



Hummingbird Analytical Lab
 Faculty of Science and Technology
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Quote #:

Laboratory Request Form

Date: _____ Phone Number: _____
 Client: _____ Phone Number: _____
 Contact Person: _____ Email Address: _____

Sample Collection: Please Select Nature of Sample: Please Select

Laboratory Tests

*Kindly select all that apply

Water Quality

<u>Chemical Tests</u>	<u># of</u>	<u>Physical Tests</u>	<u># of</u>
<u>Parameters</u>	<u>Samples</u>	<u>Parameters</u>	<u>Samples</u>
Total Nitrogen Low Range	_____	Temperature	_____
Total Nitrogen High Range	_____	Oxidation-Reduction Potential	_____
Chemical Oxygen Demand	_____	pH	_____
Nitrates Low Range	_____	Salinity	_____
Nitrates Mid Range	_____	Conductivity	_____
Nitrates High Range	_____		
Reactive Phosphates	_____		
Ammonia, Nitrogen	_____		
Sulfates	_____		
Total Chlorine	_____		
Free Chlorine	_____		
Iron, Total	_____		
Magnesium	_____		
Total Suspended Solids	_____		
Manganese	_____		

Pesticides

<u>Analytes</u>	<u>Matrix</u>	<u># of Samples</u>
Organochlorines	<u>Please Sel</u>	_____
Organochlorines	<u>Please Sel</u>	_____
Organochlorines	<u>Please Sel</u>	_____

Heavy Metal Tests

<u>Metals</u>	<u>Matrix</u>	<u># of Samples</u>
Total Mercury	<u>Please Sel</u>	_____
Total Mercury	<u>Please Sel</u>	_____
Total Mercury	<u>Please Sel</u>	_____

Soil Tests

<u>Parameters</u>	<u># of Samples</u>
Soil Organic Carbon (%)	_____
Bulk Density	_____
pH	_____
Conductivity	_____
Phosphorous	_____
Potassium	_____
Calcium + Magnesium	_____
Total Exchangeable Acidity	_____
Gypsum Requirement	_____
Exchangeable Sodium	_____
Nitrate Nitrogen	_____

Sample Collection

Self: The personnel submitting the samples or a personnel of the institution requesting the test was/were the sample collectors.

Third Party: The institution requesting the test acquired personnel outside of the said institution to conduct sample collection.

Nature of Sample

Monitoring: The tests requested are for routine checks, quality control, research and/or permit/licensing purposes.

Spill/Contamination: The tests requested are due to a known environmental spill, suspected high level contamination

Requirements for Sample Acceptance

I. General

Sample Labelling & Documentation

Sample Identification legible and done using water resistant or smudge-free ink.

Laboratory Request form properly completed with requested information.

Chain of Custody form properly filled with requested information and appropriate signatures.

II. Water Quality

Sample Collection and Integrity

Sample collected in a suitable sterile container.

Polypropylene/Polyethylene/Quartz/Tetrafluoroethylene (TFE)/Glass/Amber or Brown glass recommended.

Glass is typically used as a good general-purpose container. Soft-glass containers should NOT be used to collect samples for metal analysis in the µg/L range.

Sample splitting done correctly (if necessary).

Sample splitting/division is often necessary for intra- or inter-laboratory studies, confirmation, alternative techniques, or to keep additional samples for reference or stability studies.

Do NOT fill the smaller containers individually from the water source.

A large volume of sample is collected in a single container, mixed fully to ensure a homogenous mixture, and divided/transferred to smaller containers of the same type as the initial collection container.

Adequate sample size collected for analysis (250-500mL).

No signs of breakage or leakage.

Storage & Transport

Proper preservation measures taken for transport (transported on ice).

Proper sample preservation and holding/storage time followed if immediate analysis is not possible.

If samples will not be processed within 24 hours of collection, they can be preserved using pH control, chemical addition, refrigeration or freezing. Refer to the table below for recommended preservation and holding time per parameter. Samples should be analyzed immediately after collection, however. The maximum holding times given are the maximum time samples can be held and still be valid for analysis.

Parameter	Method of Preservation	Maximum Holding Time
Alkalinity	Refrigerate, 4 ≤ 6 °C	14 days
Ammonia	Refrigerate, 4 ≤ 6 °C H ₂ SO ₄ to pH less than 2	28 days
Biochemical Oxygen Demand	Refrigerate, 4 ≤ 6 °C	48 hours
Chemical Oxygen Demand	Refrigerate, 4 ≤ 6 °C H ₂ SO ₄ to pH less than 2	28 days
Chloride	N/A	28 days
Chlorine, total residual	N/A	Analyze Immediately
Hardness	HNO ₃ to pH less than 2, H ₂ SO ₄ to pH less than 2	6 months
Mercury	HNO ₃ to pH less than 2	28 days
Nitrates	Refrigerate, 4 ≤ 6 °C	48 hours
Nitrate-nitrite	Refrigerate, 4 ≤ 6 °C H ₂ SO ₄ to pH less than 2	28 days
Organophosphate	Filter immediately; refrigerator, 4 ≤ 6 °C	48 hours
Oxygen, dissolved probe	N/A	Analyze Immediately
Residue, Total	Refrigerate, 4 ≤ 6 °C	7 days
Specific Conductance	Refrigerate, 4 ≤ 6 °C	28 days
Sulfate	Refrigerate, 4 ≤ 6 °C	28 days

Temperature	N/A	Analyze Immediately
Turbidity	Refrigerate, 4 ≤ 6 °C	48 hours

III. Pesticide Analysis

Sample Collection & Integrity

Matrix - Water

Sample collected and transported in a suitable sterile container (**see Section II for recommended collection containers**).

Adequate sample size collected for analysis (1000mL).

No signs of breakage or leakage.

Matrix- Soil & Biota

Soil samples collected using a core sampler/grab sampler/trowel (depending on location and accessibility to area to be sampled) and includes the upper 6 inches of sediment.

Biota samples collected _____

Appropriate sample size collected for analysis (1000mL).

Samples are placed in a pre-treated foil (treated with a deionized water and acetone rinse) properly folded to form a pocket and placed into a double-bagged Ziploc (label on outer bag).

Sample bags properly sealed to avoid contamination - no sign of tears or leakage.

Storage & Transport

Proper preservation measures taken for transport (transported on ice).

Proper sample preservation and holding/storage time followed if immediate analysis is not possible.

If biota/soil samples will not be processed within 24 hours of collection, they should be refrigerated at 4°C for a maximum of __ days. If a longer storage time is needed, samples should be frozen at __ °C for __ days.

Water samples must be iced or refrigerated at 4°C upon collection until time of extraction. If extraction will not be done within 72 hours of collection, the sample should be preserved through pH control using sodium hydroxide or sulphuric acid to adjust sample pH between 5 - 9. The volume of acid or base used should be recorded. If the presence of Aldrin is to be determined, sodium thiosulphate must be added when residual chlorine is present. Field test kits are available for measuring residual chlorine. Samples should be extracted within 7 days after collection, and analyzed within 40 days of extraction.

IV. Soil Analysis

Sample Collection & Integrity

Soil samples for organic carbon and bulk density analysis collected having three subplots per plot.

Soil sample tube (having a volume of 100cm³) is used to collect samples from the center of each subplot - completely filling it. Three samples are taken from the center of each plot's subplot at a depth of 1-10cm, 10-20cm, 20-30 cm, and mixed into one ziploc bag per subplot. Any significant roots are removed from the sample, and plot ID and subplot number placed on bag following guidelines given in Section I.

Samples properly homogenized (mixed) per subplot, and air-dried prior to transportation.

Proper sample size collected for analysis (300cm³).

Ziploc bags properly sealed for transport to avoid contamination and sample loss.

Storage & Transport

Samples stored either at 4°C, frozen, or dried within 24 hours of collection for transport.

Samples should be stored in this manner within 24 hours of collection to minimize organic matter decomposition and microbial growth. Prior to analysis, frozen samples are to be thawed and

dried. Once dried, samples can be stored for years with minimal decomposition of organic matter.

V. Heavy Metal Analysis

Sample Collection & Integrity

Matrix - Water

Samples for Total Mercury Analysis (HMA-TM) are collected in a sterile suitable container.

Ninskin bottles or white or colorless wide-mouth polyethylene/polypropylene sample bottles preferred.

Adequate sample amount collected for analysis (50mL minimum).

No signs of breakage or leakage.

Sample containers properly labelled following guidelines in **Section I**.

Matrix - Sediments/Soil

Samples for Total Mercury Analysis are collected in a sterile suitable container.

Wide-mouthed polyethylene/polypropylene containers or Ziploc bags preferred.

Appropriate sample size collected for analysis (100g minimum).

No signs of breakage or leakage.

Sample containers properly labelled following guidelines in **Section I**.

Storage & Transport

Proper storage measures taken for transport to lab (stored at $\leq 6^{\circ}\text{C}$ for transport).

Proper sample preservation and holding/storage time followed if immediate analysis is not possible.

Refer to the table below for preservation and recommended storage and holding times. Maximum

holding times are the maximum amount of time a sample can be held and still be valid for analysis.

<i>Matrix for HMA-TM</i>	<i>Method of Preservation</i>	<i>Maximum Holding Time</i>
<i>Water</i>	<i>Preserve pH at < 2 upon collection using concentrated HNO_3; refrigerate at $\leq 6^{\circ}\text{C}$</i>	<i>≤ 28 days from collection</i>
<i>Sediments/Soil</i>	<i>Refrigerate at $\leq 20^{\circ}\text{C}$</i>	<i>≤ 28 days from collection</i>

VI. Macroplastic/Microplastic Analysis

Sample Collection & Integrity

Storage & Transport