil] (171)
NA-TM-1100, NA-TP-2100; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD
GRAVIMETRIC - TUMBLER EXTRACTION

F4: Gravimetric

Solids (Organic)
Phenols - Solids [Soil] (077)
ED-TM-1113; modified from EPA 3540 and EPA 8270
GC/MS - EXTRACTION

2,3,4,6-Tetrachlorophenol

2,4 + 2,5-Dichlorophenol

2,4,6-Trichlorophenol

Pentachlorophenol

Solids (Organic)
Polychlorinated Biphenyls (PCB) - Solids [Soil] (097)
ED-TM-1102, ED-TM-1116; modified from EPA 3550 and EPA 8082
GC/ECD - EXTRACTION

Aroclor 1016

Aroclor 1221

Aroclor 1232

Aroclor 1242

Aroclor 1248

Aroclor 1254

Aroclor 1260

Aroclor 1262

Aroclor 1268

Total PCB

Solids (Organic)
Polycyclic Aromatic Hydrocarbons (PAH) - Solids (227)
NA-TM-1105, NA-TP-2103; modified from EPA 3570 and EPA 8270
GC/MS - EXTRACTION

1-Methylnaphthalene

2-Methylnaphthalene

Acenaphthene

Acenaphthylene

Anthracene

Benzo(a)anthracene

Benzo(a)pyrene

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

† "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

Naphthalene
Perylene
Phenanthrene
Pyrene
Quinoline

Solids (Organic)
Volatile Organic Compounds (VOC) - Solids [Soil] (167)
NA-TM-1102, NA-TP-2102; modified from EPA 5021 and EPA 8260
GC/MS-HEADSPACE - EXTRACTION
1,1-Dichloroethane
1,1-dichloroethylene
1,1-Dichloropropene
1,1,1-Trichloroethane
1,1,1,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane (DBCP)
1,2-dichlorobenzene
1,2-dichloroethane
1,2-Dichloropropane
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,3-Dichlorobenzene
1,3-Dichloropropane
1,3,5-Trichlorobenzene
1,3,5-Trimethylbenzene
1,4-dichlorobenzene
2-Chlorotoluene
2-Hexanone (Methyl butyl ketone, MBK)
2,2-Dichloropropane
4-Chlorotoluene (p-Chlorotoluene)
4-isopropyltoluene (p-Cymene)
Acetone (2-Propanone)
Acrylonitrile
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
Carbon disulfide
Carbon tetrachloride
Chlorobenzene

† "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

Chlorodibromomethane
Chloroethane (Ethyl Chloride)
Chloroethene (Vinyl chloride)
Chloroform
Chloromethane (Methyl chloride)
cis-1,2-Dichloroethylene
cis-1,3-Dichloropropene
cis-1,4-Dichloro-2-butene
Dibromomethane
Dichlorodifluoromethane
Dichloromethane
Ethanol
Ethyl methacrylate
Ethylbenzene
Ethylene Dibromide
Hexachlorobutadiene
Isopropylbenzene (Cumene)
m,p-Xylene
Methyl Ethyl Ketone
Methyl iodide
Methyl isobutyl ketone (MIBK)
Methyl t-butyl ether
n-Butylbenzene
n-Propylbenzene
o-Xylene
sec-Butylbenzene
Styrene
tert-Butylbenzene
Tetrachloroethylene
Toluene
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene
trans-1,4-Dichloro-2-butene
Trichloroethylene
Trichlorofluoromethane

Swab (Inorganic)
Mercury - Solids [Swab] (211)
ED-TP-2004, NA-TM-1005; modified from EPA 1631E and EPA 3050B
COLD VAPOUR ATOMIC ABSORPTION (CVAA) - DIGESTION
Mercury

Swab (Inorganic)
Metals - Solids [Swab] (201)
ED-TP-2004, NA-TM-1002; modified from EPA 200.2 and EPA 6020
ICP/MS - EXTRACTION
Aluminum

† "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

Antimony
Arsenic
Barium
Beryllium
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Molybdenum
Nickel
Potassium
Selenium
Silver
Sodium
Strontium
Tin
Vanadium
Zinc

Swab (Organic)
Polychlorinated Biphenyls (PCB) - Solids [Swab] (202)
ED-TM-1102, ED-TM-1116; modified from EPA 3550 and EPA 8082
GC/ECD - EXTRACTION
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
Aroclor 1262
Aroclor 1268
Total PCB

Waste (Inorganic)
Flashpoint - Waste (055)
ED-TM-1012; modified from ASTM 93-D
PENSKY-MARTENS CLOSED CUP
Flashpoint

† "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

Waste (Inorganic)
Mercury - Waste (162)
NA-TM-1005, NA-TM-1700; modified from EPA 1311 (PREPARATION) and EPA 245.1 (ANALYSIS) and EPA 245.7 (ANALYSIS)
COLD VAPOUR ATOMIC ABSORPTION (CVAA) - DIGESTION, TCLP
Mercury

Waste (Inorganic)
Metals - Waste (141)
NA-TM-1002, NA-TM-1700, NA-TP-2001; modified from EPA 1311 (PREPARATION) and EPA 6020 (ANALYSIS)
ICP/MS - TCLP
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Cobalt
Copper
Iron
Lead
Nickel
Selenium
Silver
Thallium
Uranium
Vanadium
Zinc
Zirconium

Waste (Inorganic)
Microtox - Waste [Liquid] (161)
NA-TM-1400; modified from AER D50
BIOLUMINESCENCE
Microtox IC50 (15 min)

Waste (Inorganic)
Specific Gravity - Waste (174)
ED-TM-1025; modified from ASTM D5057
GRAVIMETRIC
Specific Gravity

Waste (Organic)
BTEX - Waste (135)
ED-TP-2005, NA-TM-1102; modified from EPA 1311 (PREPARATION) and EPA 8260B (ANALYSIS)
GC/MS - TCLP
Benzene
Ethylbenzene
m,p-Xylene
o-Xylene

† "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

Toluene

Water (Inorganic)
Acidity - Water (229)
ED-TM-1026; modified from SM 2310
TITRIMETRIC
Acidity

Water (Inorganic)
Alkalinity - Water (004)
ED-TM-1026; modified from SM 2320 B
TITRIMETRIC
Alkalinity (pH 4.5)
Alkalinity (pH 8.3)

Water (Inorganic)
Ammonia - Water (213)
ED-TM-1024; modified from EPA 350.1
COLORIMETRIC
Ammonia

Water (Inorganic)
Ammonia - Water (232)
ED-TM-1039; modified from JOURNAL OF ENVIRONMENTAL MONITORING (2005) SECTION 7, P. 37-42
FLUOROMETRIC
Ammonia

Water (Inorganic)
Anions - Water (005)
NA-TM-1001; modified from EPA 300.1
ION CHROMATOGRAPHY (IC)
Bromide
Chloride
Fluoride
Nitrate
Nitrite
Sulfate

Water (Inorganic)
Biochemical Oxygen Demand (BOD) - Water (013)
ED-TM-1007, ED-TM-1037; modified from SM 5210 B
DISSOLVED OXYGEN METER (DO)
BOD (5 day)
CBOD (5 day)
Ultimate Biochemical Oxygen Demand (BOD) (180 day)

Water (Inorganic)
Chemical Oxygen Demand (COD) - Water (051)
ED-TM-1009; modified from SM 5220 D
COLORIMETRIC - DIGESTION
COD

† "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)
Chlorine - Water (123)
ED-TM-1036; modified from SM 4500-CL A and SM 4500-CL F and SM 4500-CL G
COLORIMETRIC
Free Chlorine
Total Chlorine

Water (Inorganic)
Colour - Water (152)
ED-TM-1038; modified from SM 2120 A and SM 2120 C
SPECTROPHOTOMETRIC
True Colour

Water (Inorganic)
Conductivity - Water (006)
ED-TM-1026; modified from SM 2510 B
CONDUCTIVITY METER
Conductivity (25˚C)

Water (Inorganic)
Dissolved Metals - Water (007)
NA-TM-1002, NA-TP-2002; modified from EPA 6020
ICP/MS
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Cesium
Chromium
Cobalt
Copper
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Rubidium
Selenium
Silicon
Silver

† "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

Sodium
Strontium
Sulphur (Sulfur)
Tellurium
Thallium
Thorium
Tin
Titanium
Tungsten
Uranium
Vanadium
Zinc
Zirconium

Water (Inorganic)
Hexavalent Chromium - Water (035)
ED-TM-1023; modified from SM 3500-CR C
ION CHROMATOGRAPHY (IC)
Hexavalent Chromium

Water (Inorganic)
Mercury - Water (149)
NA-TM-1005; modified from EPA 1631E and EPA 245.7
COLD VAPOUR ATOMIC ABSORPTION (CVAA) - COLD OXIDATION
Mercury

Water (Inorganic)
Oil and Grease - Water (159)
NA-TM-1111; modified from SM 5520 C and SM 5520 F
INFRARED SPECTROSCOPY (IR)
Mineral Oil and Grease
Total Oil and Grease

Water (Inorganic)
pH - Water (015)
ED-TM-1026; modified from SM 4500-H+ A and SM 4500-H+ B
pH METER
pH

Water (Inorganic)
Phosphate - Water (084)
ED-TM-1031; modified from SM 4500-P
COLORIMETRIC
Phosphate

Water (Inorganic)
Phosphate - Water (183)
ED-TM-1041; modified from SM 4500-P
COLORIMETRIC
Phosphate

† "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)
Phosphorus - Water (011)
ED-TM-1031; modified from SM 4500-P B and SM 4500-P E
COLORIMETRIC - DIGESTION
Total Dissolved Phosphorus
Total Phosphorus

Water (Inorganic)
Phosphorus - Water (119)
ED-TM-1031, ED-TP-2006; modified from SM 4500-P A and SM 4500-P B and SM 4500-P E
COLORIMETRIC
Inorganic Phosphorus

Water (Inorganic)
Phosphorus - Water (184)
ED-TM-1041; modified from SM 4500-P B and SM 4500-P E
COLORIMETRIC
Total Dissolved Phosphorus
Total Phosphorus

Water (Inorganic)
Phosphorus - Water (224)
ED-TM-1041; SM 4500-P
COLORIMETRIC
Inorganic Phosphorus

Water (Inorganic)
Solids - Water (012)
ED-TM-1005, NA-TM-1004; modified from SM 2540 A and SM 2540 B and SM 2540 C and SM 2540 D and SM 2540 E
GRAVIMETRIC
Total Dissolved Solids
Total Suspended Solids

Water (Inorganic)
Total Kjeldahl Nitrogen (TKN) - Water (233)
ED-TM-1043, NA-TM-1006; modified from JOURNAL OF ENVIRONMENTAL MONITORING (2005) SECTION 7, P. 37-42 and SM 4500-NORG B
FLUOROMETRIC
Total Kjeldahl Nitrogen

Water (Inorganic)
Total Metals - Water (082)
NA-TM-1002, NA-TP-2001; modified from EPA 6020 and SM 3030 E
ICP/MS - DIGESTION
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium

† "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

Cesium
Chromium
Cobalt
Copper
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Rubidium
Selenium
Silicon
Silver
Sodium
Strontium
Sulphur (Sulfur)
Tellurium
Thallium
Thorium
Tin
Titanium
Tungsten
Uranium
Vanadium
Zinc
Zirconium

Water (Inorganic)
Turbidity - Water (078)
ED-TM-1011; modified from SM 2130 A and SM 2130 B
TURBIDIMETRIC
Turbidity

Water (Inorganic)
UV Absorbance and Transmittance - Water (230)
ED-TM-1058; modified from SM 5910 B
SPECTROPHOTOMETRIC
UV Absorbance
UV Transmittance

† "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 (Microbiology)
Coliforms - Water (196)
NA-TM-1300; modified from SM 9223 B
QUANTI-TRAY (COLILERT)
Escherichia coli
Total Coliforms

Water (Microbiology)
Fecal (Thermotolerant) Coliforms - Water (197)
NA-TM-1300; modified from SM 9223 B
QUANTI-TRAY (COLILERT)
Fecal (Thermotolerant) Coliforms

Water (Microbiology)
Heterotrophic Plate Count (HPC) - Water (198)
NA-TM-1300; modified from SM 9215 E
QUANTI-TRAY (COLILERT)
Heterotrophic Plate Count (HPC)

Water (Organic)
Naphthenic Acids - Water (234)
ED-TM-1107; modified from NAPHTHENIC ACIDS BY FTIR, SYNCRUDE, 1994
FTIR - EXTRACTION
Naphthenic Acids

Water (Organic)
Petroleum Hydrocarbons (PHC) - Water (075)
NA-TM-1112; modified from EPA 3511
GC/FID - EXTRACTION
F2: C10-C16
F3: C16-C34
F4: C34-C50
Total Extractable Hydrocarbons (TEH): C11-C30

Water (Organic)
Petroleum Hydrocarbons (PHC) - Water (165)
NA-TM-1102; modified from EPA 5021 and EPA 8260
GC/FID-HEADSPACE
F1: C6-C10

Water (Organic)
Phenols - Water (228)
ED-TM-1057; modified from EPA 9066
COLORIMETRIC
Total Phenolics

Water (Organic)
Polyaromatic Hydrocarbons (PAH) - Water (226)
NA-TM-1112, NA-TP-2019; modified from EPA 3511 and EPA 8270D
GC/MS - MICROEXTRACTION
1-Methylnaphthalene
2-Methylnaphthalene
Acenaphthene
Acenaphthylene
Acridine

† "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

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

Water (Organic)
Resin and Fatty Acids - Water (020)
ED-TM-1106; modified from ALBERTA ENVIRONMENT 129.0
GC/MS - EXTRACTION
12-Chlorodehydroabietic acid
12,14-Dichlorodehydroabietic Acid
14-Chlorodehydroabietic acid
9,10-Dichlorostearic acid
Abietic acid
Arachidic acid
Dehydroabietic acid
Hexadecanoic acid (Palmitic acid)
Isopimaric acid
Levopimaric acid
Linoleic acid
Linolenic acid (Octadecadienoic acid)
Myristic acid (Tetradecanoic Acid)
Neoabietic acid
Oleic acid
Palustric acid
Pimaric acid
Sandaracopimaric acid
Stearic acid (Octadecanoic acid)

Water (Organic)
Resin and Fatty Acids - Water (132)
ED-TM-1106; modified from ALBERTA ENVIRONMENT 129.0
GC/MS - EXTRACTION
12-Chlorodehydroabietic acid

† "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

12,14-Dichlorodehydroabietic Acid
14-Chlorodehydroabietic acid
9,10-Dichlorostearic acid
Abietic acid
Arachidic acid
Dehydroabietic acid
Hexadecanoic acid (Palmitic acid)
Isopimaric acid
Levopimaric acid
Linoleic acid
Linolenic acid (Octadecadienoic acid)
Myristic acid (Tetradecanoic Acid)
Neoabietic acid
Oleic acid
Palustric acid
Pimaric acid
Sandaracopimaric acid
Stearic acid (Octadecanoic acid)

Water (Organic)

Volatile Organic Compounds (VOC) - Water (166)
NA-TM-1102; modified from EPA 5021 and EPA 8260
GC/MS-HEADSPACE

1,1-Dichloroethane
1,1-dichloroethylene
1,1-Dichloropropene
1,1,1-Trichloroethane
1,1,1,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane (DBCP)
1,2-dichlorobenzene
1,2-dichloroethane
1,2-Dichloropropane
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,3-Dichlorobenzene
1,3-Dichloropropane
1,3,5-Trimethylbenzene
1,4-dichlorobenzene
2-Chlorotoluene
2-Hexanone (Methyl butyl ketone, MBK)
2,2-Dichloropropane
4-Chlorotoluene (p-Chlorotoluene)

† "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

4-isopropyltoluene (p-Cymene)
Acetone (2-Propanone)
Acrylonitrile
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane (Ethyl Chloride)
Chloroform
Chloromethane (Methyl chloride)
cis-1,2-Dichloroethylene
cis-1,3-Dichloropropene
cis-1,4-Dichloro-2-butene
Dibromomethane
Dichlorodifluoromethane
Dichloromethane
Ethanol
Ethyl methacrylate
Ethylbenzene
Ethylene Dibromide
Hexachlorobutadiene
Isopropylbenzene (Cumene)
m,p-Xylene
Methyl Ethyl Ketone
Methyl iodide
Methyl isobutyl ketone (MIBK)
n-Butylbenzene
n-Propylbenzene
Naphthalene
o-Xylene
sec-Butylbenzene
Styrene
tert-Butylbenzene
Tetrachloroethylene
Toluene
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene
trans-1,4-Dichloro-2-butene

† "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

Trichloroethylene
Trichlorofluoromethane
Vinyl chloride

† "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

Canadian Association for Laboratory Accreditation Inc.

Certificate of Accreditation

ALS Environmental (Vancouver)
ALS Canada Ltd.
8081 Lougheed Highway, Suite 100
Burnaby, British Columbia

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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 April 2017).

Accreditation No.:	A1719
Issued On:	March 18, 2021
Accreditation Date:	January 3, 2005
Expiry Date:	September 16, 2023

President & CEO

CALA Scope of Accreditation

Laboratory Name: ALS Environmental (Vancouver)

Client ID: 1001719

Parent Institution: ALS Canada Ltd.

Address: 8081 Lougheed Highway, Suite 100, Burnaby, British Columbia, V5A 1W9

Contact: Ms. Helenita Franco

Email: quality.vancouver@alsglobal.com; David.Gurdibaniuk@alsglobal.com

Phone: (604) 253-4188

Fax: (604) 253-6700

Standard: Conforms with requirements of ISO/IEC 17025:2017

Clients Served: All Interested Parties

Revised On: 12/22/2021

Valid To: 09/18/2023

001 - Alkalinity

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: TITRIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1053

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2320 B	True	True	False

Parameter	Accredited
Alkalinity (pH 4.5)	Yes
Alkalinity (pH 8.3) (Phenolphthalein Alkalinity)	Yes
Bicarbonate Alkalinity	Yes
Carbonate Alkalinity	Yes
Hydroxide Alkalinity	Yes

004 - Conductivity

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: CONDUCTIVITY METER

Preparation Method:

Lab Method ID(s): VA-TM-1053

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2510 B	True	True	False

Parameter	Accredited
Conductivity (25C)	Yes

008 - Reactive Silica

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1018

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-SIO2 D	True	True	False

Parameter	Accredited
Reactive Silica	Yes

014 - Thiocyanate

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1029

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-CN- M	True	True	False

Parameter	Accredited
Thiocyanate	Yes

015 - Colour

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1004

Method Reference	Modified From	Analytical Method	Preparation Method

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
SM 2120 C	True	True	False

Parameter	Accredited
Apparent Colour	Yes
True Colour	Yes

016 - Solids

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): NA-TM-1004, NA-TM-1008, VA-TM-1050

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2540 B	True	True	False
SM 2540 C	True	True	False
SM 2540 D	True	True	False
SM 2540 E	True	True	False

Parameter	Accredited
Fixed Suspended Solids	Yes
Total Dissolved Solids	Yes
Total Solids (TS)	Yes
Total Suspended Solids	Yes
Volatile Suspended Solids	Yes

018 - pH

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: PH METER

Preparation Method:

Lab Method ID(s): VA-TM-1053

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-H+ B	True	True	False

Parameter	Accredited
pH	Yes

020 - Turbidity

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: TURBIDIMETRIC

Preparation Method:

Lab Method ID(s): NA-TM-1007

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2130 B	True	True	False

Parameter	Accredited
Turbidity	Yes

026 - Anions

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ION CHROMATOGRAPHY (IC)

Preparation Method:

Lab Method ID(s): NA-TM-1001

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 300.1	True	True	False

Parameter	Accredited
Bromide	Yes
Chloride	Yes
Fluoride	Yes
Nitrate	Yes
Nitrate plus Nitrite	Yes
Nitrite	Yes
Sulfate	Yes

027 - Biochemical Oxygen Demand (BOD)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: DISSOLVED OXYGEN METER (DO)

Preparation Method:

Lab Method ID(s): VA-TM-1032

Method Reference	Modified From	Analytical Method	Preparation Method
SM 5210 B	True	True	False

Parameter	Accredited
BOD (5 day)	Yes
CBOD (5 day)	Yes
Soluble Biochemical Oxygen Demand (SBOD)	Yes

028 - Chemical Oxygen Demand (COD)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method: DIGESTION

Lab Method ID(s): VA-TM-1033

Method Reference	Modified From	Analytical Method	Preparation Method
SM 5220 D	True	True	False

Parameter	Accredited
COD	Yes

029 - Fecal (Thermotolerant) Coliforms

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MOST PROBABLE NUMBER (MPN)

Preparation Method:

Lab Method ID(s): VA-TM-1200

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9221 E	True	True	False

Parameter	Accredited
Fecal (Thermotolerant) Coliforms	Yes

030 - Fecal (Thermotolerant) Coliforms

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MEMBRANE FILTRATION (M-FC)

Preparation Method:

Lab Method ID(s): VA-TM-1201

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9222 D	True	True	False

Parameter	Accredited
Fecal (Thermotolerant) Coliforms	Yes

031 - Total Metals

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ICP/MS

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1002, NA-TP-2001, NA-TP-2007

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 200.2	False	True	False
EPA 6020B	True	True	False

Parameter	Accredited
Aluminum	Yes
Antimony	Yes
Arsenic	Yes
Barium	Yes
Beryllium	Yes
Bismuth	Yes
Boron	Yes
Cadmium	Yes
Calcium	Yes
Cerium	Yes
Cesium	Yes
Chromium	Yes
Cobalt	Yes
Copper	Yes
Dysprosium	Yes
Erbium	Yes
Europium	Yes
Gadolinium	Yes
Gallium	Yes
Gold	Yes
Hafnium	Yes
Holmium	Yes
Indium	Yes
Iridium	Yes
Iron	Yes

Parameter	Accredited
Lanthanum	Yes
Lead	Yes
Lithium	Yes
Magnesium	Yes
Manganese	Yes
Molybdenum	Yes
Neodymium	Yes
Nickel	Yes
Niobium	Yes
Palladium	Yes
Phosphorus	Yes
Platinum	Yes
Potassium	Yes
Praseodymium	Yes
Rhenium	Yes
Rhodium	Yes
Rubidium	Yes
Ruthenium	Yes
Samarium	Yes
Scandium	Yes
Selenium	Yes
Silicon	Yes
Silver	Yes
Sodium	Yes
Strontium	Yes
Sulphur (Sulfur)	Yes
Tantalum	Yes
Tellurium	Yes
Terbium	Yes
Thallium	Yes
Thorium	Yes
Thulium	Yes
Tin	Yes
Titanium	Yes
Tungsten	Yes
Uranium	Yes
Vanadium	Yes
Ytterbium	Yes
Yttrium	Yes
Zinc	Yes
Zirconium	Yes

032 - Dissolved Metals

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ICP/MS

Preparation Method: FILTRATION

Lab Method ID(s): NA-TM-1002, NA-TP-2002, NA-TP-2007

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 6020B	True	True	False
SM 3030 B	True	True	False

Parameter	Accredited
Aluminum	Yes
Antimony	Yes
Arsenic	Yes
Barium	Yes
Beryllium	Yes
Bismuth	Yes
Boron	Yes
Cadmium	Yes
Calcium	Yes
Cerium	Yes
Cesium	Yes
Chromium	Yes
Cobalt	Yes
Copper	Yes
Dysprosium	Yes
Erbium	Yes
Europium	Yes
Gadolinium	Yes
Gallium	Yes
Gold	Yes
Hafnium	Yes

Parameter	Accredited
Holmium	Yes
Indium	Yes
Iridium	Yes
Iron	Yes
Lanthanum	Yes
Lead	Yes
Lithium	Yes
Magnesium	Yes
Manganese	Yes
Molybdenum	Yes
Neodymium	Yes
Nickel	Yes
Niobium	Yes
Palladium	Yes
Phosphorus	Yes
Platinum	Yes
Potassium	Yes
Praseodymium	Yes
Rhenium	Yes
Rhodium	Yes
Rubidium	Yes
Ruthenium	Yes
Samarium	Yes
Scandium	Yes
Selenium	Yes
Silicon	Yes
Silver	Yes
Sodium	Yes
Strontium	Yes
Sulphur (Sulfur)	Yes
Tantalum	Yes
Tellurium	Yes
Terbium	Yes
Thallium	Yes
Thorium	Yes
Thulium	Yes
Tin	Yes
Titanium	Yes
Tungsten	Yes
Uranium	Yes
Vanadium	Yes
Ytterbium	Yes
Yttrium	Yes
Zinc	Yes
Zirconium	Yes

035 - Total Particulates

Field of Accreditation: Environmental

Matrix: Air [Filter, Particulate]

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1041

Method Reference	Modified From	Analytical Method	Preparation Method
BC WORKERS COMPENSATION BOARD STANDARDS (BCWCB) 1150	True	True	False
BC MOE LABORATORY MANUAL	False	True	False

Parameter	Accredited
Respirable Dust	Yes
Total Particulate Matter	Yes

059 - Phenols

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/MS

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1101, VA-TP-2113

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
EPA 3510C	True	True	False
EPA 8270E	True	True	False

Parameter	Accredited
2,3,4,5-Tetrachlorophenol	Yes
2,3,4,6-Tetrachlorophenol	Yes
2,3,4-Trichlorophenol	Yes

Parameter	Accredited
2,3,5,6-Tetrachlorophenol	Yes
2,3,5-Trichlorophenol	Yes
2,3,6-Trichlorophenol	Yes
2,3-Dichlorophenol	Yes
2,4,5-Trichlorophenol	Yes
2,4,6-Trichlorophenol	Yes
2,4-Dichlorophenol	Yes
2,4-Dimethylphenol	Yes
2,6-Dichlorophenol	Yes
2-Chlorophenol	Yes
2-Methylphenol (o-Cresol)	Yes
3,4,5-Trichlorophenol	Yes
3,4-Dichlorophenol	Yes
3,5-Dichlorophenol	Yes
3-Chlorophenol	Yes
3-Methylphenol (m-Cresol)	Yes
4-Chloro-3-methylphenol	Yes
4-Chlorophenol	Yes
4-Methylphenol (p-Cresol)	Yes
Pentachlorophenol	Yes
Phenol	Yes

061 - Oil and Grease

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GRAVIMETRIC

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1107

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
EPA 1664	True	True	False

Parameter	Accredited
Mineral Oil and Grease	Yes
Total Oil and Grease	Yes

071 - Phenols

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/MS

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1122, VA-TP-2113

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3570	True	True	False
EPA 8270E	True	True	False
KNAPP 1979	True	True	False

Parameter	Accredited
2,3,4,5-Tetrachlorophenol	Yes
2,3,4,6-Tetrachlorophenol	Yes
2,3,4-Trichlorophenol	Yes
2,3,5,6-Tetrachlorophenol	Yes
2,3,5-Trichlorophenol	Yes
2,3,6-Trichlorophenol	Yes
2,3-Dichlorophenol	Yes
2,4,5-Trichlorophenol	Yes
2,4,6-Trichlorophenol	Yes
2,4-Dichlorophenol + 2,5-Dichlorophenol	Yes
2,4-Dimethylphenol	Yes
2,6-Dichlorophenol	Yes
2-Chlorophenol	Yes
2-Methylphenol (o-Cresol)	Yes
3,4,5-Trichlorophenol	Yes
3,4-Dichlorophenol	Yes
3,5-Dichlorophenol	Yes
3-Chlorophenol	Yes
3-Methylphenol (m-Cresol)	Yes
4-Chloro-3-methylphenol	Yes
4-Chlorophenol	Yes
4-Methylphenol (p-Cresol)	Yes
Pentachlorophenol	Yes
Phenol	Yes

080 - Total Polychlorinated Biphenyls (PCB)

Field of Accreditation: Environmental

Matrix: Oil

Analytical Method: GC/ECD

Preparation Method:

Lab Method ID(s): VA-TM-1118, VA-TP-2116

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3620C	True	True	False
EPA 3660B	True	True	False
EPA 3665A	True	True	False
EPA 8082A	True	True	False
ASTM D4059	True	True	False

Parameter	Accredited
Aroclor 1016	Yes
Aroclor 1221	Yes
Aroclor 1232	Yes
Aroclor 1242	Yes
Aroclor 1248	Yes
Aroclor 1254	Yes
Aroclor 1260	Yes
Aroclor 1262	Yes
Aroclor 1268	Yes
Total PCB	Yes

089 - Moisture

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): NA-TM-1200

Method Reference	Modified From	Analytical Method	Preparation Method
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD	False	True	False

Parameter	Accredited
Percent Moisture	Yes

090 - Moisture

Field of Accreditation: Environmental

Matrix: Tissue

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1087

Method Reference	Modified From	Analytical Method	Preparation Method
PUGET SOUND PROTOCOLS	True	True	False

Parameter	Accredited
Percent Moisture	Yes

091 - Carbon

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: INFRARED SPECTROSCOPY (IR)

Preparation Method: COMBUSTION

Lab Method ID(s): VA-TM-1037

Method Reference	Modified From	Analytical Method	Preparation Method
SM 5310 B	True	True	False

Parameter	Accredited
Inorganic Carbon	Yes
Organic Carbon	Yes
Total Carbon (TC)	Yes

100 - Total Metals

Field of Accreditation: Environmental

Matrix: Tissue

Analytical Method: ICP/MS

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1002, NA-TP-2006, NA-TP-2007

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 200.3	True	True	False
EPA 6020A	True	True	False
BC MOE LABORATORY MANUAL	False	True	False

Parameter	Accredited
Aluminum	Yes
Antimony	Yes

Parameter	Accredited
Arsenic	Yes
Barium	Yes
Beryllium	Yes
Bismuth	Yes
Boron	Yes
Cadmium	Yes
Calcium	Yes
Cesium	Yes
Chromium	Yes
Cobalt	Yes
Copper	Yes
Iron	Yes
Lead	Yes
Lithium	Yes
Magnesium	Yes
Manganese	Yes
Molybdenum	Yes
Neodymium	Yes
Nickel	Yes
Phosphorus	Yes
Potassium	Yes
Rhodium	Yes
Rubidium	Yes
Ruthenium	Yes
Samarium	Yes
Selenium	Yes
Silver	Yes
Sodium	Yes
Strontium	Yes
Sulphur (Sulfur)	Yes
Tellurium	Yes
Thallium	Yes
Tin	Yes
Titanium	Yes
Uranium	Yes
Vanadium	Yes
Zinc	Yes
Zirconium	Yes

112 - Total Polychlorinated Biphenyls (PCB)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/ECD

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1119, VA-TP-2116

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3570	True	True	False
EPA 3620C	True	True	False
EPA 3660B	True	True	False
EPA 3665A	True	True	False
EPA 8082A	True	True	False

Parameter	Accredited
Aroclor 1016	Yes
Aroclor 1221	Yes
Aroclor 1232	Yes
Aroclor 1242	Yes
Aroclor 1248	Yes
Aroclor 1254	Yes
Aroclor 1260	Yes
Aroclor 1262	Yes
Aroclor 1268	Yes
Total PCB	Yes

115 - Total Polychlorinated Biphenyls (PCB)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/ECD

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1115, VA-TP-2116

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3510C	True	True	False
EPA 3620C	True	True	False
EPA 3660B	True	True	False

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3665A	True	True	False
EPA 8082A	True	True	False

Parameter	Accredited
Aroclor 1016	Yes
Aroclor 1221	Yes
Aroclor 1232	Yes
Aroclor 1242	Yes
Aroclor 1248	Yes
Aroclor 1254	Yes
Aroclor 1260	Yes
Aroclor 1262	Yes
Aroclor 1268	Yes
Total PCB	Yes

120 - pH

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: METER

Preparation Method: SATURATION EXTRACTION

Lab Method ID(s): NA-TP-2008, VA-TM-1078

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-H+ B	True	True	False
SOIL SAMPLING & METHODS OF ANALYSIS CHAPTER 15	True	True	False

Parameter	Accredited
pH	Yes

123 - Waste Oil

Field of Accreditation: Environmental

Matrix: Solids

Analytical Method: GRAVIMETRIC

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1111

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	False	True	False

Parameter	Accredited
Waste Oil Content	Yes

126 - Heterotrophic Plate Count (HPC)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: POUR PLATE (PCA)

Preparation Method:

Lab Method ID(s): NA-TM-1301

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9215 B	True	True	False

Parameter	Accredited
Heterotrophic Plate Count (HPC)	Yes

136 - Mercury

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLD VAPOUR ATOMIC FLUORESCENCE SPECTROSCOPY (CVAFS)

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1005, NA-TP-2002, VA-TP-2068

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1631E	True	True	False

Parameter	Accredited
Mercury	Yes

142 - Total Coliforms

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MOST PROBABLE NUMBER (MPN)

Preparation Method:

Lab Method ID(s): VA-TM-1200

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9221 B	True	True	False

Parameter	Accredited
Total Coliforms	Yes

143 - Total Coliforms

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MEMBRANE FILTRATION (M-ENDO)

Preparation Method:

Lab Method ID(s): VA-TM-1201

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9222 B	True	True	False

Parameter	Accredited
Total Coliforms	Yes

145 - Coliforms

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MOST PROBABLE NUMBER (MPN)

Preparation Method:

Lab Method ID(s): NA-TM-1300

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9223 B	True	True	False

Parameter	Accredited
Escherichia coli	Yes
Fecal (Thermotolerant) Coliforms	Yes
Total Coliforms	Yes

147 - Conductivity

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: METER

Preparation Method: SATURATION EXTRACTION

Lab Method ID(s): NA-TP-2008, VA-TM-1053

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2510 B	True	True	False
SOIL SAMPLING & METHODS OF ANALYSIS CHAPTER 15	True	True	False

Parameter	Accredited
Conductivity	Yes

148 - Anions

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: ION CHROMATOGRAPHY (IC)

Preparation Method: SATURATED PASTE

Lab Method ID(s): NA-TM-1001, NA-TP-2008

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 300.1	True	True	False
SM 4110 B	True	True	False
SOIL SAMPLING & METHODS OF ANALYSIS CHAPTER 15	True	True	False

Parameter	Accredited
Chloride	Yes
Fluoride	Yes
Nitrate-N	Yes
Nitrite (NO2)	Yes
Sulphate	Yes

149 - Percent Saturation

Field of Accreditation: Environmental

Matrix: Solids [Saturated Paste]

Analytical Method: GRAVIMETRIC

Preparation Method: SATURATED PASTE

Lab Method ID(s): NA-TP-2008

Method Reference	Modified From	Analytical Method	Preparation Method
SOIL SAMPLING & METHODS OF ANALYSIS CHAPTER 15	True	True	False

Parameter	Accredited
Percent Saturation	Yes

152 - Metals

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: ICP/MS

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1002, NA-TP-2004, NA-TP-2007

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL, SALM	True	False	True

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 200.2	True	True	False
EPA 6020B	True	True	False

Parameter	Accredited
Aluminum	Yes
Antimony	Yes
Arsenic	Yes
Barium	Yes
Beryllium	Yes
Bismuth	Yes
Boron	Yes
Cadmium	Yes
Calcium	Yes
Chromium	Yes
Cobalt	Yes
Copper	Yes
Iron	Yes
Lead	Yes
Lithium	Yes
Magnesium	Yes
Manganese	Yes
Molybdenum	Yes
Neodymium	Yes
Nickel	Yes
Phosphorus	Yes
Potassium	Yes
Rhodium	Yes
Ruthenium	Yes
Samarium	Yes
Selenium	Yes
Silver	Yes
Sodium	Yes
Strontium	Yes
Sulphur (Sulfur)	Yes
Tellurium	Yes
Thallium	Yes
Thorium	Yes
Tin	Yes
Titanium	Yes
Tungsten	Yes
Uranium	Yes
Vanadium	Yes
Zinc	Yes
Zirconium	Yes

155 - Glycols

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/FID

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1113

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 8015C	True	True	False

Parameter	Accredited
Diethylene glycol	Yes
Ethylene glycol	Yes
Propylene glycol	Yes
Triethylene glycol	Yes

156 - Glycols

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/FID

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1113

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 8015B	True	True	False

Parameter	Accredited
Diethylene glycol	Yes
Ethylene glycol	Yes
Propylene glycol	Yes
Triethylene glycol	Yes

169 - pH

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: METER

Preparation Method: FIXED RATIO EXTRACTION

Lab Method ID(s): VA-TM-1078

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
SM 4500-H+ B	True	True	False

Parameter	Accredited
pH	Yes

172 - Methyl mercury

Field of Accreditation: Environmental

Matrix: Tissue

Analytical Method: GC/CVAFS-PURGE AND TRAP

Preparation Method: DIGESTION

Lab Method ID(s): VA-TM-1062

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1630	True	True	False

Parameter	Accredited
Methyl mercury	Yes

173 - Methyl mercury

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/CVAFS-PURGE AND TRAP

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1062

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1630	True	True	False

Parameter	Accredited
Methyl mercury	Yes

179 - Phosphorus

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method: DIGESTION

Lab Method ID(s): VA-TM-1025, VA-TM-1054, VA-TP-2009, VA-WI-3046

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-P B	True	True	False
SM 4500-P E	True	True	False

Parameter	Accredited
Phosphate	Yes
Total Dissolved Phosphorus	Yes
Total Phosphorus	Yes

184 - Extractable Hydrocarbons

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/FID

Preparation Method: COLD SHAKE EXTRACTION

Lab Method ID(s): NA-TM-1100, NA-TP-2106

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
EPA 3570	True	True	False

Parameter	Accredited
Extractable Petroleum Hydrocarbons (EPH): C10-C19	Yes
Extractable Petroleum Hydrocarbons (EPH): C10-C19 (sg)	Yes
Extractable Petroleum Hydrocarbons (EPH): C19-C32	Yes
Extractable Petroleum Hydrocarbons (EPH): C19-C32 (sg)	Yes

185 - Polycyclic Aromatic Hydrocarbons (PAH)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/MS

Preparation Method: COLD SHAKE EXTRACTION

Lab Method ID(s): NA-TM-1100, NA-TP-2107

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3570	True	True	False
EPA 8270E	True	True	False

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

186 - Enterococci

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MEMBRANE FILTRATION (MENTEROCOCCUS)

Preparation Method:

Lab Method ID(s): VA-TM-1203

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9230 C	True	True	False

Parameter	Accredited
Enterococci	Yes

187 - Pseudomonas aeruginosa

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MEMBRANE FILTRATION (MPAC)

Preparation Method:

Lab Method ID(s): VA-TM-1204

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9213 E	True	True	False

Parameter	Accredited
Pseudomonas aeruginosa (P. aerigunosa)	Yes

189 - Petroleum Hydrocarbons (PHC)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/FID

Preparation Method: TUMBLER EXTRACTION

Lab Method ID(s): NA-TM-1100, NA-TP-2100

Method Reference	Modified From	Analytical Method	Preparation Method
ALBERTA ENVIRONMENT INTERPRETATION, SEPT 2003	True	True	False
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD (DEC 2000 NO. 1310)	True	True	False

Parameter	Accredited
F2: C10-C16	Yes
F3: C16-C34	Yes
F4: C34-C50	Yes

190 - Petroleum Hydrocarbons (PHC)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GRAVIMETRIC

Preparation Method: TUMBLER EXTRACTION

Lab Method ID(s): NA-TM-1100

Method Reference	Modified From	Analytical Method	Preparation Method
ALBERTA ENVIRONMENT INTERPRETATION, SEPT 2003	True	True	False
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD (DEC 2000 NO. 1310)	True	True	False

Parameter	Accredited
F4: Gravimetric	Yes
F4G-SG: Gravimetric Heavy Hydrocarbons - Silica	Yes

192 - Methyl mercury

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/CVAFS-PURGE AND TRAP

Preparation Method: DISTILLATION

Lab Method ID(s): VA-TM-1062

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1630	True	True	False

Parameter	Accredited
Methyl mercury	Yes

196 - Volatile Organic Compounds (VOC)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/MS-HEADSPACE

Preparation Method:

Lab Method ID(s): NA-TM-1102, NA-TP-2102

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 5021A	True	True	False
EPA 8260C	True	True	False

Parameter	Accredited
1,1,1,2-Tetrachloroethane	Yes
1,1,1-Trichloroethane	Yes
1,1,2,2-Tetrachloroethane	Yes
1,1,2-Trichloroethane	Yes
1,1-Dichloroethane	Yes
1,1-Dichloroethylene	Yes
1,2,4-Trimethylbenzene	Yes
1,2-Dichlorobenzene	Yes
1,2-Dichloroethane	Yes
1,2-Dichloropropane	Yes
1,3,5-Trimethylbenzene	Yes
1,3-Dichlorobenzene	Yes
1,4-Dichlorobenzene	Yes
4-Isopropyltoluene (p-Cymene)	Yes
Acetone (2-Propanone)	Yes
Benzene	Yes
Bromodichloromethane	Yes
Bromoform	Yes
Carbon tetrachloride	Yes
Chlorobenzene	Yes
Chlorodibromomethane	Yes
Chloroethane (Ethyl chloride)	Yes
Chloroform	Yes
Chloromethane (Methyl chloride)	Yes
cis-1,2-Dichloroethylene	Yes
cis-1,3-Dichloropropene	Yes
Dichloromethane	Yes
Ethylbenzene	Yes
Ethylene Dibromide	Yes
Isopropylbenzene (Cumene)	Yes
m,p-Xylene	Yes
Methyl ethyl ketone	Yes
Methyl isobutyl ketone (MIBK)	Yes
Methyl t-butyl ether	Yes
Naphthalene	Yes
n-Propylbenzene	Yes
o-Xylene	Yes
Styrene	Yes
Tetrachloroethylene	Yes
Toluene	Yes
trans-1,2-Dichloroethylene	Yes
trans-1,3-Dichloropropene	Yes
Trichloroethylene	Yes
Trichlorofluoromethane	Yes
Vinyl chloride	Yes

197 - Volatile Hydrocarbons (VH)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/FID-HEADSPACE

Preparation Method:

Lab Method ID(s): NA-TM-1102

Method Reference	Modified From	Analytical Method	Preparation Method

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD	True	True	False
EPA 5021A	True	True	False

Parameter	Accredited
F1: C6-C10	Yes
Volatile Hydrocarbons (VH): C6-C10	Yes

201 - Volatile Organic Compounds (VOC)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/MS-HEADSPACE

Preparation Method:

Lab Method ID(s): NA-TM-1102, NA-TP-2102

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 5021A	True	True	False
EPA 8260C	True	True	False

Parameter	Accredited
1,1,1,2-Tetrachloroethane	Yes
1,1,1-Trichloroethane	Yes
1,1,2,2-Tetrachloroethane	Yes
1,1,2-Trichloroethane	Yes
1,1-Dichloroethane	Yes
1,1-Dichloroethylene	Yes
1,2,4-Trimethylbenzene	Yes
1,2-Dichlorobenzene	Yes
1,2-Dichloroethane	Yes
1,2-Dichloropropane	Yes
1,3,5-Trimethylbenzene	Yes
1,3-Dichlorobenzene	Yes
1,4-Dichlorobenzene	Yes
4-Isopropylbenzene	Yes
Benzene	Yes
Bromodichloromethane	Yes
Bromoform	Yes
Carbon tetrachloride	Yes
Chlorobenzene	Yes
Chlorodibromomethane	Yes
Chloroethane (Ethyl chloride)	Yes
Chloroethene (Vinyl chloride)	Yes
Chloroform	Yes
Chloromethane (Methyl chloride)	Yes
cis-1,2-Dichloroethylene	Yes
cis-1,3-Dichloropropene	Yes
Dichloromethane	Yes
Ethylbenzene	Yes
Ethylene Dibromide	Yes
Isopropylbenzene (Cumene)	Yes
m,p-Xylene	Yes
Methyl t-butyl ether	Yes
Naphthalene	Yes
n-Propylbenzene	Yes
o-Xylene	Yes
Styrene	Yes
Tetrachloroethylene	Yes
Toluene	Yes
trans-1,2-Dichloroethylene	Yes
trans-1,3-Dichloropropene	Yes
Trichloroethylene	Yes
Trichlorofluoromethane	Yes

202 - Volatile Hydrocarbons (VH)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/FID-HEADSPACE

Preparation Method:

Lab Method ID(s): NA-TM-1102, NA-TP-2102

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD	True	True	False
EPA 5021A	True	True	False

Parameter	Accredited
F1: C6-C10	Yes

Parameter	Accredited
VH: C6-C10	Yes

206 - Volatile Organic Compounds (VOC)

Field of Accreditation: Environmental

Matrix: Air

Analytical Method: GC/MS

Preparation Method:

Lab Method ID(s): VA-TM-1109

Method Reference	Modified From	Analytical Method	Preparation Method
EPA TO-17	True	True	False
BC MOE LABORATORY MANUAL	False	True	False

Parameter	Accredited
1,1,1,2-Tetrachloroethane	Yes
1,1,1-Trifluoroethane (HFC 143a)	Yes
1,1,2,2-Tetrachloroethane	Yes
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113, Freon 113)	Yes
1,1,2-Trichloroethane	Yes
1,1-Dichloroethane	Yes
1,1-Dichloroethene (1,1-Dichloroethylene)	Yes
1,1-Dichloropropene	Yes
1,2,3-Trichlorobenzene	Yes
1,2,3-Trichloropropane	Yes
1,2,4-Trichlorobenzene	Yes
1,2,4-Trimethylbenzene	Yes
1,2-Dibromo-3-chloropropane (DBCP)	Yes
1,2-Dibromoethane (Ethylene dibromide)	Yes
1,2-Dichlorobenzene	Yes
1,2-Dichloroethane	Yes
1,2-Dichloropropane	Yes
1,3,5-Trimethylbenzene	Yes
1,3-Butadiene	Yes
1,3-Dichlorobenzene	Yes
1,3-Dichloropropane	Yes
1,4-Dichlorobenzene	Yes
2,2-Dichloropropane	Yes
2-Butanone (Methyl ethyl ketone, MEK)	Yes
2-Chlorophenol	Yes
2-Chlorotoluene	Yes
2-Hexanone (Methyl butyl ketone, MBK)	Yes
2-Propanol (Isopropyl alcohol)	Yes
4-Chlorotoluene (p-Chlorotoluene)	Yes
4-Isopropyltoluene (p-Cymene)	Yes
4-Methyl-2-pentanone (MIBK)	Yes
Acetone (2-Propanone)	Yes
Benzene	Yes
Biphenyl (1,1-Biphenyl)	Yes
Bromobenzene	Yes
Bromochloromethane	Yes
Bromodichloromethane	Yes
Bromoform	Yes
Bromomethane	Yes
Butylbenzene (n-Butylbenzene)	Yes
Carbon disulfide	Yes
Carbon tetrachloride	Yes
Chlorobenzene	Yes
Chloroethane (Ethyl chloride)	Yes
Chloroethene (Vinyl chloride)	Yes
Chloroform	Yes
Chloromethane (Methyl chloride)	Yes
cis-1,2-Dichloroethylene	Yes
cis-1,3-Dichloropropene	Yes
Cyclohexane	Yes
Decane	Yes
Dibromochloromethane	Yes
Dibromomethane	Yes
Dichlorodifluoromethane (CFC-12, Freon 12)	Yes
Dichloromethane (Methylene Chloride)	Yes
Ethyl acetate	Yes
Ethylbenzene	Yes
Heptane (n-Heptane)	Yes
Hexachlorobutadiene (1,1,2,3,4,4-Hexachloro-1,3-butadiene)	Yes
Hexane (n-Hexane)	Yes
Isopropylbenzene (Cumene)	Yes

Parameter	Accredited
m,p-Xylene	Yes
Methyl tert-butyl ether (MTBE)	Yes
Methylcyclohexane	Yes
Naphthalene	Yes
n-Octane	Yes
n-Propylbenzene	Yes
o-Xylene	Yes
sec-Butylbenzene ((1-Methylpropyl)benzene)	Yes
Styrene	Yes
tert-Butylbenzene	Yes
Tetrachloroethylene	Yes
Toluene	Yes
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)	Yes
trans-1,3-Dichloropropene	Yes
Trichloroethylene	Yes
Trichlorofluoromethane (CFC-11, Freon 11)	Yes

207 - Volatile Organic Compounds (VOC)

Field of Accreditation: Environmental

Matrix: Air

Analytical Method: GC/FID

Preparation Method:

Lab Method ID(s): VA-TM-1109

Method Reference	Modified From	Analytical Method	Preparation Method
EPA TO-17	True	True	False
BC MOE LABORATORY MANUAL	False	True	False

Parameter	Accredited
F1: C6-C10	Yes
F2: C10-C16	Yes
Total Volatile Organic Compounds (TVOC): >C10-C12	Yes
Total Volatile Organic Compounds (TVOC): >C12-C16	Yes
Total Volatile Organic Compounds (TVOC): >C6-C8	Yes
Total Volatile Organic Compounds (TVOC): >C8-C10	Yes
Volatile Hydrocarbons (VH): C6-C13	Yes

208 - Ammonia

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: FLUOROMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1048

Method Reference	Modified From	Analytical Method	Preparation Method
JOURNAL OF ENVIRONMENTAL MONITORING (2005) SECTION 7, P. 37-42	True	True	False

Parameter	Accredited
Ammonia	Yes

209 - Cyanide

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: AUTOMATED COLORIMETRIC

Preparation Method: DISTILLATION

Lab Method ID(s): NA-TM-1003

Method Reference	Modified From	Analytical Method	Preparation Method
ISO 14403	True	True	False
SM 4500-CN- I	True	True	False

Parameter	Accredited
Cyanide (SAD)	Yes
Cyanide (WAD)	Yes

210 - Cyanide

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: AUTOMATED COLORIMETRIC-GAS DIFFUSION

Preparation Method:

Lab Method ID(s): NA-TM-1003

Method Reference	Modified From	Analytical Method	Preparation Method
ASTM D7237	True	True	False
ISO 14403-2	True	True	False

Parameter	Accredited
Free Cyanide	Yes

211 - Total Kjeldahl Nitrogen (TKN)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: FLUOROMETRIC

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1006, VA-TM-1044

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-NORG D	True	True	False

Parameter	Accredited
Dissolved Kjeldahl Nitrogen	Yes
Total Kjeldahl Nitrogen	Yes

212 - Resin and Fatty Acids

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/MS

Preparation Method: LIQUID/LIQUID MICRO EXTRACTION (LLME)

Lab Method ID(s): VA-TM-1105, VA-TP-2111, VA-TP-2114

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3511	False	False	True
EPA 8270E	True	True	False

Parameter	Accredited
12-Chlorodehydroabietic acid	Yes
14-Chlorodehydroabietic acid	Yes
9,10-Dichlorostearic acid	Yes
Abietic acid	Yes
Arachidic acid	Yes
Dehydroabietic acid	Yes
Dichlorodehydroabietic acid	Yes
Docosanoic Acid (Behenic acid)	Yes
Dodecanoic acid (Lauric acid)	Yes
Hexadecanoic acid (Palmitic acid)	Yes
Isopimaric acid	Yes
Levopimaric acid	Yes
Lignoceric acid	Yes
Linoleic acid (Octadecadienoic acid)	Yes
Linolenic acid (Octadecatrienoic acid)	Yes
Myristic acid (Tetradecanoic Acid)	Yes
Neoabietic acid	Yes
Oleic acid	Yes
Palustric acid	Yes
Pimaric acid	Yes
Sandaracopimaric acid	Yes
Stearic acid (Octadecanoic acid)	Yes

213 - Cyanide

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: AUTOMATED COLORIMETRIC

Preparation Method: DISTILLATION, EXTRACTION

Lab Method ID(s): NA-TM-1003, VA-WI-3019

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
ISO 14403	True	True	False
SM 4500-CN- I	True	True	False

Parameter	Accredited
Cyanide (SAD)	Yes
Cyanide (WAD)	Yes

214 - Cyanide

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: COLORIMETRIC-GAS DIFFUSION

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1003, VA-WI-3019

Method Reference	Modified From	Analytical Method	Preparation Method
ASTM 7237	True	True	False
BC MOE LABORATORY MANUAL	True	True	False

Parameter	Accredited
Free Cyanide	Yes

217 - Nitrogen

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: AUTOMATED COLORIMETRIC

Preparation Method: DIGESTION

Lab Method ID(s): VA-TM-1047, VA-WI-3046

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-P J	True	True	False

Parameter	Accredited
Total Dissolved Nitrogen	Yes
Total Nitrogen	Yes

219 - Acidity

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: TITRIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1053

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2310	True	True	False

Parameter	Accredited
Acidity	Yes

220 - Chlorophyll A

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: FLUOROMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1038, VA-TP-2011

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 445.0	True	True	False

Parameter	Accredited
Chlorophyll a	Yes

221 - Oxidation Reduction Potential (ORP)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MV METER

Preparation Method:

Lab Method ID(s): VA-TM-1006

Method Reference	Modified From	Analytical Method	Preparation Method
ASTM 1498-14	True	True	False

Parameter	Accredited
Oxidation Reduction Potential (ORP)	Yes

224 - Metals

Field of Accreditation: Environmental

Matrix: Air [Dustfall]

Analytical Method: ICP/MS

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TP-2063

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
EPA 6020B	True	True	False

Parameter	Accredited
Aluminum	Yes
Antimony	Yes
Arsenic	Yes
Barium	Yes
Beryllium	Yes
Bismuth	Yes
Boron	Yes
Cadmium	Yes
Calcium	Yes
Chromium	Yes
Cobalt	Yes
Copper	Yes
Lead	Yes
Lithium	Yes
Magnesium	Yes
Manganese	Yes
Molybdenum	Yes
Nickel	Yes
Potassium	Yes
Selenium	Yes
Silver	Yes

Parameter	Accredited
Sodium	Yes
Strontium	Yes
Thallium	Yes
Tin	Yes
Uranium	Yes
Vanadium	Yes
Zinc	Yes

227 - Dustfall

Field of Accreditation: Environmental

Matrix: Air [Dustfall]

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1039

Method Reference	Modified From	Analytical Method	Preparation Method
ASTM D1739-98	False	True	False
BC MOE LABORATORY MANUAL	False	True	False

Parameter	Accredited
Fixed Dustfall	Yes
Total Dustfall	Yes
Total Insoluble Dustfall	Yes
Total Soluble Dustfall	Yes

228 - Simultaneously Extracted Metals (SEM)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: COLD VAPOUR ATOMIC FLUORESCENCE SPECTROSCOPY (CVAFS)

Preparation Method: SEM EXTRACTION

Lab Method ID(s): NA-TM-1005, NA-TP-2012, VA-TM-1021

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1631E	True	True	False
EPA 821/R-91/100	True	True	False

Parameter	Accredited
Mercury	Yes

230 - Acid Volatile Sulphide (AVS)

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: COLORIMETRIC

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1021

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 821/R-91/100	True	True	False

Parameter	Accredited
Acid Volatile Sulphide (AVS, Acid Volatile Sulfide)	Yes

232 - Arsenic

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: HPLC/ICP/MS

Preparation Method:

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1086

Method Reference	Modified From	Analytical Method	Preparation Method
USGS WATER RESOURCES INVESTIGATION REPORT 02-4144	True	True	False

Parameter	Accredited
Arsenate (As(V))	Yes
Arsenite (As(III))	Yes
Arsenobetaine (AsB)	Yes
Dimethylarsinic acid (DMA)	Yes
Monomethyl arsenate (MMA)	Yes
Total Arsenic Species	Yes
Total Inorganic Arsenic	Yes
Total Inorganic Arsenic and Methylated Metabolites	Yes

233 - Arsenic Speciation

Field of Accreditation: Environmental

Matrix: Biomaterials [Urine]

Analytical Method: HPLC/ICP/MS

Preparation Method:

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1081

Method Reference	Modified From	Analytical Method	Preparation Method

Method Reference	Modified From	Analytical Method	Preparation Method
CDC METHOD 3000.15, 2016	True	True	False
EPA 6020A	True	True	False

Parameter	Accredited
Arsenate (As(V))	Yes
Arsenite (As(III))	Yes
Arsenobetaine (AsB)	Yes
Dimethylarsinic acid (DMA)	Yes
Monomethyl arsenate (MMA)	Yes
Total Arsenic Species	Yes
Total Inorganic Arsenic	Yes
Total Inorganic Arsenic and Methylated Metabolites	Yes

234 - Creatinine

Field of Accreditation: Environmental

Matrix: Biomaterials [Urine]

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1052

Method Reference	Modified From	Analytical Method	Preparation Method
THERMO DRI CREATININE-DETECT SPECIMEN VALIDITY TEST	False	True	False

Parameter	Accredited
Creatinine	Yes

235 - Leachable Metals

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: ICP/MS

Preparation Method: TCLP

Lab Method ID(s): NA-TM-1002, NA-TM-1700, NA-TP-2007

Method Reference	Modified From	Analytical Method	Preparation Method
BC PROTOCOL 13	True	True	False
EPA 1311	True	False	True
EPA 6020B	True	True	False

Parameter	Accredited
Antimony	Yes
Arsenic	Yes
Barium	Yes
Beryllium	Yes
Boron	Yes
Cadmium	Yes
Calcium	Yes
Chromium	Yes
Cobalt	Yes
Copper	Yes
Iron	Yes
Lead	Yes
Magnesium	Yes
Nickel	Yes
Selenium	Yes
Silver	Yes
Thallium	Yes
Uranium	Yes
Vanadium	Yes
Zinc	Yes
Zirconium	Yes

236 - Arsenic Speciation

Field of Accreditation: Food

Matrix: Food [Egg, Fresh Fruit, Meat, Processed Food, Vegetables]

Analytical Method: HPLC/ICP/MS

Preparation Method:

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1082

Method Reference	Modified From	Analytical Method	Preparation Method
CFIA SOM-DAR-CHE-053-04	True	True	False
EPA 6020A	True	True	False

Parameter	Accredited
Arsenate (As(V))	Yes
Arsenite (As(III))	Yes
Arsenobetaine (AsB)	Yes
Arsenocholine (AsC)	Yes
Dimethylarsinic acid (DMA)	Yes
Monomethyl arsenate (MMA)	Yes

237 - Polycyclic Aromatic Hydrocarbons (PAH)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/MS

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1112, NA-TP-2109

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3511	True	True	False
EPA 8270D	True	True	False

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

238 - Petroleum Hydrocarbons (PHC)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/FID

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1112, NA-TP-2100

Method Reference	Modified From	Analytical Method	Preparation Method
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD	True	True	False
EPA 3511	True	True	False

Parameter	Accredited
F2: C10-C16	Yes
F3: C16-C34	Yes
F4: C34-C50	Yes

239 - Oil and Grease

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GRAVIMETRIC

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1100

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD	True	True	False

Parameter	Accredited
Mineral Oil and Grease	Yes
Total Oil and Grease	Yes

240 - Escherichia coli (E. coli)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MEMBRANE FILTRATION (MFC/NA-MUG)

Preparation Method:

Lab Method ID(s): VA-TM-1201

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9222 G	True	True	False

Parameter	Accredited
Escherichia coli	Yes

241 - Lipid Content

Field of Accreditation: Environmental

Matrix: Tissue

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1112

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3570	True	True	False
EPA 8290A	True	True	False

Parameter	Accredited
Lipid Content	Yes

242 - Dissolved Ferrous Iron

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method: FILTRATION

Lab Method ID(s): VA-TM-1046, VA-TP-2009

Method Reference	Modified From	Analytical Method	Preparation Method
ENVIRONMENTAL SCIENCE & TECHNOLOGY, 33(5), PP 807-813	True	True	False
SM 3500-FE	True	True	False

Parameter	Accredited
Ferrous Iron (Fe2+)	Yes

244 - Leachable Anions

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: ION CHROMATOGRAPHY (IC)

Preparation Method: SHAKEFLASK EXTRACTION

Lab Method ID(s): NA-TM-1001, VM-TM-1074

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 300.1	True	True	False
MEND REPORT 1.20.1	True	True	False

Parameter	Accredited
Bromide	Yes
Chloride	Yes
Fluoride	Yes
Nitrate-Nitrogen (NO3-N)	Yes
Nitrite-Nitrogen (NO2-N)	Yes
Sulphate (Sulfate)	Yes

245 - Fecal (Thermotolerant) Coliforms

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: MOST PROBABLE NUMBER (MPN)

Preparation Method:

Lab Method ID(s): VA-TM-1200

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1680	True	True	False

Parameter	Accredited
Fecal (Thermotolerant) Coliforms	Yes

247 - Leachable Metals

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: ICP/MS

Preparation Method: SHAKEFLASK EXTRACTION

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1074

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 6020B	True	True	False
MEND REPORT 1.20.1	True	True	False

Parameter	Accredited
Aluminum	Yes
Antimony	Yes
Arsenic	Yes
Barium	Yes
Beryllium	Yes
Bismuth	Yes
Boron	Yes
Cadmium	Yes
Calcium	Yes
Chromium	Yes
Cobalt	Yes
Copper	Yes
Iron	Yes
Lead	Yes
Lithium	Yes

Parameter	Accredited
Magnesium	Yes
Manganese	Yes
Molybdenum	Yes
Nickel	Yes
Phosphorus	Yes
Potassium	Yes
Selenium	Yes
Silicon	Yes
Silver	Yes
Sodium	Yes
Strontium	Yes
Thallium	Yes
Tin	Yes
Uranium	Yes
Vanadium	Yes
Zinc	Yes

250 - pH

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: PH METER

Preparation Method: SHAKE EXTRACTION

Lab Method ID(s): VA-TM-1074

Method Reference	Modified From	Analytical Method	Preparation Method
MEND REPORT 1.20.1	True	True	False
SM 4500-H	True	True	False

Parameter	Accredited
pH	Yes

251 - Extractable Petroleum Hydrocarbons (EPH)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/FID

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1112, NA-TP-2106, VA-TP-2129

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	False	True	False

Parameter	Accredited
Extractable Petroleum Hydrocarbons (EPH): C10-C19	Yes
Extractable Petroleum Hydrocarbons (EPH): C10-C19 (sg)	Yes
Extractable Petroleum Hydrocarbons (EPH): C19-C32	Yes
Extractable Petroleum Hydrocarbons (EPH): C19-C32 (sg)	Yes
Total Extractable Hydrocarbons (TEH): C10-C30	Yes

252 - Selenium Speciation

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: HPLC/ICP/MS

Preparation Method:

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1084

Method Reference	Modified From	Analytical Method	Preparation Method
SPECTROCHIMICA ACTA PART B60 (2005) 633-641	False	True	False

Parameter	Accredited
Selenium (IV)	Yes
Selenium (VI)	Yes
Selenomethionine	Yes

253 - Selenium Speciation

Field of Accreditation: Environmental

Matrix: Tissue

Analytical Method: HPLC/ICP/MS

Preparation Method:

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1085

Method Reference	Modified From	Analytical Method	Preparation Method
CFIA METHOD SOM-DAR CHE-053-04	False	True	False

Parameter	Accredited
Selenium (IV)	Yes
Selenium (VI)	Yes
Selenomethionine	Yes

254 - UV Absorbance and Transmittance

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: SPECTROPHOTOMETRIC

Preparation Method:

Lab Method ID(s): VA-TM-1042, VA-TP-2011

Method Reference	Modified From	Analytical Method	Preparation Method
SM 5910 B	True	True	False

Parameter	Accredited
UV Absorbance	Yes
UV Transmittance	Yes

255 - Soluble Anions

Field of Accreditation: Environmental

Matrix: Dustfall

Analytical Method: ION CHROMATOGRAPHY (IC)

Preparation Method:

Lab Method ID(s): NA-TM-1001, VA-TM-1039

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
EPA 300.0	True	True	False
SM 4110	True	True	False

Parameter	Accredited
Chloride	Yes
Nitrate (NO3)	Yes

256 - Anions

Field of Accreditation: Environmental

Matrix: Solids [Leachate]

Analytical Method: ION CHROMATOGRAPHY (IC)

Preparation Method: FIXED RATIO EXTRACTION

Lab Method ID(s): NA-TM-1001, VA-TM-1078

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
EPA 300.0	True	True	False
SM 4110	True	True	False

Parameter	Accredited
Chloride	Yes
Sulphate	Yes
Sulphate (Sulfate)	Yes

257 - Acidity

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: TITRIMETRIC

Preparation Method: SHAKEFLASK EXTRACTION

Lab Method ID(s): VA-TM-1053, VA-TM-1074

Method Reference	Modified From	Analytical Method	Preparation Method
MEND REPORT 1.20.1	True	True	False
SM 2320 B	True	True	False

Parameter	Accredited
Acidity (as CaCO3)	Yes

258 - Alkalinity

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: TITRIMETRIC

Preparation Method: SHAKEFLASK EXTRACTION

Lab Method ID(s): VA-TM-1053, VA-TM-1074

Method Reference	Modified From	Analytical Method	Preparation Method
MEND REPORT 1.20.1	True	True	False
SM 2320 B	True	True	False

Parameter	Accredited
Alkalinity (pH 4.5)	Yes

259 - Ashfree

Field of Accreditation: Environmental

Matrix: Tissue

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): VM-TM-1051

Method Reference	Modified From	Analytical Method	Preparation Method

Method Reference	Modified From	Analytical Method	Preparation Method
SM 10300	True	True	False

Parameter	Accredited
Ash-free weight	Yes

261 - Lead

Field of Accreditation: Environmental

Matrix: Paint

Analytical Method: ICP/MS

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1002, NA-TP-2004

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 200.2	True	True	False
EPA 6020B	True	True	False

Parameter	Accredited
Lead	Yes

262 - Paint Filter

Field of Accreditation: Environmental

Matrix: Solids [Paint]

Analytical Method:

Preparation Method: FILTRATION

Lab Method ID(s): VA-TM-1055

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 9095B	True	True	False

Parameter	Accredited
Paint Filter (Free Liquid)	Yes

263 - Volatile Organic Compounds (VOC)

Field of Accreditation: Environmental

Matrix: Solids

Analytical Method: GC/MS-HEADSPACE

Preparation Method: TCLP

Lab Method ID(s): NA-TM-1102, VA-TM-1126

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1311	True	False	True
EPA 8260C	True	True	False

Parameter	Accredited
1,1-Dichloroethene (1,1-Dichloroethylene)	Yes
1,2-Dichlorobenzene	Yes
1,2-Dichloroethane	Yes
1,4-Dichlorobenzene	Yes
Benzene	Yes
Bromodichloromethane	Yes
Bromoform	Yes
Carbon tetrachloride	Yes
Chlorobenzene	Yes
Chlorodibromomethane	Yes
Chloroethene (Vinyl chloride)	Yes
Chloroform	Yes
Dichloromethane (Methylene Chloride)	Yes
Ethylbenzene	Yes
m,p-Xylene	Yes
Methyl ethyl ketone	Yes
o-Xylene	Yes
Tetrachloroethylene	Yes
Toluene	Yes
Trichloroethylene	Yes

264 - Flashpoint

Field of Accreditation: Environmental

Matrix: Solids [Ash]

Analytical Method: PENSKY-MARTENS CLOSED CUP

Preparation Method:

Lab Method ID(s): VA-TM-1090

Method Reference	Modified From	Analytical Method	Preparation Method
ASTM D93-15	True	True	False

Parameter	Accredited
Flashpoint	Yes

265 - Mercury

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLD VAPOUR ATOMIC ABSORPTION (CVAA) **Preparation Method**:

Lab Method ID(s): NA-TM-1005, NA-TP-2002, NA-TP-2012

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1631E	True	True	False

Parameter	Accredited
Mercury	Yes

266 - Total Mercury

Field of Accreditation: Environmental **Matrix**: Tissue

Analytical Method: COLD VAPOUR ATOMIC ABSORPTION (CVAA) **Preparation Method**:

Lab Method ID(s): NA-TM-1005, NA-TP-2006, NA-TP-2012

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1631E	True	True	False
EPA 200.3	True	True	False

Parameter	Accredited
Mercury	Yes

267 - Leachable Mercury

Field of Accreditation: Environmental **Matrix**: Solids [Waste]

Analytical Method: COLD VAPOUR ATOMIC ABSORPTION (CVAA) **Preparation Method**: EXTRACTION

Lab Method ID(s): NA-TM-1005, NA-TP-2012, VA-TM-1071

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE ENVIRONMENTAL MANAGEMENT ACT HAZARDOUS WASTE REGULATION (EMA/HWR)	True	True	False
EPA 1631E	True	True	False

Parameter	Accredited
Mercury	Yes

268 - Leachable Mercury

Field of Accreditation: Environmental **Matrix**: Solids [Waste]

Analytical Method: COLD VAPOUR ATOMIC ABSORPTION (CVAA) **Preparation Method**: TCLP

Lab Method ID(s): NA-TM-1005, NA-TM-1700, NA-TP-2012

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1311	True	False	True
EPA 1631E	True	True	False

Parameter	Accredited
Mercury	Yes

269 - Mercury

Field of Accreditation: Environmental **Matrix**: Solids [Soil]

Analytical Method: COLD VAPOUR ATOMIC ABSORPTION (CVAA) **Preparation Method**: DIGESTION

Lab Method ID(s): NA-TM-1005, NA-TP-2004, NA-TP-2012

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL, SALM	True	False	True
EPA 1631E	True	True	False
EPA 200.2	True	True	False

Parameter	Accredited
Mercury	Yes

270 - Leachable Mercury

Field of Accreditation: Environmental **Matrix**: Solids [Soil]

Analytical Method: COLD VAPOUR ATOMIC ABSORPTION (CVAA) **Preparation Method**: EXTRACTION

Lab Method ID(s): NA-TM-1005, NA-TP-2012, VA-TM-1074

Method Reference	Modified From	Analytical Method	Preparation Method
MEND REPORT 1.20.1	True	True	False

Parameter	Accredited
Mercury	Yes

271 - Mercury

Field of Accreditation: Environmental

Matrix: Air [Dustfall]

Analytical Method: COLD VAPOUR ATOMIC ABSORPTION (CVAA)

Preparation Method: DIGESTION

Lab Method ID(s): NA-TM-1005, NA-TP-2012, VA-TP-2063

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False
EPA 1631E	True	True	False

Parameter	Accredited
Mercury	Yes

273 - Metals

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: ICP/MS

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1021

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 6020B	True	True	False
EPA 821/R-91/100	True	True	False

Parameter	Accredited
Arsenic	Yes
Cadmium	Yes
Copper	Yes
Lead	Yes
Nickel	Yes
Zinc	Yes

274 - Leachable Metals

Field of Accreditation: Environmental

Matrix: Solids

Analytical Method: ICP/MS

Preparation Method: MLEP EXTRACTION

Lab Method ID(s): NA-TM-1002, NA-TP-2007, VA-TM-1071

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE CONTAMINATED SITES REGULATION (CSR)	True	True	False
EPA 6020B	True	True	False

Parameter	Accredited
Arsenic	Yes
Barium	Yes
Boron	Yes
Cadmium	Yes
Chromium	Yes
Copper	Yes
Lead	Yes
Selenium	Yes
Silver	Yes
Uranium	Yes
Zinc	Yes

275 - Metals

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: ICP/MS

Preparation Method: EXTRACTION

Lab Method ID(s): NA-TM-1002, NA-TP-2007, NA-TP-2008

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 6020B	True	True	False
SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15	True	True	False

Parameter	Accredited
Calcium	Yes
Magnesium	Yes
Potassium	Yes
Sodium	Yes

276 - Hexavalent Chromium

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ION CHROMATOGRAPHY (IC)

Preparation Method:

Lab Method ID(s): NA-TM-1001, VA-TM-1056

Method Reference	Modified From	Analytical Method	Preparation Method

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1620B	True	True	False
SM 3500-CR C	True	True	False

Parameter	Accredited
Dissolved Hexavalent Chromium	Yes
Hexavalent Chromium	Yes

277 - Sulphide

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC-CONTINUOUS FLOW (CFA)

Preparation Method:

Lab Method ID(s): VA-TM-1057

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500 A	True	True	False
SM 4500 E	True	True	False
SM 4500 S2- D	True	True	False

Parameter	Accredited
Sulphide	Yes

278 - Legionella

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: CULTURE

Preparation Method:

Lab Method ID(s): NA-TM-1302

Method Reference	Modified From	Analytical Method	Preparation Method
ISO 11731	True	True	False

Parameter	Accredited
Legionella pneumophila	Yes

279 - Tetraethyllead

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/ICP/MS

Preparation Method: EXTRACTION

Lab Method ID(s): VA-TM-1129, VA-TP-2132

Method Reference	Modified From	Analytical Method	Preparation Method
BC MOE LABORATORY MANUAL	True	True	False

Parameter	Accredited
Tetraethyl lead	Yes

† “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

CALA Scope of Accreditation

Laboratory Name: Taiga Environmental Laboratory

Client ID: 1002635

Parent Institution: Government of Northwest Territories (GNWT)

Address: P.O. Box 1320, 4601 - 52nd Avenue, Yellowknife, Northwest Territories, X1A 2L9

Contact: Mr. Bruce Stuart

Email: bruce_stuart@gov.nt.ca; taiga@gov.nt.ca; glen_hudy@gov.nt.ca

Phone: (867) 767-9235

Fax: (867) 920-8740

Standard: Conforms with requirements of ISO/IEC 17025:2017

Clients Served: All Interested Parties

Revised On: 03/28/2022

Valid To: 03/27/2024

004 - Biochemical Oxygen Demand (BOD)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: DISSOLVED OXYGEN METER (DO)

Preparation Method:

Lab Method ID(s): TEL019

Method Reference	Modified From	Analytical Method	Preparation Method
SM 5210 A	Yes	Yes	No
SM 5210 B	Yes	Yes	No

Parameter
BOD (5 day)
CBOD (5 day)

011 - Solids

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): TEL008, TEL009

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2540 C	Yes	Yes	No
SM 2540 D	Yes	Yes	No

Parameter
Total Dissolved Solids
Total Suspended Solids

013 - Dissolved Metals

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ICP/MS

Preparation Method:

Lab Method ID(s): TEL035

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 200.8	Yes	Yes	No

Parameter
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Cesium
Chromium
Cobalt
Copper
Gallium
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum

Parameter
Nickel
Phosphorus
Potassium
Rubidium
Selenium
Silicon
Silver
Sodium
Strontium
Sulphur (Sulfur)
Tellurium
Thallium
Thorium
Tin
Titanium
Tungsten
Uranium
Vanadium
Zinc
Zirconium

028 - Turbidity

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: NEPHELOMETRIC

Preparation Method:

Lab Method ID(s): TEL006

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2130 B	Yes	Yes	No

Parameter
Turbidity

029 - Carbon

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: INFRARED SPECTROSCOPY (IR)

Preparation Method:

Lab Method ID(s): TEL033

Method Reference	Modified From	Analytical Method	Preparation Method
SM 5310 B	Yes	Yes	No

Parameter
Organic Carbon

030 - Moisture

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GRAVIMETRIC

Preparation Method:

Lab Method ID(s): TEL007

Method Reference	Modified From	Analytical Method	Preparation Method
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD	No	Yes	No

Parameter
Percent Moisture

041 - Fecal (Thermotolerant) Coliforms

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: MEMBRANE FILTRATION (M-FC)

Preparation Method:

Lab Method ID(s): TEL017

Method Reference	Modified From	Analytical Method	Preparation Method
SM 9222 D	Yes	Yes	No

Parameter
Fecal (Thermotolerant) Coliforms

042 - Cations

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ION CHROMATOGRAPHY (IC)

Preparation Method:

Lab Method ID(s): TEL055

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4110 B	Yes	Yes	No

Parameter	
Calcium	
Magnesium	
Potassium	Suspended on 12/25/2021
Sodium	

045 - Coliforms

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: QUANTI-TRAY (COLILERT)

Preparation Method:

Lab Method ID(s): TEL053

Method Reference	Modified From	Analytical Method	Preparation Method
IDEXX QUANTI-TRAY	Yes	Yes	No

Parameter
Escherichia coli
Total Coliforms

054 - Total Metals

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ICP/MS

Preparation Method:

Lab Method ID(s): TEL035

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 200.8	Yes	Yes	No

Parameter
Aluminum
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Cesium
Chromium
Cobalt
Copper
Gallium
Iron
Lead
Lithium
Magnesium
Manganese
Mercury
Molybdenum
Nickel
Phosphorus
Potassium
Rubidium
Selenium
Silicon
Silver
Sodium
Strontium
Sulphur (Sulfur)
Tellurium
Thallium
Thorium
Tin
Titanium
Tungsten
Uranium
Vanadium
Zinc
Zirconium

055 - Fecal Streptococci

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: QUANTI-TRAY (COLILERT) **Preparation Method**:

Lab Method ID(s): TEL053

Method Reference	Modified From	Analytical Method	Preparation Method
IDEXX QUANTI-TRAY	Yes	Yes	No

Parameter
Fecal Streptococci

059 - Anions

Field of Accreditation: Environmental **Matrix**: Water

Analytical Method: ION CHROMATOGRAPHY (IC) **Preparation Method**:

Lab Method ID(s): TEL055

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4110 B	Yes	Yes	No

Parameter
Chloride
Fluoride
Nitrate
Nitrite
Sulfate

060 - Oil and Grease

Field of Accreditation: Environmental **Matrix**: Water

Analytical Method: GRAVIMETRIC **Preparation Method**: EXTRACTION

Lab Method ID(s): TEL024: HEM

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 1664A (REVISION A)	Yes	Yes	No

Parameter
Total Oil and Grease

061 - Chemical Oxygen Demand (COD)

Field of Accreditation: Environmental **Matrix**: Water

Analytical Method: COLORIMETRIC **Preparation Method**: REFLUX

Lab Method ID(s): TEL016

Method Reference	Modified From	Analytical Method	Preparation Method
SM 5220 D	Yes	Yes	No

Parameter
COD

063 - Colour

Field of Accreditation: Environmental **Matrix**: Water

Analytical Method: SPECTROPHOTOMETRIC **Preparation Method**:

Lab Method ID(s): TEL051

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2120 C	Yes	Yes	No

Parameter
Apparent Colour
True Colour

066 - Alkalinity

Field of Accreditation: Environmental **Matrix**: Water

Analytical Method: AUTOMATED TITRIMETRIC **Preparation Method**:

Lab Method ID(s): TEL060:PC TITRATE

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2320 A	Yes	Yes	No
SM 2320 B	Yes	Yes	No

Parameter
Alkalinity (pH 4.5)

067 - pH

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: AUTOMATED PH METER

Preparation Method:

Lab Method ID(s): TEL058:PC TITRATE

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-H+ A	Yes	Yes	No
SM 4500-H+ B	Yes	Yes	No

Parameter
pH

068 - Conductivity

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: AUTOMATED CONDUCTIVITY METER

Preparation Method:

Lab Method ID(s): TEL059:PC TITRATE

Method Reference	Modified From	Analytical Method	Preparation Method
SM 2510 B	Yes	Yes	No

Parameter
Conductivity (25C)

070 - BTEX

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/MS-PURGE AND TRAP

Preparation Method:

Lab Method ID(s): TEL037:BTEX

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 502.2	Yes	Yes	No
EPA 5030B	Yes	Yes	No
EPA 602	Yes	Yes	No

Parameter
Benzene
Ethylbenzene
m,p-Xylene
o-Xylene
Toluene

072 - BTEX

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/MS-PURGE AND TRAP

Preparation Method:

Lab Method ID(s): TEL038

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 502.2	Yes	Yes	No
EPA 5030B	Yes	Yes	No
EPA 602	Yes	Yes	No

Parameter
Benzene
Ethylbenzene
m,p-Xylene
o-Xylene
Toluene

074 - Purgeable Hydrocarbons

Field of Accreditation: Environmental

Matrix: Solids [Soil]

Analytical Method: GC/FID-PURGE AND TRAP

Preparation Method:

Lab Method ID(s): TEL056

Method Reference	Modified From	Analytical Method	Preparation Method
CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD	No	Yes	No

Parameter
F1: C6-C10 Withdrawn on 3/28/2022

077 - Trihalomethanes (THM)

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/MS-PURGE AND TRAP

Preparation Method:

Lab Method ID(s): TEL039:THM

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 502.2	Yes	Yes	No
EPA 5030B	Yes	Yes	No
EPA 602	Yes	Yes	No

Parameter

Bromodichloromethane
Bromoform
Chlorodibromomethane
Chloroform

080 - Mercury

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: ATOMIC FLUORESCENCE SPECTROSCOPY (AFS)

Preparation Method:

Lab Method ID(s): TEL062

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 245.7	Yes	Yes	No

Parameter

Mercury

084 - Purgeable Hydrocarbons

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/FID-PURGE AND TRAP

Preparation Method:

Lab Method ID(s): TEL044

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 5030	Yes	Yes	No
EPA 8000	Yes	Yes	No
EPA 8015	Yes	Yes	No
EPA 8260B	Yes	Yes	No

Parameter

Hydrocarbons: C6-C10

085 - Extractable Hydrocarbons

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: GC/FID

Preparation Method: SOLID PHASE EXTRACTION (SPE)

Lab Method ID(s): TEL067

Method Reference	Modified From	Analytical Method	Preparation Method
EPA 3510C	Yes	Yes	No
EPA 3630C	Yes	Yes	No
SM 6010	Yes	Yes	No

Parameter

Hydrocarbons: C10-C50

086 - Total and Dissolved Nitrogen

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: CHEMILUMINESCENCE-PYROLYSIS

Preparation Method:

Lab Method ID(s): TEL066

Method Reference	Modified From	Analytical Method	Preparation Method
ASTM D5176-91	Yes	Yes	No
ISO 11905	Yes	Yes	No

Parameter

Dissolved Nitrogen
Total Nitrogen

087 - Phosphate

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): TEL069

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-P F	Yes	Yes	No

Parameter
Phosphate

088 - Total and Dissolved Phosphorus

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): TEL069

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-P F	Yes	Yes	No

Parameter
Dissolved Phosphorus
Total Phosphorus

089 - Ammonia Nitrogen

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): TEL068

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-NH3 G	Yes	Yes	No

Parameter
Ammonia

090 - Reactive Silica

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): TEL070

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-SI F	Yes	Yes	No

Parameter
Reactive Silica

093 - Chlorine

Field of Accreditation: Environmental

Matrix: Water

Analytical Method: COLORIMETRIC

Preparation Method:

Lab Method ID(s): TEL049

Method Reference	Modified From	Analytical Method	Preparation Method
SM 4500-CL G	Yes	Yes	No

Parameter
Free Chlorine
Total Chlorine

† “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

Appendix B: Bureau Veritas QA/QC Program

Bureau Veritas Laboratories

Quality Assurance & Quality Control Program

COR FCD-00180 / 5

BUREAU VERITAS

Table of Contents

1.0 Laboratory Company Profile

For over 50 years, Bureau Veritas Laboratories (formerly Maxxam) has been a leader in analytical services and solutions to the energy, environmental, industrial hygiene, food and DNA industries. Our 2,200 dedicated employees proudly lead the industry in depth of technical and scientific expertise and serve customers through our national network of laboratories. In processing over 2.4 million samples and generating in excess of 43 million results annually, we skilfully combine efficiency and customer service with rigorous science and uncompromising quality management. We are committed to success with responsibility – to our stakeholders, to our communities, and to the environment.

Our mission is to improve our customers' performance, help reduce their risks and enable our custumers to meet or exceed challenges of quality, health and safety, environmental and social responsibility. We want to be the clear choice in testing, inspection and certification services.

A major focus is analytical services for an exhaustive list of environmental contaminants. Solid wastes, effluents, potable water, receiving waters, ground waters, soils, sediments, stack emissions, ambient air, plant, animal and fish tissues are analysed for everything from pH to Dioxins.

We provide these services to a wide range of customers in North America and over 20 foreign countries. Our clients include consulting engineers, industry, businesses, all levels of government as well as private individuals.

Our laboratories function as a tight network operating under a single Quality Management System, utilizing the strengths of each and working together to ensure customer requirements are met. All major laboratories provide the full range of environmental testing services using a uniform Quality System and IT infrastructure to deliver a standardized high quality service across the country. In addition, certain locations have special areas of expertise, such as seawater analysis at our Burnaby and Bedford facilities and High Resolution Dioxin analysis in our Mississauga and Ville St-Laurent facilities.

Operating within one Laboratory Information and Quality System across Canada provides uniform report formats, management performance measurements, turnaround time measurements, corrective action management, and a number of other key performance indicators making us a reliable partner.

Bureau Veritas is a world leader in laboratory testing, inspection and certification services. Established in 1828, the Group has more than 75,000 employees located in over 1,500 offices and laboratories around the globe. Since our founding our name has been synonymous with integrity - all the more crucial in an industry built on trust. As a business to business company that has a profound impact our world (or community) we are dedicated to building trust between client companies, public authorities and consumers.

2.0 Quality Program

Bureau Veritas Laboratories currently employs 35 full-time Quality Assurance (QA) staff. This group reports to the Senior Quality Assurance Manager, whose responsibility it is to ensure consistency of approach and program independence from operations. The QA team is strengthened through a web-based document control and management system that ensures consistent formats while minimizing routine administrative tasks. Authorized staff have immediate secure access to all corporate and individual laboratory SOPs and support documentation.

The Quality Program is designed to comply with or exceed the data quality objectives of Industry, Canadian Regulators, United States EPA and the International Standards Organization (ISO). The QA team is assisted in performing audits with the help of many trained internal auditors that are composed of operations and support services personnel. This brings many benefits to the customer and to our company. These benefits include improved client and accreditation audits, increased communication between groups within our company, greater variety of work for staff and increased understanding of ISO/IEC 17025, our customer requirements and our own quality requirements.

The keys to the Quality Program are Prevention and Verification.

2.1 Prevention through Quality Assurance

Extensive control charting practices ensure that analyses with biases or which are potentially out of control are recognized early so that potential problems can be rectified before exceedences occur. Comprehensive internal audits of methods, Quality Control (QC) practices, sample analyses, and quality system elements confirm adherence to Standard Operating Procedures. Regular system reviews and a structured Continuous Improvement Program combine to provide the strongest possible Quality System.

Evaluated monthly, score carding of key performance indicators such as Proficiency Testing Performance drives the Program, defining successes and highlighting areas for improvement. We also have a corporate Management of Change procedure whereby substantive changes in the laboratory are adequately reviewed, communicated and documented.

2.2 Training

Upon hire, personnel are required to participate in the Corporate New Employee Orientation Program (NEOP) where they are trained on the quality management system, Ethics & Integrity, and the Environment, Health and Safety program. In addition to their initial training, they are provided technical training, delivered by designated individuals (supervisor or senior analyst level) with comprehensive working knowledge and experience in the area they are training. To ensure full traceability and auditability, training records for all employees are maintained in our online document control system and in the employee's personal training file, which is maintained by his/her supervisor.

Analyst competence is essential to the production of accurate data. Prior to beginning work in the laboratory, technicians and analysts are required to thoroughly understand the QA objectives and the relevant SOP. This, in conjunction with hands-on training from a senior analyst, ensures successful transfer of information is effective. Demonstration of acceptable performance on laboratory control samples or reference materials by the analyst is required for final certification to perform the method. Ongoing demonstration of capability is provided through blind performance evaluation samples, audits and annual recertification.

2.3 Customer Complaints

Formal responses are required to any customer complaints, discrepancies, deficiencies or quality issues. The deficiencies are recorded in an electronic database and cascade to the supervisor and the analyst for immediate attention. An acknowledgment of the deficiency is required within a specified timeframe accompanied by an action plan, which must include any corrective measures taken along with results of these actions. A follow-up report on the same form must be completed and returned documenting the effectiveness of the improvements implemented. If closure of the issue is not done in the required timeframe the issue is escalated to the next management level promoting prompt resolution of the issue.

2.4 Ethics and Data Integrity

All employees are required to undergo annual ethics training and to read and sign an Ethics and Data Integrity Agreement annually, promising to not knowingly commit an unethical act or through inaction, allow a coworker to do so. Senior management reinforces the program through presentations, discussion and written tests.

2.5 Verification through Quality Control

Public safety, environmental impact and major financial decisions are routinely based on our analytical data. Legal data defensibility is essential to these activities and is verified through a comprehensive quality control program. The protocols and procedures described below are routinely employed and are described in detail in our Standard Operating Procedures (SOPs) for analysis, laboratory practice and staff training. The quality assurance objectives are translated into specific requirements that are written into all standard operating procedures.

2.6 Quality Control Protocols

Each project is conducted under a defined quality control program. Our standard quality control protocols meet or exceed the requirements of Canadian and United States regulators. In addition to this, most large projects have a defined Quality Assurance Project Plan (QAPP) that includes all required data quality objectives. The following table outlines the quality control practices routinely employed in all laboratories. Additional elements or different limits may be used on a project specific basis.

Elements of Quality Control		
Element	Frequency	Limits*
Field QC		
Sample Containers	Precleaned to EPA Specs	Non Detect
Traveling Blanks	Project Specific	<RDL
Field Duplicates	Project Specific	Project Specific
Run QC, All Methods		
Method Blanks	1 in 20 or 1/batch	<RDL
Blank Spikes	1 in 20 or 1/batch	CCME or Provincial limits
Matrix Spikes	1 in 20 or 1/batch	CCME or Provincial limits
Duplicates Analysis	1 in 20 or 1/batch	± 20%-50%
Real Time Control Charts	Key parameters, all tests	± 3 SD, trend analysis
Inorganic QC		
Instrument Calibration	Multipoint	>0.995 correlation
Calibration Verification	Daily (second source)	± 10% of initial
Continuing Cal. Verification	Every 20 samples & at end	± 10% of initial
Standard Reference Material	Daily – As Required (if available)	SRM limits
Organic QC		
Instrument Calibration	Multipoint	RSD ± 20%
Calibration Verification	Daily (second source)	± 20% of initial
Continuing Cal. Verification	Every 20 samples & at end	RF or RRF ± 30% of initial
Surrogate Standards	All samples, all organic analyses	CCME or Provincial limits
Internal Standards (IS)	All Samples (method specific)	-50% to +100% of IS in Cal'n
Standard Reference Material	As required (if available)	SRM limits
External QC		
Interlaboratory Comparisons	>50/year	Top 10% overall, >95% acceptable
Double Blind Program	Annually (Inorganic and Organic where applicable)	Statistical Limits
Internal QC Checks	As required	In house limits

* Typical QC acceptance criteria. Values may vary for specific tests.

2.7 Accreditation

Bureau Veritas Laboratories hold several accreditations granted by Canadian and United States regulatory organizations. The intent of accreditation is to document through laboratory audit, check samples, and round robin studies, each laboratory's

conformance to ISO/IEC 17025, an internationally accepted quality system. The accreditation process is also an integral part of our philosophy of Continuous Improvement. The following organizations have endorsed our quality system. These endorsements are granted on a facility specific basis. In addition, many tier one industries have audited and approved our laboratories.

- Canadian Association for Laboratory Accreditation (CALA)
- Standards Council of Canada (SCC)
- Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC)
- National Environmental Laboratory Accreditation (NELAC)
- National Voluntary Laboratory Accreditation Program (NVLAP)
- U.S. Environmental Protection Agency Contract Laboratory
- American Industrial Hygiene Association (AIHA)
- Various US States

2.8 Proficiency Testing

Our laboratories participate in many national and international proficiency testing and double blind check sample programs. As per ISO 17025 requirements, we are required to successfully participate in proficiency testing programs for tests included on our scope of accreditation. We go above and beyond these minimum requirements. Some of the programs in which we are currently participating include:

- Corporate Double Blind Program
- Proficiency Testing Canada (PT Canada) (formerly CALA)
- Phenova
- Environment and Climate Change Canada
- Collaborative Testing Services
- State of New York – Environmental Laboratory Approval Program

2.9 Double Blind Program

The Double Blind Program was implemented to measure the quality of data and service provided to customers. Proficiency testing samples are required as part of standard accreditation programs (ISO/IEC 17025), however they do not adequately simulate lab performance for client samples since the lab knows it is being tested. The double blind program involves using a sample from an accredited proficiency testing provider and having the sample "disguised" as a client sample so the lab is completely unaware their performance is being evaluated. The sample is sent to our laboratories as a regular sample, which upon completion is assessed by the Quality Assurance Department for turnaround time (TAT), data accuracy and traceability. This program best simulates lab performance for real client samples.

2.10 Customer Service / Project Management

The quality process extends beyond accreditations, methods and staff expertise. It includes the management system for all activities from project awards to follow-up

customer satisfaction surveys. The heart of the process is the Project Management (PM) team, the largest laboratory customer service team in Canada. This team consists of dedicated professionals whose responsibility it is to ensure the customer gets the tests meeting their requirements, when promised. Project managers are also aware of current and emerging regulations and thus are able to assist customers in choosing the correct testing protocol.

Supporting the PM team is our unique Laboratory Information Management System (MaxxLIMS). MaxxLIMS tracks and monitors all project information and provides a direct link between analysis and reporting. Employing barcodes, MaxxLIMS monitors each sample's progress through the lab as it is received and logged, extracted, analyzed and the resulting data is approved, validated and reported. Comprehensive sample tracking, combined with instrument capacity and staff commitment to customer service, allows clients to be confident in our ability to deliver quality data on time. Customer feedback and PM process insight has driven a number of innovations, mostly made possible through MaxxLIMS.

- Client website access to approved data
- Client website access to project status
- On line bottle orders
- Sample integrity forms
- Custom electronic and hard copy deliverables packages.
- Regulatory reports
- Consolidated invoicing
- Project summary performance reports
- Real time, automated sample log-in and data checks

2.11 The Quality Promise

The Quality Pyramid summarizes our quality promise to our customers. Each component of the pyramid strengthens the overall customer experience and ultimately converges at a single point, the promise to deliver accurate, defensible data to our clients.


Accurate,
Defensible Results
Blind Proficiency Testing
Internal Auditing Program &
Continuous Improvement
Customer Feedback Tools
(CAR, NCR, MOC)
Unbiased Customer Protection
QA Independent of Operations
Comprehensive Employee
Education & Training Program
Experienced, Ethusiastic,
Passionate Staff
Strong Core Values,
Data Integrity & Ethics
Quality Promise = ∑
(Ethics, Experience, Training,
Corporate Committment
Accreditation, Internal Audits,
Continuous Improvement,
Blind PTs)