APPENDIX G.8.7

Sampling Program - Quality Assurance and Quality Control Plan

Baffinland Iron Mines Corporation

BIM-5200-PLA-0004 SAMPLING PROGRAM- QUALITY ASSURANCE AND QUALITY CONTROL PLAN

DOCUMENT REVISION RECORD

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TRACK CHANGES TABLE

Index of Major Changes/Modifications in Revision 6

Item No.	Description of Change	Relevant Section
1	Updated RPD parameters.	7.3 QA/QC Data Analysis

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1. PURPOSE

As required by Baffinland Iron Mines Corporation's (Baffinland) Type 'A' Water Licence No. 2AM-MRY1325 – Amendment No. 1 (Type 'A' Water Licence), issued by the Nunavut Water Board (NWB), the Sampling Program – Quality Assurance and Quality Control Plan (QA/QC Plan) is updated to reflect current operations at the Mary River Project (the Project).

The purpose of this Plan is to identify Baffinland's framework for accurate and effective QA/QC management by providing instruction for standardized field sampling and laboratory analytical procedures. The QA/QC best practices outlined in this management plan are designed to provide guidance to field staff and analytical laboratories in order to maintain a high level of confidence in the water quality, soil, and benthic data generated from Project Sites.

2. APPLICATION

In accordance with the Type 'A' Water Licence, this QA/QC Plan has been prepared following the general recommendations presented in *Quality Assurance (QA) and Quality Control (QC) Guidelines for use by Class "A" Licensees in Meeting SNP Requirements and for Submission of a QA/QC Plan (*INAC, 1996).

This Plan is a living document and will be revised, as required, based on changes to operations, QA/QC procedures and protocols and feedback received from relevant stakeholders. Updates to this Plan will be completed in accordance with the Project's water licences issued by the NWB, Commercial Lease – Q13C301 (Commercial Lease) between Baffinland and the QIA, the Project Certificate No. 005 (Project Certificate) issued by the Nunavut Impact Review Board (NIRB), applicable regulations (e.g. Metal & Diamond Mining Effluent Regulations; MDMER) and any subsequent requirements which may be issued.

2.1 REGULATORY REQUIREMENTS

This Plan is regulated by the NWB and is subject to Baffinland's Type 'A' Water Licence 2AM-MRY1325, as amended, which provides specific terms and conditions for the management of QA/QC for the Project's water quality monitoring programs. To provide a more comprehensive QA/QC framework for the Project's aquatic ecosystem monitoring programs, other applicable requirements have been included in this Plan, such as the MDMER and sediment quality and benthic invertebrate monitoring components of the Project's Aquatic Effects Monitoring Plan (AEMP).

2.2 RELATIONSHIPS TO OTHER MANAGEMENT PLANS & POLICIES

This Plan is intended for use in conjunction with the following Plans:

- Aquatic Effects Monitoring Plan (BIM-5200-PLA-0023)
- Environmental Protection Plan (BIM-5200-PLA-0003)
- Fresh Water Supply, Sewage and Wastewater Management Plan (BIM-5200-PLA-0022)

- Surface Water and Aquatic Ecosystem Management Plan (BIM-5200-PLA-0009)
- Roads Management Plan (BIM-5200-PLA-0027)
- Snow Management Plan (BIM-5200-PLA-0006)

Baffinland's Health, Safety and Environment Policy (BAF-PH1-800-POL-0001) is the company's commitment to achieve a safe, health and environmentally responsible workplace.

Baffinland's Sustainable Development Policy (BAF-PH1-800-POL-0002) identifies the company's commitment internally and to the public to operate in a manner that is environmentally responsible, safe, fiscally responsible and respectful of the cultural values and legal rights of the Inuit.

All employees and contractors are expected to comply with the contents of both policies.

3. DEFINITIONS AND ABBREVIATIONS

3.1 ABBREVIATIONS

Statement	Definition
AEMP	Aquatic Effects Monitoring Plan
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
COC	Chain of Custody
DQO	Data Quality Objective
ECCC	Environment and Climate Change Canada
EEM	Environmental Effects Monitoring
EQuIS	Environmental Quality Information System
FDP	Final Discharge Point
GEVP	Group Executive Vice President
LOR	Limits of Reporting
MDL	Method Detection Limit
MDMER	Metal & Diamond Mining Effluent Regulations
NIRB	Nunavut Impact Review Board
NWB	Nunavut Water Board
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percent Difference
SNP	Surveillance Network Program
SWAEMP	Surface Water and Aquatic Ecosystem Management Plan
WWTP	Water/ Wastewater Treatment Plan

3.2 DEFINITIONS

Statement	Definition
EQuIS	An Earthsoft Product, EQuIS is an advanced environmental data management system that supposed task management, field data

	collection, analytical data checking, data verification and validation, reporting, graphics, and visualization.
FDP	The FDP is a designated sampling port in a location beyond which Baffinland does not have control over the quality of the effluent discharged to the environment, and coordinates of this FDP are registered with ECCC. Samples taken from designated sampling ports can be composite samples or grab samples.
Quality Assurance	System of activities used to achieve quality control.
Quality Control	Set of best practice methods and procedures used to ensure quality of data in terms of precision, accuracy, and reliability.
sys_sample_code	The EQuIS terminology for the Sample ID Code; a unique identifier assigned to every sample collected. It is typically a concatenation of the sample location [sys_loc_code] and the sample date.

4. WATER SAMPLE COLLECTION

4.1 GENERAL

The samples will be collected following the general recommendations presented in *Quality Assurance (QA) and Quality Control (QC) Guidelines for use by Class "A" Licensees in Meeting SNP Requirements and for Submission of a QA/QC Plan* (INAC, 1996).

A summary of recommended water sample containers, sample volumes, sample preservatives and maximum sample holding times is presented in Appendix E. Laboratory parameters such as pH, turbidity, BOD, nitrite, nitrate, total phosphorus, faecal coliforms, chlorophyll-a and pheophytin typically have maximum sample storage times varying from four (4) to 72 hours.

Required water sample analyses for each of the Project's water quality monitoring stations are documented in the following documents:

- NWB Type 'A' Water Licence 2AM-MRY1325, as amended
- MDMER
- AEMP (BIM-5200-PLA-0023)

4.2 WATER QUALITY MONITORING LOCATIONS

This Plan addresses the collection of water quality samples at the Project, including the following:

- Surface water samples from Project area lakes, streams and rivers.
- Groundwater samples from piezometer monitoring wells.
- Effluent samples from Project water treatment facilities (e.g. sewage, oily water, etc.).
- Drinking water samples from camp potable water sources.
- Storm water runoff samples from ore processing and stockpiling facilities.

- Storm water runoff samples from waste rock management facilities.
- Storm water runoff samples from mining areas (e.g. Deposit No. 1).
- Storm water samples from Project fuel and waste containment areas.
- Storm water from sumps at maintenance shops.
- Surface water samples downstream of Project areas (e.g. landfills, quarries, etc.).
- Surface water samples representative of general site drainage before, during and after construction at Project areas.
- Snowmelt runoff samples from snow management stockpiles.
- Surface water samples from ponded borrow pit areas.
- Surface water samples from ponded sources for reclaimed and/or recycled water.
- Surface water samples from water bodies affected by spills.

Locations and sampling frequency for designated water quality monitoring stations are presented in the:

- SWAEMP (BIM-5200-PLA-0009)
- AEMP (BIM-5200-PLA-0023)
- Roads Management Plan (BIM-5200-PLA-0027)
- Snow Management Plan (BIM-5200-PLA-0006)
- Fresh Water Supply, Sewage and Wastewater Management Plan (BIM-5200-PLA-0022)

4.3 WATER SAMPLING METHODS AND EQUIPMENT

4.3.1 General Sampling Procedures

General water sampling procedures include the following QAQC measures. For water sampling procedural details, refer to the Water Sampling Procedure (BIM-5200-SOP-0017).

1. Sampler will wear a fresh pair of disposable nitrile gloves for each sampling event.
2. A new sample bottle(s) will be used at each monitoring station. Sample bottles will not be re-used.
3. Sampling will be carried out by one of the following steps:
    a. Rinsing the sample bottle with source water three (3) times before immersing the sample bottle to fill it (after which preservative is added, as required).
    b. If the sample bottles are provided pre-charged with preservatives then it is generally convenient to transfer water sampled from the source to pre-charged sample bottles using a large transfer bottle. The transfer bottle will be provided by the lab and will be rinsed in the source water three (3) times before filling the sample bottles. Different transfer bottles will be used for different sample types (e.g. sewage effluent, hydrocarbon-impacted stormwater) and will be replaced on a regular basis.

4. Rinse water will be disposed of so that it does not contaminate the source water where the sample will be collected (e.g. downstream of the sampling location or on the shore or berm edge).
5. Bottles labeled as “certified sterile” do not need to be rinsed.
6. For samples requiring preservatives, the sample bottle will be filled to the top (or to the indicator line marked on the bottle), the preservative will be added and the bottle securely sealed. For some volatile compounds, including BTEX, the sample bottle must be filled with zero headspace.
7. Care will be taken to avoid disturbance of sediments and inclusion of disturbed suspended solids in the sample.
8. Sample details (e.g. date, time, sample ID [sys_sample_code] and analyses) will be clearly marked on the bottle in permanent ink.
9. For dissolved metals analyses, the water sample will be filtered in the field while sampling using a 0.45µm disposable filter and syringe. A fresh syringe and filter must be used at each monitoring station. In the event that the sample cannot be filtered in the field, the sample will be promptly filtered at the on-site lab. Such exceptions will be documented in the field notes.
10. All samples will be sealed by ensuring the bottle caps are tightly secured before placing the bottles into a cooler that contains ice packs. Glass bottles will be protected with bubble wrap or other cushioning material.
11. All field parameters, notes, photo references and general observations will be recorded in a field notebook or tablet to be uploaded to Baffinland’s environmental database.
12. All samples will be placed in an iced cooler or refrigerator as soon as possible after collection.

4.3.1.1 Sample Preservation

Sample bottles and preservatives will be stored under clean conditions on site. Sample bottles will have the appropriate volume of preservative added in the field immediately after sample collection to minimize chemical alterations. Alternatively, sample bottles will be supplied by the analytical laboratory with preservatives already added. Ensure that the preservative container does not come in contact with the sample or inside of the sample bottle/lid. If a water sample requires filtration (e.g., analysis of dissolved metals), preservative must be added following filtration.

4.3.2 Lake Sampling

Lake water sampling procedures include the following QAQC measures. For lake water sampling procedural details, refer to the AEMP Sampling Procedure (BIM-5200-SOP-0010).

1. Depth samplers that are used will be suitable for collection of water samples for ultra-low metals analyses (e.g. have acrylic or PVC construction and silicone seals).

Generally, depth samplers consist of a clear polycarbonate sample tube with two spring mounted rubber bungs, one located at each end.

2. Sampling station locations will be dependent upon the monitoring program objectives and the lake dimensions. When sampling from a watercraft, all efforts will be made to anchor the boat to maintain its position over the sampling location. Map coordinates for lake sampling stations will be recorded using a handheld GPS unit.
3. A vertical stratification profile (if required), profiling in-situ water quality measurements (e.g. pH, temperature, dissolved oxygen, conductivity and turbidity), will be determined using a water quality multi-meter (e.g. YSI Sonde) equipped with a long cord with metre intervals marked on it.
4. Depending upon the purpose of the monitoring program, water quality samples may be collected from the different stratified layers. The depth sampler must be slowly lowered in the 'open' position until it reaches the required depth.
5. The depth sampler will be held at this depth temporarily to allow flushing of water inside the apparatus.
6. When collecting samples close to the lakebed, care must be taken to ensure that the depth sampler does not disturb lakebed sediments. When possible, staff will reference the depth recorded at each sampling location from the previous sampling event in preparation to avoid disturbing the lakebed.
7. YSI measurements will be collected after the water samples, to ensure the lakebed is not disturbed during field readings prior to water quality samples having been collected.
8. Depending upon the surface area and depth of a lake, multiple sampling stations will likely be required to characterize representative water quality for the lake.

4.3.3 River Sampling

River and stream water sampling procedures include the following QAQC measures in addition to those in Sections 4.3.1 and 4.3.2. For water sampling procedural details, refer to the Water Sampling Procedure (BIM-5200-SOP-0017).

1. When selecting water quality monitoring station locations on rivers, care will be taken where a tributary joins a river, since complete mixing of the two waters may not be occur within several hundred metres or farther downstream of the confluence. When in doubt, vertical profile monitoring across the cross-section of the river using a field parameter such as pH, temperature or conductivity will be used to assess if complete mixing has occurred.
2. Grasp the bottle well below the neck and remove the lid, taking care not to touch the inside of the lid.
3. Facing upstream, plunge the bottle beneath the surface of the water to a depth of 20 cm (if possible) with the opening facing downward, then tilt the bottle opening upward into the current to fill.

4. To avoid inclusion of floating detritus in the sample, sample bottles must be fully immersed in the water column when they are filled. Care will be taken to ensure that disturbed sediments are not included in the sample.
5. Once the bottle is full, remove the bottle from the water in one motion by forcing the opening upward and into the current and seal the bottle cap securely.

4.3.4 Groundwater Sampling

Groundwater at the Project will be monitored using drive-point piezometers, HDPE tubing and peristaltic pumps. Groundwater wells will be established by advancing drive-point piezometers by hand to the depth of refusal (e.g. permafrost) or other known confining layer, both in the known or assumed up-gradient (e.g. reference) and down-gradient (e.g. exposure) area of interest. Consideration must be given to the depth of the active layer, therefore groundwater samples will be collected during late August to early September, such that samples are near the depth of the active layer (approximately 1 to 2 metres). Where hydrocarbon impacts are known or suspected and if conditions allow, samples will be collected across various depths to assess for the presence of, and capture, potential non-aqueous phase liquids (NAPL). Sampling procedures outlined in this section consider the shallow and discontinuous nature of high arctic groundwater regimes observed at the Project Sites.

General groundwater sampling procedures include the following:

1. When new piezometers/groundwater wells are installed, installation will be completed with sufficient time for the well to charge and fill with groundwater from the active layer prior to sampling.
2. Before sampling a well, the well will be purged for the appropriate volume, outlined in the sampling program documentation. A YSI flow cell or similar alternative will be used during the purge to gauge when parameters (e.g. pH, conductivity, turbidity) have stabilized.
3. Groundwater samples will be collected, preserved, stored and submitted for analysis as outlined in Section 4.3.1.
4. A field notebook or tablet will be used to document the groundwater sampling program, including any deviations from established protocols, that will be uploaded to Baffinland's environmental database.

4.3.5 MDMER

Water samples from stations that fall under the MDMER must be taken from the defined FDP for that appropriate facility.

The general sampling procedures of Section 4.3.1 must be followed, and the following additional considerations will be taken into account to ensure MDMER QA/QC requirements are met:

1. MDMER sampling should be performed by trained personnel, and if possible, a second person should be present for verification purposes.
2. Notification must be given ahead of time to a certified laboratory to ensure MDMER acute lethality and sub-lethal toxicity samples can be analysed.
3. In-situ water quality monitoring will accompany all external samples taken (refer to Section 4.3.6)
4. All sampling activities, notes, flow volumes, photo references and general observations shall be kept in a dedicated MDMER field logbook and/or tablet, and will be uploaded to Baffinland's environmental database.
5. MDMER samples shall be sent to the certified laboratory with their own COC and should not be combined with samples from other monitoring programs.

For more information and technical guidance, ECCC's 2001 *Guidance Document for the Sampling and Analysis of Metal Mining Effluents* should be consulted.

4.3.6 Sampling for Toxicity Testing

Sampling for lethal toxicity is a condition of the Type 'A' Water Licence for various monitoring programs. Sub-lethal toxicity testing is a condition of EEM under the MDMER. Depending upon the objectives of the toxicity testing, variables that will require confirmation prior to testing include the following:

- Type of effluent sample to be collected (e.g. instantaneous grab sample vs. composite sample).
- Type of dilution water to be used by the certified laboratory (e.g. standard synthetic laboratory dilution water, receiving water collected upstream of the discharge, etc.).
- Required test organism (e.g. *Daphnia magna* and/or Rainbow Trout).

Details concerning laboratory methods are presented in Appendix C. For further details concerning acute lethality testing, refer to Environment Canada (2002) and USEPA (2002). For further details concerning sub-lethal testing, refer to Environment Canada (2012).

4.3.7 In-Situ Water Quality

Measurement of field parameters (e.g. temperature, pH, conductivity, redox potential, or dissolved oxygen, etc.), where warranted, will be carried out for each sample at the time of sampling. The required set of field parameters will vary according to sample type and monitoring objectives. The exact methods used for monitoring field parameters will depend upon the type of monitoring probes being used. Environmental staff will read and be familiar with the instruction manual and/or procedure for the equipment being used on site, and follow manufacturer's instructions for specifics on proper calibration, use, storage, and maintenance.

Environmental staff will rinse the monitoring probe three (3) times with the water to be monitored before immersing the probe in the water. When possible, the probe is to be immersed directly in the stream or lake water. Environmental staff will ensure that the probe being used has had sufficient time to equilibrate in the water and the reading has stabilized before the reading is taken.

Field parameter data will be recorded in the appropriate program field form or tablet designed for this purpose and saved in Baffinland's environmental database.

4.3.7.1 Monitoring Probe Calibration

Monitoring probes will be stored and calibrated in accordance with manufacturers' instructions. All probes will be calibrated regularly per sampling program requirements and a written record of the calibration results will be maintained on site. Environmental staff will ensure that calibration solutions are of the correct specification and that they have not passed their expiration date (if applicable). Monitoring probes will be stored as per manufacturers' recommendations.

5. SEDIMENT AND SOIL SAMPLE COLLECTION

Sediment and soil sampling programs and associated logistics will be planned ahead of time to ensure samples collected are analyzed within the appropriate holding times. A summary of recommended sediment and soil sample containers, sample volumes, and maximum sample holding times is presented in Appendix E. Field observations and any exceptions to established protocols (e.g. exceedance of holding time) will be documented.

5.1 SEDIMENT AND SOIL MONITORING LOCATIONS

This Plan addresses the collection of sediment samples at the Project, including the following:

- Sediment samples from Project area lakes, streams and rivers. For a complete list of the required sample analyses for pre-established sediment monitoring stations, refer to the AEMP (BIM-5200-PLA-0023).
- Soil samples from Project fuel and waste facilities.
- Soil samples from Project landfarm facilities.
- Soil samples to inform remediation and reclamation projects.
- Soil samples to evaluate spills and releases.

5.2 SEDIMENT AND SOIL SAMPLING METHODS AND EQUIPMENT

Sediment samples specified under the Project's AEMP (BIM-5200-PLA-0023) are characterised by the following procedures.

5.2.1 General Sampling Procedures

Generally, sampling procedures will consist of the following:

1. Sampler will wear a fresh pair of disposable nitrile gloves for each sampling event.
2. A fresh sample bottle(s) will be used at each monitoring station and sample bottles will not be re-used.
3. Sample details (e.g. date, sample ID [sys_sample_code] and analysis) will be clearly marked on the sample jar in permanent ink.
4. All samples will be sealed by ensuring their lids are tightly secured before placing each sample bottle into a cooler.
5. All samples will be placed in an iced cooler or refrigerator as soon as practicable after collection.

5.2.2 River and Grab Sampling

The collection of river and grab samples will follow the general procedures stated in Section 5.2.1 and will entail the following additional QA/QC considerations:

1. Sampling station locations will be dependent upon the monitoring program objectives and the sample location.
2. Clean equipment will be utilized to obtain a representative sample of the sediment for analyses.
3. If composite samples are required by the monitoring program, a sterile container will be utilised to deposit and homogenize the subsamples, until the composite sample is fully mixed. The composite sample will then be transferred to the identified sample jars by alternating aliquots.
4. The quantity and holding time of samples obtained will depend on the prescribed analyses.

5.2.3 Lake Sampling

For monitoring of sediment character and quality in lakes, a depth sampler will be used. The preferred sample apparatus for lake sediment samples are gravity percussion corers, since they allow for retrieval and analysis of sediment profiles. A Petite Ponar can also be used, but will not provide sediment profiles. Generally, forms of gravity percussion corers consist of a clear polycarbonate sample core tube attached to a weighted upper head assembly and a seal mechanism. The top two centimeters of sediment from the core samples will be retained for laboratory analysis unless sampling objectives state otherwise.

Sediment lake sampling procedures will follow the general procedures stated in Section 5.2.1 and the following additional QA/QC considerations for a gravity percussion corer:

1. Sampling station locations will be dependent upon the monitoring program objectives and the lake dimensions. When sampling from a watercraft, all efforts will be made to

anchor the boat stationary over the sampling location. Map coordinates for all lake sampling station locations will be recorded using a handheld GPS unit.

2. The corer will be positioned perpendicular to the water surface prior to release. The penetration depth of the core tube is affected by the depth of water, angle of corer deployment and substrate type.
3. Once the corer is embedded in the substrate, the stainless steel messenger will be sent down the corer rope to release the ball-type seal. This seal creates a vacuum in the core tube, retaining the sampled sediment.
4. Upon retrieval, the bottom of the core tube will be plugged using an extruding plug prior to breaking the air-water interface. This procedure will prevent sample loss.
5. An extruding apparatus will be used to force the extruding plug through the core tube moving the sediment sample to the end of tube allowing the top two centimetres (2 cm) to be scooped out and placed in a clean stainless steel bowl for sample homogenization.
6. Multiple core samples (generally three or more) are required per sample station to obtain the required sample volume. The multiple core samples are homogenized in the stainless steel bowl, removing any excess water or debris.
7. The sample containers will be filled by alternating aliquots between each of the containers.
8. After the top two centimeters (2 cm) are retained, the remaining, unused sediments within the core tube will be placed into a bucket and only released once all core sampling is complete at that particular station.
9. Depending upon the lake area and depth, multiple sampling stations will likely be required to adequately characterize lake sediment quality.

6. BENTHIC INVERTEBRATES SAMPLE COLLECTION

For a complete list of required analyses at pre-established monitoring stations, see Baffinland's AEMP (BIM-5200-PLA-0023). Samples will be submitted to an analytical laboratory for processing and taxonomic identification. Laboratory methods for benthic invertebrate samples will be in accordance with guidance provided by Environment Canada (2012). Field observations and parameters if warranted should be recorded during the collection of benthic invertebrate samples.

6.1 BENTHIC INVERTEBRATE MONITORING LOCATIONS

This Plan addresses the collection of benthic invertebrate samples at the Project, including the:

- Collection of benthic invertebrate samples from the Project area and reference lakes, streams and rivers to determine potential mine related effects on benthic invertebrate communities.

6.2 BENTHIC INVERTEBRATE SAMPLING METHODS AND EQUIPMENT

Benthic invertebrate samples follow the same general procedures outlined in Section 5.2.1. Benthic invertebrates can be collected from either depositional (lake) or erosional (stream) sample locations. A Petite Ponar is utilised when sampling depositional environments while a Surber sampler is utilised when sampling erosional environments. For a complete list of depositional and erosional sample methods, refer to the AEMP (BIM-5200-PLA-0023). Benthic invertebrate samples will be carefully sieved through 500-µm mesh. All materials, including invertebrates, retained by the mesh will be transferred to labeled plastic jars and fixed with 10% buffered formalin. Fixed and labeled samples will be shipped to an analytical laboratory for processing and archiving.

7. QA/QC

For monitoring of QA/QC during sample collection and shipping, a set of QA/QC samples will be routinely submitted for analysis from prescribed sampling programs. Sampling programs will each have separate QA/QC samples submitted with the regular water samples. Descriptions of the QA/QC samples that will be used are presented in Table 1. Ten percent (10%) of all samples will consist of QA/QC samples including field blanks, travel blanks and field duplicates. For example, a monitoring program with 30 samples would consist of 27 monitoring samples and three (3) QA/QC samples. Equipment blanks, if required i.e. for Kemmerer use, are performed on an as needed basis to ensure sampling equipment is properly cleaned and maintained and free of contaminants, and do not count towards the ten percent (10%) QA/QC samples requirement.

7.1 SAMPLING PROGRAMS WITH MULTIPLE SAMPLING STATIONS

For sampling programs with multiple sampling locations (i.e. SNP and AEMP), QA/QC samples will be performed randomly to avoid bias and care will be taken to ensure that the same stations are not sampled repeatedly for QA/QC samples.

7.2 SAMPLING PROGRAMS WITH LIMITED SAMPLING STATIONS

Sampling programs with limited sampling stations (e.g. MDMER) will require at least one QA/QC sample per sampling round. A field duplicate, field blank or travel blank must be taken during each sampling session. This may result in over sampling for QA/QC, but will ensure there is sufficient data to identify any anomalies.

7.3 QA/QC DATA ANALYSIS

In the interest of transparency, the analytical laboratories will also be instructed to report the results of their own in-house QA/QC testing (e.g. results of random replicate analyses of submitted samples).

The results of QA/QC analyses will be routinely reviewed by Baffinland or their designate, and any anomalous results will be promptly investigated with the assistance of the analytical laboratory if required. The following data quality objectives (DQOs) will be used; the purpose of comparing data to the DQO is to evaluate whether the data adequately reflects the actual conditions and can be used with confidence to derive study conclusions.

Field, Trip and Equipment Blanks:

- Concentrations should be non-detectable, with a DQO of within five (5) times the respective laboratory lowest reportable detection limit for that parameter.
    - If sample results are less than or equal to five (5) times the respective external laboratory's lowest detection limit (LDL) for that parameter, it is considered that such small differences account for generic noise around the limit.

- If sample results are five (5) times greater than the respective external laboratory's LDL for that parameter, the detected concentration is considered significant and any atmospheric and/or sample handling influences should be investigated.

In compliance with the Canadian Council of the Ministers of Environment, Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment - Volume 4 Analytical Methods (CCME, 2016) field duplicates will be analysed as follows:

- Field duplicate and the parent sample pairs should meet the DQO of ≤ 20% RPD in parameter concentrations of individual parameters analyses.
  - RPD will be calculated where RPD = (ABS[Result1 – Result2]/ Mean)*100.
  - If calculations include a result that is below detection limits, the value of the detection limit will be used.
- If the RPD is >20%, the samples results should be compared against the laboratory lowest reportable detection limit for that parameter.
  - If sample results are less than or equal to (10) times greater than the respective external laboratory's LDL for that parameter, it is considered that such small differences between sample results resulted in a relatively high RPD.
  - If sample results are ten (10) times greater than the respective external laboratory's LDL for that parameter, the RPD is considered significant and the methodology of the sampling should be investigated.

Once the reason for the anomalous results is identified, Baffinland will ensure that operating procedures of field staff and/or the analytical laboratory will be altered in order to address the issue. Compliance monitoring and data management for water licence sampling will be conducted by Baffinland, with the assistance of a designate as required.

TABLE 1 QA/QC SAMPLE TYPES – PURPOSE, DESCRIPTION AND FREQUENCY

QA/QC Sample Type	Purpose	Description	Frequency	Prepared By
Field Blank	Identification of potential contaminants arising from sample collection, such as atmospheric contaminants. The field blank bottle is filled with laboratory supplied deionized water and the bottle is opened and preserved in the field, and is handled concurrently and in the same manner as other sample bottles in the field. The bottle is then submitted as a routine sample.	Bottle contains prefilled deionized water. Bottle is handled the same as one would handle the samples.	Ten percent (10%) of all samples collected will be QA/QC.	Analytical laboratory or Field Staff

Travel Blank	Identification of potential contaminants arising from sample storage, shipping and laboratory handling. The travel blank accompanies the samples to the field and laboratory but are left unopened.	Sealed bottle containing deionized water provided by analytical laboratory.	Ten percent (10%) of all samples collected will be QA/QC.	Analytical laboratory or Field Staff
Field Duplicate	Assesses sample variability and precision of laboratory analytical methods. Collected from a randomly selected location, split from a homogenized sample or collected simultaneously and analyzed separately in the laboratory. The duplicate samples are handled and analyzed in an identical manner in the laboratory.	Duplicate sample selected at random. A large sterile bottle is used to collect the water and transfer it equally into two sets of pre-labeled bottles; alternatively, samples are collected simultaneously from a stream etc. Duplicate samples labeled with a unique ID such that the analytical laboratory cannot determine the matching sample ID.	Ten percent (10%) of all samples collected will be QA/QC.	Field Staff
Equipment Blank	Assesses cross contamination from field water sampling equipment (e.g. Kemmerer). Rinse deionized water through water sampling equipment and transfer to sample bottles, then preserve and ship to the laboratory.	Bottle contains deionized water that has been rinsed through the sampling equipment.	Collected prior to and after completion of sampling program (if required/ as needed). Not included in the ten percent (10%) calculation of other QA/QC samples.	Field Staff

8. SAMPLE MANAGEMENT

8.1 SAMPLE LABELLING

Accurate sample labeling is essential for subsequent interpretation of field data. Ensure that labels are legible and written with permanent ink (pen, marker, etc.). For a complete list of the predetermined location names of monitoring stations, please refer to the Type 'A' Water Licence and AEMP (BIM-5200-PLA-0023).

A consistent format for identifying samples must be followed if a predetermined sample label does not exist in order to facilitate accurate sample tracking and to ensure sample labels are interpreted in the same manner by all personnel involved in the program.

Samples must be uniquely identified with the following information:

- Sample ID (sys_sample_code)
- Sampling date and time
- Project identifier
- Company name

8.2 SAMPLE STORAGE AND HANDLING

Physical, chemical and biochemical reactions may take place in the sample container between the time of sample collection and laboratory analysis. Samples will be placed in iced coolers and shipped to the analytical laboratory as soon as possible after collection, consulting stipulated analytical holding times (Appendix E), to minimize these changes. Samples that are not shipped offsite the same day that they are collected will be refrigerated until they are ready to be shipped offsite in iced coolers. Coolers and sample bottles will be kept clean and free of debris to prevent sample contamination during shipment. Care will be taken to ensure that bottles are stored upright and are packed securely within the cooler and glass bottles are wrapped in bubble wrap or similar cushioning materials. Leak-proof ice packs or loose ice secured in sealed plastic bags will be used for keeping samples at a cool temperature during shipping. It is important to prevent melt water from accumulating in the bottom of the cooler, which can cause labels to peel and become illegible. Additional plastic bags may be required to separate melt water from the bottles.

Biological samples (e.g. benthic invertebrates) preserved using formalin or Lugol's solution can be held at room temperature until submission to the analytical laboratory.

8.3 SAMPLE SUBMISSION AND COC

A COC will accompany all samples being submitted to ensure that the required analyses are completed and to confirm receipt of samples by the laboratory (see example form presented in Appendix A. Prior to shipment, samples should be carefully prepared for shipping and sample

bottles listed on the COC must be reconciled with what has physically been placed in the shipping container. The collection of samples that are time sensitive needs to coincide with shipping schedules, travel time to the laboratory, and laboratory business hours; refer to section 8.4. A record of all COCs submitted for laboratory analytical testing must be kept on site. Information on the COC must include the following details that are required both for lab use and for data validation purposes to enable uploading into an environmental database (see example form presented in Appendix A):

- Unique COC ID
- Project name (Job #).
- Address of analytical laboratory, name of contact person and contact details.
- Name of sampler(s).
- Sampling date and time.
- Indicate if samples are filtered (F), preserved (P) or filtered and preserved (F/P). If filtering and/or preservation at the laboratory are required leave the space provided in the COC blank.
- List of sample I.D.'s ("sys_sample_code"); these are typically an automatic concatenation of the sample locations ("sys_loc_code"), and sampling date.
- Field Matrix (e.g. incinerator ash (ASH), groundwater (WG), surface water (WS), wastewater effluent (WW) or potable/ water (WP))
- Number of sample bottles per sample and analysis requested.
- Urgency of analysis (e.g. rush or normal). For rush samples the analytical laboratory should be notified ahead of time.
- Submission date and time.
- Comments on any unusual conditions and other important information.

8.4 SAMPLE SHIPMENTS

Sampling programs and associated logistics will be planned ahead of time to ensure samples collected are analyzed within the appropriate holding time (refer to BIM-5200-SOP-0013 – Environment Shipping Procedure). Considerations for sample shipment logistics that are outlined in the Shipping Procedure include, but are not limited to:

- Timing of sample arrival at external laboratories, impacted by courier abilities and lab closures on weekends or holidays
- Availability of flights leaving site, impacted by weather, weight restrictions and flight delays
- Poor weather; impacting flight times and courier abilities to ship samples
- Contingency time remaining in the week or month that includes available contingency flights for any required re-sampling (sample program dependent)

- Advanced shipment notifications to logistics personnel, such as aircraft cargo personnel and couriers, including the requirement for logistics personnel to notify BIM of any delays or discrepancies in the shipment processes

The timing of sample collection must coincide with outbound flights offsite in such a way that samples will arrive at the external laboratory within hold times outlined in Appendix E. Timing of sample collection must also account for shipment logistics considerations, such as those outlined above.

Every effort will be made to prevent inadvertent freezing of water samples (due to on-site climatic conditions) which could affect analytical results for parameters.

Exceptions to these protocols will be documented.

9. LABORATORY ANALYSIS

9.1 LABORATORY ACCREDITATION

Laboratory analysis of samples is performed by an on-site analytical laboratory and off-site accredited analytical laboratories. The on-site laboratory is operated by ALS Canada LTD. and is located at the Mine Site. A select set of general chemistry analytical parameters (e.g. pH, TDS, TSS, turbidity, etc.), are performed by the on-site laboratory. The off-site laboratory, ALS Environmental, located in Waterloo, ON, run by ALS Canada Ltd. performs the majority of analyses required. Toxicity testing is typically performed by Aquatox Testing & Consulting Inc., located in Guelph, ON. Details of ALS analytical laboratory licencing and accreditation are presented in Appendix B.

9.2 ANALYTICAL DETECTION LIMITS

ALS LORs are established using rigorous experimental and statistical procedures that begin with the determination of the MDL at 99% confidence. When detected at or above the MDL, ALS test results are considered qualitatively accurate, and a parameter can be reported with 99% confidence as being present in the sample.

It should be noted that on occasion, a loss of analytical sensitivity could be encountered due to excessively high concentrations of parameters within a sample or lack of provided sample matrix. If this is encountered, Baffinland or their designate will work with the analytical laboratory to try to resolve the problem and new samples will be collected if required. The detection limits on ALS analytical reports contains the LORs. The LORs may be the MDL as calculated, or a higher value. Required analytical laboratory detection limits are provided in Appendix C.

9.3 LABORATORY ANALYTICAL METHODS

Analytical methods used by the analytical laboratories for water analyses generally conform to the standard methods outlined in *Standard Methods for the Examination of Water and Wastewater* (APHA et al, 1989). Standard analytical methods for available analyses through ALS Environmental are provided in Appendix C.

9.4 ANALYTICAL LABORATORY QA/QC PROCEDURES

ALS Environmental adheres to a designated QA/QC Management System, which includes documentation and document control, staff training and internal audits. The practices exceed accreditation requirements for high confidence in data reliability utilizing but not limited to the following:

- Calibration verification standards and drift control standards.
- Surrogate standards and internal standards.
- Replicate analyses and blanks on submitted samples.

- Use of standard reference materials (SRMs) and matrix spikes.
- DQOs are established for each QC sample, based on a combination of reference method objectives, customer requirements and historical test method performance. Where applicable, prescriptive elements of reference methods take precedence over internal DQOs.

Additional details on the analytical laboratories in-house QA/QC protocols are presented in Appendix D.

10. DATA MANAGEMENT

All sample data collected by Baffinland or designate consultants from the various environmental programs required on Project sites will be stored electronically in a spreadsheet database (Microsoft Excel) or in the environmental data management system (EQuIS).

QA/QC measures relating to data validation will include the following:

1. Designation of a suitable person to act as the Database Manager (DM).
2. Upon receipt, laboratory analytical data will be reviewed by the DM to check for completeness, typos, outlying values, etc. The analytical laboratory will be immediately notified of any anomalous results.
3. At a suitable frequency (e.g. once per month) the spreadsheet database should be updated by the DM using: i) results provided in electronic format by the analytical laboratories, and ii) copies of the field parameter monitoring records forwarded from site; or the data will be confirmed to be present in the environmental database.
4. The DM will be responsible for ensuring that a third party (e.g. another staff member) carries out a QA/QC check on a minimum of ten percent of newly entered data.

11. RESPONSIBILITIES

Role	Responsibility
GEVP/ General Manager	• Reports to the Chief Executive Officer • Responsible for providing oversight for all Project operations and allocating the necessary resources for the operation, maintenance and management of Project infrastructure.
Environmental Superintendent/ Manager	• Reports to the Environmental Manager/ Senior Director – Health, Safety, Environment, Security and Training. • Serves as the onsite lead for all environmental monitoring programs. • Responsible for ensuring this Plan is up-to-date and reflects current Project operations and regulatory requirements.
Environmental Coordinator	• Reports to the Environmental Superintendent.

	• Responsible for ensuring environmental monitoring programs adhere to this Plan. • Reviewing this Plan with environmental technicians and providing necessary training as required. • Conducting field audits of sampling methodology and QA/QC analysis on samples and data. • Management of field notes (including review and commitment to the environmental database).
Database Manager	• Responsible for managing analytical results in the environmental database, including review for typos and acceptance into the database.
Environmental Technician	• Reports to the Environmental Coordinator. • Responsible for being familiar with this Plan and adhering to the relevant protocols while collecting and managing samples. • Responsible for entering data in field notebooks or tablets accurately and comprehensively
Site Services Superintendent/ Manager	• Reports to the Site Services Manager/ General Manager. • Responsible for providing oversight for all Site Services operations, including the operation, maintenance and management of the Project's water and waste water treatment facilities • Responsible for ensuring that Site Services personnel operating and managing the Project's water and waste treatment facilities receive the appropriate training.
WWTP Operator	• Reports to the Site Services Department. • Responsible for being familiar with this Plan and adhering to the relevant protocols while collecting and managing samples.

12. PRE-REQUISITE COMPETENCY SKILLS

All personnel performing environmental monitoring programs will be required to understand and be proficient in the protocols outlined in this Plan. Training will involve Environmental Coordinators and Specialists conducting routine reviews of this Plan with environmental personnel and leading in-field training sessions. Environmental personnel will also be trained and proficient in the operation, calibration and maintenance of any necessary sampling equipment (e.g. YSI Sonde).

13. RELATED DOCUMENTS

BAF-PH1-800-POL-0001-Baffinland's Health, Safety and Environment Policy (found here: https://www.baffinland.com/media-centre/document-portal/)

BAF-PH1-800-POL-0002-Baffinland's Sustainable Development Policy (found here: https://www.baffinland.com/media-centre/document-portal/)

BIM-5200-PLA-0003-Environmental Protection Plan (previously *BAF-PH1-830-P16-0008*)

BIM-5200-PLA-0006-Snow Management Plan (previously *BAF-PH1-830-P16-0002*)

BIM-5200-PLA-0009-Surface Water and Aquatic Ecosystem Management Plan (previously *BAF-PH1-830-P16-0026*)

BIM-5200-PLA-0022-Fresh Water Supply, Sewage, and Wastewater Management Plan (previously *BAF-PH1-830-P16-0010*)

BIM-5200-PLA-0023-Aquatic Effects Monitoring Plan (previously *BAF-PH1-830-P16-0039*)

BIM-5200-PLA-0027-Roads Management Plan (previously *BAF-PH1-830-P16-0023*)

BIM-5200-SOP-0010-AEMP Sampling Procedure (previously *BAF-PH1-830-PRO-0012*)

BIM-5200-SOP-0013-Environment Shipping Procedure (previously *BAF-PH1-830-PRO-0015*)

BIM-5200-SOP-0017-Water Sampling Procedure (previously *BAF-PH1-830-PRO-0011*)

Canadian Council of Ministers of the Environment (CCME), 2016. Guidance manual for environmental site characterization in support of environmental and human health risk assessment, volume 4 analytical methods. Online: https://ccme.ca/en/res/guidancemanual-environmentalsitecharacterization_vol_4_epn1557.pdf

ECCC, 2022. Metal and Diamond Mining Effluent Regulations, SOR/2002-222. Online: https://laws-lois.justice.gc.ca/PDF/SOR-2002-222.pdf.

ECCC, 2001. Guidance Document for the Sampling and Analysis of Metal Mining Effluent, Final Report. Online: http://publications.gc.ca/collections/Collection/En49-24-1-39E.pdf

ECCC, 2014. Metal mining technical guidance for Environmental Effects Monitoring. Online: https://www.ec.gc.ca/esee-eem/default.asp?lang=En&n=AEC7C481-1&printfullpage=true.

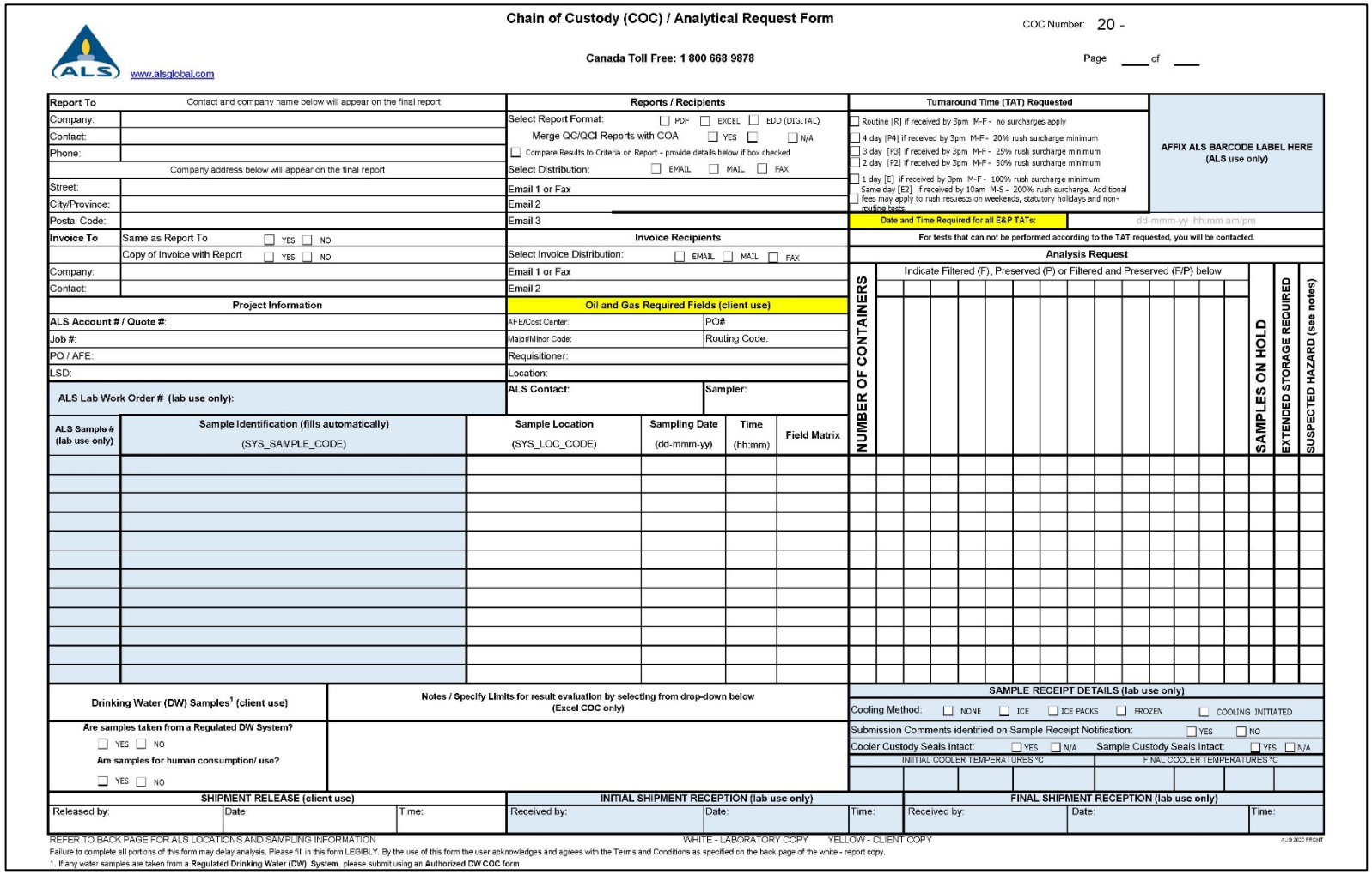
Indigenous and Northern Affairs Canada (INAC), 1996. Quality Assurance (QA) and Quality Control (QC) Guidelines for Use by Class “A” Licences in Meeting SNP Requirements and for Submission of a QA/QC Plan. Prepared by Department of Indian and Northern Affairs Canada Water Resources Division and the Northwest Territories Water Board, July 1996.

Nunavut Water Board (NWB), 2015. Nunavut Water Board Licence No. 2AM-MRY1325 – Amendment No. 1. Issued by the Nunavut Water Board, July 2015.

Rice, E.W., Baird, R.B. and Eaton, A.D., editors, 2017. Standard Methods for the Examination of Water and Wastewater; 23rd Ed., American Public Health Association, American Water Works Association, Water Environment Federation.

United States Environmental Protection Agency (USEPA), 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms; 5th Ed., USEPA, ref. No. EPA-821-R-02-012. Online: https://www.epa.gov/sites/production/files/2015-08/documents/acute-freshwater-and-marine-wet-manual_2002.pdf.

APPENDIX A COC EXAMPLE



Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

ALS www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Page ____ of ____

Report To	Contact and company name below will appear on the final report
Company:	
Contact:	
Phone:	
Company address below will appear on the final report	
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For tests that can not be performed according to the TAT requested, you will be contacted.

Project Information	**Oil and Gas Required Fields (client use)**	
ALS Account # / Quote #:	AFE/Cost Center:	PO#
Job #:	Major/Minor Code:	Routing Code:
PO / AFE:	Requisitioner:	
LSD:	Location:	
ALS Lab Work Order # (lab use only):	**ALS Contact:**	**Sampler:**

Analysis Request

ALS Sample # (lab use only)	Sample Identification (fills automatically) (SYS_SAMPLE_CODE)	Sample Location (SYS_LOC_CODE)	Sampling Date (dd-mmm-yy)	Time (hh:mm)	Field Matrix	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (lab use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			**INITIAL SHIPMENT RECEPTION (lab use only)**			**FINAL SHIPMENT RECEPTION (lab use only)**		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

APPENDIX B ANALYTICAL LABORATORY CERTIFICATE AND SCOPE OF ACCREDITATION

Available upon request; saved here.

APPENDIX C LABORATORY ANALYTICAL METHODS

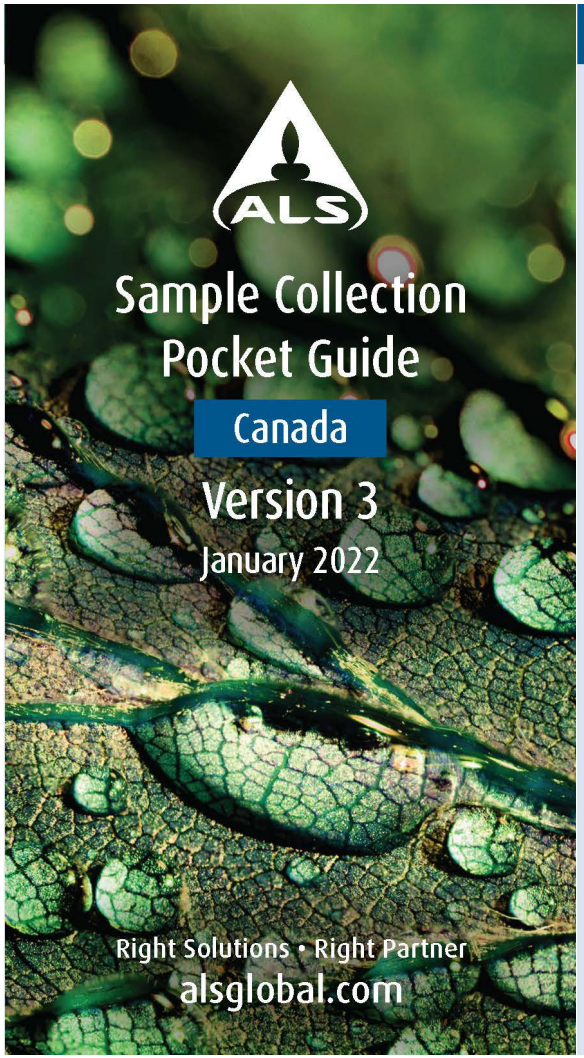
Available upon request; saved here.

APPENDIX D ANALYTICAL LABORATORY QUALITY CONTROL PROTOCOLS

Available upon request; saved here.

APPENDIX E ALS SAMPLE COLLECTION GUIDE FOR SAMPLE VOLUMES, PRESERVATIVES AND HOLD TIMES

Available at: https://www.alsglobal.com/en/Search#q=Sample%20Collection%20Pocket%20Guide%202022



Important Information

GENERAL > This pocket guide is to be used for all Canadian Environmental testing. Additional or alternate instructions may apply for Ontario drinking waters. Coolers and ice packs plus labelled pre-dosed colour-coded sample containers are provided for all analyses conducted by ALS. Pre-dosed colour-coded preservative vials are also available upon request. ALS Account Managers are available to assist and provide guidance as required.

CONTAINER VOLUME AND QUALITY CONTROL REQUIREMENTS > Some containers exist in several sizes to accommodate varying suites of analyses while focusing on minimizing weight (OH&S and sampling benefits). Please refer to the notes section under each sample container. According to CCME Volume 1 Guidance Manual, the recommended minimum frequency for testing laboratory duplicate samples is 1 in 20 samples and 1 in 10 samples for field duplicates.

SAMPLING AND PRESERVATION > Care must be taken not to rinse out or spill preservatives during sampling for OH&S reasons and to avoid cross contaminating other bottles (e.g. Nitric acid used for metals can contaminate nitrate analysis). Field filtration is recommended for "dissolved" tests and chlorophyll, and may be required by some jurisdictions. Samples should generally be chilled to <4°C and transported to the laboratory with enough ice packs to keep the temperature of samples to <10°C, but without freezing. ALS recommends placing samples in ice immediately upon sampling for best practice chilling, with either repacking into another cooler or draining of free water and replacement of ice just prior to dispatch. Chilling overnight in a fridge may also benefit. The post-chilling addition of ice packs is also recommended where samples are shipped by air or long distances and where couriers will not accept loose ice. Samples taken from chlorinated water sources require the addition of sodium thiosulfate for microbiological, volatile organics, and semi volatile organics tests. Please advise ALS accordingly to facilitate supply of appropriate containers.

HEALTH AND SAFETY > Although the quantities of preservative dosed into containers is minimal, it is important to observe safe chemical handling practices while using bottles. Use of appropriate Personal Protection Equipment such as chemical resistant gloves and safety glasses is recommended. Bottle labels indicate preservative type, hazard pictograms, and signal words based on the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Safety Data Sheets are available on the ALS website or can be provided upon request along with Safety information and First Aid instructions. All our preservatives can be shipped LIMITED or EXCEPTED quantity under Transportation of Dangerous Goods (TDG) requirements. None of the preservatives, except for methanol, are considered Dangerous Goods (DG) after mixing with the sample in the designated sample bottle. Search 'SDS' on ALS website *alsglobal.com*.

HOLDING TIMES > ALS recommended holding times are indicated. Failure to comply with these Holding Times may impact data validity. Samples and COCs should be submitted (preferably by email from remote locations to assist login) with at least half the analytical holding time remaining unless prior arrangements are made. Short holding times are shaded in yellow to assist.

WATER	WATER	WATER
General Water Quality	**TSS & TDS (Low Level)**	**BOD or CBOD**
SAMPLE CONTAINER 250 mL hdpe 60 mL hdpe (Anions only)	**SAMPLE CONTAINER** 500 mL hdpe 145 mL hdpe (Whole Bottle TSS)	**SAMPLE CONTAINER** 500 mL hdpe
PRESERVATION Nil Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C
TEST PARAMETER(S) Acidity, Alkalinity, Anions (Cl, Br, SO_4, F, NO_3, NO_2), Colour, Conductivity, ORP, Orthophosphate, pH, Silica, Tannin & Lignin, TIC/DIC, Turbidity, UV Abs/Trans, Routine Level TDS (10 mg/L LOR) and Routine Level TSS (3 mg/L LOR) **or** NTA **or** Total VFA	**TEST PARAMETER(S)** TSS Low (1 mg/L LOR) + all General Water Quality tests, **or** Whole Bottle TSS	**TEST PARAMETER(S)** BOD **or** CBOD
NOTES pH should be tested in the field as per CCME, BC ENV.	**NOTES**	**NOTES** Please submit immediately to the lab.
HOLDING TIME pH - 15 mins, 4 days (ON-MISA), 28 days (ON); Alkalinity/Acidity - 14 days; EC/Br/Cl/F/SO_4 - 28 days; EC - 4 days (ON-MISA); TSS/TDS - 7 days; Colour/Turbidity - 3 days, 2 days (ON); Orthophosphate/NO_2/NO_3/NH_3 - 3 days, 7 days (ON); NTA - 30 days (ON); 24 hours (BC); Total VFA - 7 days.	**HOLDING TIME** TSS/TDS - 7 days see General Water Quality for other tests.	**HOLDING TIME** BOD/CBOD - 48 hours (AB, MB, Pulp and Paper); 3 days (BC); 4 days (ON).
GREEN	**GREEN**	**GREEN**

WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SPECIALTY ORGANICS	**NAPHTHENIC ACID**	**RESIN & FATTY ACIDS**	**HORMONES/ STEROIDS/PPCPs/ NEONICOTINOIDS**	**ORGANOTINS**	**PFAS**	**PESTICIDES (LC/MS/MS)**	**MICRO-BIOLOGY**	**MICROTOX**
SAMPLE CONTAINER 2 × 1L amber glass	SAMPLE CONTAINER 100 mL amber glass	SAMPLE CONTAINER 2 ×100 mL amber glass ($C_6H_8O_6$+NaOH)	SAMPLE CONTAINER 100 mL **or** 250 mL amber glass	SAMPLE CONTAINER 250 mL opaque hdpe ($Na_2S_2O_3$)	SAMPLE CONTAINER 60 mL hdpe (no liner) ($Na_2S_2O_3$)	SAMPLE CONTAINER 60 mL hdpe **or** 100 mL amber glass ($Na_2S_2O_3$)	SAMPLE CONTAINER 250 mL sterile hdpe **or** 120 mL sterile hdpe (Winnipeg) ($Na_2S_2O_3$)	SAMPLE CONTAINER 100 mL amber glass
PRESERVATION Nil Chill to ≤10°C	PRESERVATION Nil Chill to ≤10°C	PRESERVATION Ascorbic acid + Sodium hydroxide Chill to ≤10°C	PRESERVATION Nil Chill to ≤10°C	PRESERVATION Nil Chill to ≤10°C	PRESERVATION Sodium thiosulfate Chill to ≤10°C	PRESERVATION Sodium thiosulfate Chill to ≤10°C	PRESERVATION Sodium thiosulfate Chill to <10°C, Do Not Freeze	PRESERVATION Nil Chill to ≤10°C
TEST PARAMETER(S) Dioxins, PBDE, PBB **or** Explosives	TEST PARAMETER(S) Naphthenic Acid	TEST PARAMETER(S) Resin and Fatty Acids	TEST PARAMETER(S) Hormones/Steroids **or** PPCPs/ Neonicotinoids	TEST PARAMETER(S) Organotins (MBT, DBT, TBT)	TEST PARAMETER(S) PFAS	TEST PARAMETER(S) Diquat/Paraquat, Glyphosate/ AMPA **or** Phenoxy Herbicides, Aldicarb/Diuron, Soil Sterilants	TEST PARAMETER(S) E. coli /Fecal/Total Coliforms (Colilert) **or** Pseudomonas aeruginosa (MF) and Enterococcus, **or** Legionella, **and** HPC	TEST PARAMETER(S) Microtox
NOTES	NOTES	NOTES	NOTES 100 mL - Routine levels (all tests); 250 mL - Low level Steroids/ Hormones.	NOTES Leave 10% headspace to allow for expansion if frozen. Protect from light.	NOTES Please provide 2 x 60 mL hdpe containers for low and trace level PFAS. Avoid exposure to Teflon.	NOTES 60 mL hdpe - Diquat/ Paraquat, Glyphosate/AMPA; 100 mL amber glass - Aldicarb/Diuron, Phenoxy Herbicides, Soil Sterilants.	NOTES Please submit immediately to the lab. HPC can be sub-sampled from another sterile Microbiology sample bottle.	NOTES Minimize headspace, store in dark.
HOLDING TIME Dioxins/PBDE/PBB - unlimited; Explosives - 7 days.	HOLDING TIME 14 days	HOLDING TIME 14 days GHS – Danger Corrosive	HOLDING TIME 28 days	HOLDING TIME 3 days - unpreserved, or freeze within 3 days; 28 days - frozen.	HOLDING TIME 28 days	HOLDING TIME Aldicarb/Diuron - 7 days; Diquat/Paraquat - 7 days; Glyphosate/AMPA - 14 days; Phenoxy Herbicides - 7 days; Soil Sterilants - 7 days.	HOLDING TIME E.coli/coliforms - 30 hours, 48 hours (ON); HPC - 24 hours, 48 hours (ON); Pseudomonas/Entercoccus - 30 hours ; Legionella - 48 hours.	HOLDING TIME 3 days
ORANGE	**ORANGE**	**DARK BLUE**	**GREY**	**BLACK**	**LIGHT BLUE**	**LIGHT BLUE**	**LIGHT BLUE**	**GREY**

WATER	WATER	SOIL/SOLID/SEDIMENT	SOIL/SOLID/SEDIMENT	SOIL/SOLID/SEDIMENT	AIR SAMPLE CONTAINERS	AIR SAMPLE CONTAINERS
RAINBOW TROUT/ DAPHNIA MAGNA	**CRYPTO/ GIARDIA**	**PFAS & ORGANOTINS**	**GENERAL PARAMETERS**	**VOLATILES**	**STACK & STATIONARY SOURCE TESTING**	**DUSTFALLS**
SAMPLE CONTAINER 2-4 x 10 L lined pails (trout) 1-2 x 1 L hdpe (daphnia)	**SAMPLE CONTAINER** 1 x 10 L pail, no liner	**SAMPLE CONTAINER** 120 mL hdpe jar (Teflon™ free)	**SAMPLE CONTAINER** Organics tests*: 1 x 120 mL glass jar Specialty Organics tests*: 1 x 250 mL amber glass jar (Dioxins/PBBs/PBDEs) Inorganics/Metals tests*: 1 x 120 mL glass jar (Ontario: 1 x 250 mL) *double recommended amounts for high moisture sediment, sludge, gravel/rocky soil, peat/ muskeg, or low density solids (e.g. fly ash). TCLP, SPLP, mSPLP (ON), MLEP (BC), Corrosivity, Flashpoint+Paint Filter: 1 x 250 mL glass jar per test or test group (includes leachate VOCs/ZHE) + extra 250 mL jar if dioxins by TCLP is required. SAR/Salinity (sat. paste): 1 L ALS ldpe bag (may include metals). Particle Size: 1 x 250 mL glass jar (typical soils), or 1 L ALS ldpe bag (coarse materials), or from SAR/Salinity soil bag. Asbestos: Double-bag bulk material/soil in 1 L ALS ldpe bags. Label with "may contain asbestos".	**SAMPLE CONTAINER** 2 x 40 mL glass vials (Sg Soil corer/ Methanol) or 2 x Hermetic samplers	**SAMPLE CONTAINER** PUF, Impingers, Filters, XAD Trap	**SAMPLE CONTAINER** 2L hdpe
PRESERVATION Nil Chill to ≤10°C, Do Not Freeze	**PRESERVATION** Nil Chill to ≤10°C, Do Not Freeze	**PRESERVATION** Nil Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C Cr(VI) must be stored in the dark (ON).	**PRESERVATION** Methanol Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C, method dependent	**PRESERVATION** Nil Chill to ≤10°C
TEST PARAMETER(S) Rainbow trout: LC50 **or** Pass/Fail (standard **or** pH stabilized) Daphnia magna: LC50 **or** Pass/Fail	**TEST PARAMETER(S)** Cryptosporidium/Giardia	**TEST PARAMETER(S)** PFAS and Organotins	**TEST PARAMETER(S)** All parameters except volatiles, PFAS, organotins.	**TEST PARAMETER(S)** BTEX/VOC, F1/VH/VPH, Cl-Aromatics, VFAs, 1,4-Dioxane, C1-C5 Gases	**TEST PARAMETER(S)** PAH, PCB, Dioxins, Aldehydes, Isocyanates, Particulates, Hexavalent Chromium, Metals, Mercury, VOCs	**TEST PARAMETER(S)** Dustfalls - All tests
NOTES Rainbow trout: LC50 (4x10L), **or** Pass/Fail (2x10L) Daphnia magna: LC50 (2x1L), **or** Pass/Fail (1x1L) Fill with zero headspace. Volume requirements are the same for the pH stabilized trout tests.	**NOTES** Fill with zero headspace.	**NOTES**	**NOTES** For Flashpoint, Sulfide (AVS), & Leachate VOCs (TCLP/SPLP/MLEP), please fill with zero headspace. Please submit nutrient samples immediately to the lab.	**NOTES** Additional 120 mL glass jar required for moisture. Verify methanol level is at 10 mL fill line before use. Use 2 soil plugs per sample for peat/muskeg samples.	**NOTES** Shipping and storage temperatures are dependent on the test and method required. Please contact the lab for specific recommendations.	**NOTES** Use isopropanol (if sampling below freezing point) **or** algaecide (if sampling above freezing point).
HOLDING TIME 5 days. Samples should be chilled to ≤10°C if transportation time greater than 2 days.	**HOLDING TIME** 4 days	**HOLDING TIME** 28 days	**HOLDING TIME** Cl, Cr(VI), EC, pH, PSA - 30 days (CCME); Nutrients (NO_3, NO_2, NH_3) - 3 days; Metals - 180 days; Mercury, Methyl Mercury, TN, TOC/FOC - 28 days; Dioxins, PCBs, PBBs, PBDEs - unlimited; Asbestos (bulk materials) - unlimited; SVOC, LEPH/HEPH, F2-F4, Glycols, PAH, OCP, OPP, CPs, Cyanide, Sulfide (AVS) - 14 days; SVOC, CPs, OCP, OPP, PAH - 60 days (ON); pH, N, P, K+S, TOC/FOC- unlimited if dried; Flashpoint - 7 days.	**HOLDING TIME** Field Methanol - 40 days, 14 days (ON); Hermetic Samplers - 48 hours, 7 days (frozen). **GHS - Danger** Flammable, Toxic & Health hazard. 	**HOLDING TIME** PAH/VOCs (VOST), Aldehydes/ Formaldehyde - 14 days; Dioxins/PCBs - 7 days to 1 year; Cr(VI) - 30 days; Metals - 180 days; Mercury - 28 days; Isocyanate Impingers - 30 days.	**HOLDING TIME** Metals, particulates - 6 months; Mercury - 28 days.
GREY	**GREY**	**ORANGE**	**ORANGE**	**ORANGE**	**NAVY BLUE**	**NAVY BLUE**

AIR SAMPLE CONTAINERS	AIR SAMPLE CONTAINERS	AIR SAMPLE CONTAINERS	WATER	WATER	WATER	WATER	WATER	WATER
SOIL VAPOUR	**AMBIENT/ INDOOR AIR**	**INDUSTRIAL HYGIENE TESTING**	**CHLORATE/ BROMATE/ CHLORITE**	**CHLOROPHYLL -A**	**NUTRIENTS**	**SULFIDE**	**CYANATE**	**CYANIDE**
SAMPLE CONTAINER Primarily 1.4L Canisters *Sampling times:* 4, 10, 20, 60 mins	**SAMPLE CONTAINER** Primarily 6L Canisters *Sampling times:* 1, 4, 8, 12, 24 hrs TWA	**SAMPLE CONTAINER** Filters, Tubes, Pre-Treated Cr(VI) Filters	**SAMPLE CONTAINER** 60 mL UV-inhibited hdpe (EDA)	**SAMPLE CONTAINER** 15 mL opaque tube (filters) 250 mL opaque hdpe	**SAMPLE CONTAINER** 100 mL amber glass (H_2SO_4)	**SAMPLE CONTAINER** 60 mL hdpe ($Zn(OAC)_2$+NaOH)	**SAMPLE CONTAINER** 250 mL hdpe (NaOH)	**SAMPLE CONTAINER** 60 mL opaque hdpe (NaOH)
PRESERVATION Nil	**PRESERVATION** Nil	**PRESERVATION** Nil Chill to ≤10°C method dependant; Cr(VI) Freeze to ≤ -18°C	**PRESERVATION** Ethylenediamine Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C, Freeze filters	**PRESERVATION** Sulfuric acid Chill to ≤10°C	**PRESERVATION** Zinc acetate + Sodium hydroxide Chill to ≤10°C	**PRESERVATION** Sodium hydroxide Chill to ≤10°C	**PRESERVATION** Sodium hydroxide Chill to ≤10°C
TEST PARAMETER(S) VOC (60+ compounds TO15), F1-F2, Aliphatic/ Aromatic Fractionation, BTEX+Naphthalene, C1-C5 Hydrocarbons, Fixed Gases, Reduced Sulfur Compounds	**TEST PARAMETER(S)** VOC (60+ compunds TO15), F1-F2, Aliphatic/ Aromatic Fractionation, BTEX+Naphthalene, C1-C5 Hydrocarbons, Fixed Gases, Reduced Sulfur Compounds, Chlorinated Degradation Compounds	**TEST PARAMETER(S)** PAH, PCBs, VOC, Dioxins, Aldehydes/Formaldehyde, Metals, Isocyanates, Asbestos Filters, Particulates, Metals, Mercury, Cr(VI) Ambient Air Filters	**TEST PARAMETER(S)** Bromate, Chlorate and Chlorite	**TEST PARAMETER(S)** Chlorophyll a	**TEST PARAMETER(S)** Nutrients, Total **or** Dissolved (COD, NH3, TKN/DKN, TN/ DN, TOC/DOC, TP/TDP, Total Phenols) Tick the applicable checkbox on the label.	**TEST PARAMETER(S)** Sulfide, Total **or** Dissolved (field flocculated) Tick the applicable test on the label.	**TEST PARAMETER(S)** Cyanate Tick the applicable test(s) on the label.	**TEST PARAMETER(S)** Cyanide, Total/SAD, WAD, Free Tick the applicable test(s) on the label.
NOTES Canisters should not be held >30 days prior to sampling. Check Canister pressure before deployment.	**NOTES** Canisters should not be held >30 days prior to sampling. Check Canister pressure before deployment. 1 L or 1.4 L Canisters may be used for sampling events ≤ 60 mins.	**NOTES** Shipping and storage Temperatures are dependent on the test and method required. Please contact the lab for specific recommendations.	**NOTES** For drinking water systems that use chlorine dioxide treatment only, samples should be sparged with an inert gas (helium, argon, nitrogen) for approximately 5-10 minutes. Ethylenediamine (EDA) must be added immediately after sparging.	**NOTES** Field filter minimum 250 mL sample. Place filter(s) in tube & record filtered volume on CoC. Freeze before shipping to the lab. For lab filtration, ship immediately to the lab.	**NOTES** Field filtration is recommended for Dissolved Parameters (preserve after filtration).	**NOTES** Dissolved Sulfide: AlCl3 field flocculation kit is provided with instructions. Filtration is not recommended due to oxidation risk.	**NOTES**	**NOTES**
			HOLDING TIME Bromate/Chlorate - 28 days; Chlorite - 14 days.	**HOLDING TIME** 48 hours (lab filtered); 28 days (field filtered, frozen).	**HOLDING TIME** 28 days	**HOLDING TIME** 7 days	**HOLDING TIME** 14 days	**HOLDING TIME** 14 days
HOLDING TIME VOCs including BTEX (TO15), F1-F2 - 30 days Reduced Sulfur Compounds - 7 days	**HOLDING TIME** VOCs including BTEX (TO15), F1-F2 - 30 days Reduced Sulfur Compounds - 7 days Fixed Gases - 30 days (Canisters), 72 hrs (Tedlar bag) Confirm Tedlar bag samples with lab before submission.	**HOLDING TIME** PAH/Aldehydes/ Formaldehyde - 14 days; Asbestos/Particulates - unlimited; Isocyanate filters - 15 days; Dioxins/ PCBs - 7 days; Metals - 180 days; Mercury - 28 days; Cr(VI) - 10 days.	**GHS - Warning** Irritant 		**GHS - Danger** Corrosive 	**GHS - Danger** Corrosive & Environmental hazard 	**GHS - Danger** Corrosive 	**GHS - Danger** Corrosive 
NAVY BLUE	**NAVY BLUE**	**NAVY BLUE**	**BEIGE**	**BLACK**	**PURPLE**	**PINK**	**DARK GREEN**	**DARK GREEN**

WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
THIOCYANATE	**METALS**	**MERCURY**	**METALS (Lab Preserved)**	**MERCURY (Lab Preserved)**	**METHYL MERCURY**	**FERROUS IRON**	**SELENIUM SPECIATION**	**ARSENIC SPECIATION**
SAMPLE CONTAINER 60 mL hdpe (HNO_3)	**SAMPLE CONTAINER** 60 mL hdpe (HNO_3) 1 L hdpe (HNO_3), ON Pb DW	**SAMPLE CONTAINER** 40 mL glass (HCl)	**SAMPLE CONTAINER** 60 mL hdpe	**SAMPLE CONTAINER** Routine - 40 mL glass Low - 125 mL Teflon™ or glass Trace - 125 mL Teflon™ or glass (precleaned)	**SAMPLE CONTAINER** 250 mL amber glass (HCl) - freshwater **or** (H_2SO_4) - seawater	**SAMPLE CONTAINER** 60 mL opaque hdpe (HCl)	**SAMPLE CONTAINER** 60 mL opaque hdpe	**SAMPLE CONTAINER** 60 mL opaque hdpe (EDTA/Acetic acid)
PRESERVATION Nitric acid Chill to ≤10°C	**PRESERVATION** Nitric acid	**PRESERVATION** Hydrochloric acid Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C	**PRESERVATION** Hydrochloric acid **or** Sulfuric acid Chill to ≤10°C	**PRESERVATION** Hydrochloric acid Chill to ≤10°C	**PRESERVATION** Nil Chill to ≤10°C Keep in dark	**PRESERVATION** EDTA + Acetic acid Chill to ≤10°C
TEST PARAMETER(S) Thiocyanate	**TEST PARAMETER(S)** Metals, Total **or** Dissolved (field filtered) Tick the applicable test on the label. O.Reg. 243 & 170/03 15.1 require Total Lead. Tick the 'Field Filtered' checkbox if applicable.	**TEST PARAMETER(S)** Mercury, Total **or** Dissolved (field filtered) Tick the applicable test on the label. Tick the 'Field Filtered' checkbox if applicable.	**TEST PARAMETER(S)** Metals (lab preserved), Total **or** Dissolved (field filtered). Recommended for Ultra-Trace Metals. Not applicable in Ontario. Tick the applicable test on the label. Tick the 'Field Filtered' checkbox if applicable	**TEST PARAMETER(S)** Mercury (lab preserved), Total **or** Dissolved (field filtered). Not applicable in Ontario. Tick the applicable test on the label. Tick the 'Field Filtered' checkbox if applicable.	**TEST PARAMETER(S)** Methyl Mercury, Total **or** Dissolved (field filtered) Tick the applicable test on the label. Tick the 'Field Filtered' checkbox if applicable.	**TEST PARAMETER(S)** Dissolved Ferrous Iron (field filtered)	**TEST PARAMETER(S)** Speciated Selenium (non-volatile), Dissolved (field filtered) Tick the 'Field Filtered' checkbox if applicable.	**TEST PARAMETER(S)** Speciated Arsenic, Dissolved (field filtered) Tick the 'Field Filtered' checkbox if applicable.
NOTES	**NOTES** Field filtration is recommended for Dissolved Parameters. Lab Preserved option is recommended for Trace Metals.	**NOTES** Field filtration is recommended for Dissolved Parameters. Lab Preserved option is recommended for Low and Trace Mercury.	**NOTES** Field filtration is recommended for Dissolved Parameters. Not recommended for rush testing.	**NOTES** Field filtration is recommended for Dissolved Parameters. Not recommended for rush testing.	**NOTES** Field filtration is recommended for Dissolved Parameters. ***Freshwaters*** Preserve with hydrochloric acid. ***Seawaters*** (>500 ppm chloride or >1 ‰ salinity); Preserve with sulfuric acid.	**NOTES** Field filtration is recommended.	**NOTES** Field filtration (0.2 µm) is recommended for dissolved parameters.	**NOTES** Field filtration is recommended for dissolved parameters. Fill bottle (contains EDTA) with sample, then add acetic acid preservative from separate vial provided.
HOLDING TIME 14 days	**HOLDING TIME** 180 days 60 days (ON), 30 days (ON-MISA).	**HOLDING TIME** 28 days	**HOLDING TIME** 180 days	**HOLDING TIME** 28 days	**HOLDING TIME** 180 days	**HOLDING TIME** 7 days - if field filtered using 0.45 µm filters.	**HOLDING TIME** 30 days	**HOLDING TIME** 28 days
GHS - Danger Corrosive	**GHS - Danger** Corrosive	**GHS - Danger** Corrosive & Irritant			**GHS - Danger** Corrosive & Irritant	**GHS - Danger** Corrosive & Irritant		**GHS - Danger** Corrosive & Irritant
								
RED	**RED**	**YELLOW**	**RED/GREEN**	**RED/GREEN**	**YELLOW**	**YELLOW**	**GREEN**	**CHERRY**

WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
HEXAVALENT CHROMIUM	**HEXAVALENT CHROMIUM (Ontario only)**	**RADIOCHEMISTRY**	**VOC**	**HYDROCARBONS / PAH**	**PHENOLICS**	**ALDEHYDES**	**HALOACETIC ACIDS**	**OIL & GREASE**
SAMPLE CONTAINER 60 mL hdpe ($NaOH$)	**SAMPLE CONTAINER** 60 mL hdpe [$NaOH/(NH_4)_2SO_4/NH_4OH$]	**SAMPLE CONTAINER** 250 mL hdpe (HNO_3) **or** 1 L hdpe (HNO_3)	**SAMPLE CONTAINER** 2 × 40 mL glass vials ($NaHSO_4$)	**SAMPLE CONTAINER** 2 ×100 mL amber glass ($NaHSO_4$)	**SAMPLE CONTAINER** 2 × 500 mL amber glass ($NaHSO_4$)	**SAMPLE CONTAINER** 2 × 40 mL glass vials ($NH_4Cl+CuSO_4$)	**SAMPLE CONTAINER** 100 mL amber glass (NH_4Cl)	**SAMPLE CONTAINER** 2 × 250 mL **or** 2 ×100 mL amber glass (HCl)
PRESERVATION Sodium hydroxide Chill to ≤10°C	**PRESERVATION** Sodium hydroxide + Ammonium sulfate + Ammonium hydroxide, Chill to ≤10°C	**PRESERVATION** Nitric acid Ambient temperature	**PRESERVATION** Sodium bisulfate Chill to ≤10°C	**PRESERVATION** Sodium bisulfate Chill to ≤10°C	**PRESERVATION** Sodium bisulfate Chill to ≤10°C	**PRESERVATION** Ammonium Chloride + Copper sulfate Chill to ≤10°C	**PRESERVATION** Ammonium Chloride Chill to ≤10°C	**PRESERVATION** Hydrochloric acid Chill to ≤10°C
TEST PARAMETER(S) Hexavalent Chromium, Total **or** Dissolved (field filtered) Tick the applicable test on the label. Tick the 'Field Filtered' checkbox if applicable.	**TEST PARAMETER(S)** Hexavalent Chromium, Total **or** Dissolved (field filtered) Tick the applicable test on the label. Tick the 'Field Filtered' checkbox if applicable.	**TEST PARAMETER(S)** Gross alpha/beta Radium 226, Gamma, Isotopes (Th, U, Pb, Sr, Po, Pu)	**TEST PARAMETER(S)** BTEX/VOC/THM, F1/VH/ VPH, VFAs, 1,4-Dioxane, Chlorinated Aromatics, C1-C5 Gases, Glycols	**TEST PARAMETER(S)** EPH, LEPH/HEPH, F2-F4, PAHs **or** Alkylated PAHs **or** NTA (BC, preserved)	**TEST PARAMETER(S)** Phenolics, Chlorinated and Non-chlorinated	**TEST PARAMETER(S)** Formaldehyde	**TEST PARAMETER(S)** Haloacetic Acids	**TEST PARAMETER(S)** Total Oil+Grease and Mineral Oil+Grease **or** Oil+Grease (FTIR)
NOTES Field filtration is recommended for dissolved parameters.	**NOTES** Field filtration is recommended for dissolved parameters.	**NOTES** 250 mL - Gross alpha/beta 1 L - Ra 226, gamma or isotopes (+ extra 1 L per listed isotope).	**NOTES** Fill with zero headspace. For chlorinated water (except C1-C5 gases), use sodium thiosulfate preservative (light blue label).	**NOTES** If sample volume is limited, VOCs may also be tested from this bottle (zero headspace required for VOCs).	**NOTES**	**NOTES** Fill with zero headspace.	**NOTES** Fill with zero headspace.	**NOTES** 2 x 250 mL - Gravimetric; 2 x 100 mL - FTIR.
HOLDING TIME 28 days	**HOLDING TIME** 28 days	**HOLDING TIME** 180 days	**HOLDING TIME** 14 days;	**HOLDING TIME** 14 days	**HOLDING TIME** 14 days	**HOLDING TIME** 7 days	**HOLDING TIME** 14 days	**HOLDING TIME** 28 days
GHS – Danger Corrosive 	**GHS – Danger** Corrosive, Irritant & Environmental hazard 	**GHS – Danger** Corrosive 	**GHS – Danger** Corrosive 	**GHS – Danger** Corrosive 	**GHS – Danger** Corrosive 	**GHS – Warning** Irritant 	**GHS – Warning** Irritant 	**GHS – Danger** Corrosive & Irritant 
DARK GREEN	**DARK GREEN**	**RED**	**BLUE**	**BLUE**	**BLUE**	**BROWN**	**BROWN**	**YELLOW**

WATER	WATER	WATER	WATER	WATER	WATER
SEMI VOL ORGANICS (ROUTINE)	**SEMI VOL ORGANICS (LOW LEVEL)**	**ALCOHOLS/ GLYCOLS**	**General Water Quality**	**TSS & TDS (Low Level)**	**BOD or CBOD**
SAMPLE CONTAINER	**SAMPLE CONTAINER**	**SAMPLE CONTAINER**	**SAMPLE CONTAINER**	**SAMPLE CONTAINER**	**SAMPLE CONTAINER**
1 or 2 x 100 mL amber glass	2 x 500 mL amber glass	2 x 40 mL glass vials	250 mL hdpe 60 mL hdpe (Anions only)	500 mL hdpe 145 mL hdpe (Whole Bottle TSS)	500 mL hdpe
PRESERVATION	**PRESERVATION**	**PRESERVATION**	**PRESERVATION**	**PRESERVATION**	**PRESERVATION**
Nil Chill to ≤10°C	Nil Chill to ≤10°C	Nil Chill to ≤10°C	Nil Chill to ≤10°C	Nil Chill to ≤10°C	Nil Chill to ≤10°C
TEST PARAMETER(S)	**TEST PARAMETER(S)**	**TEST PARAMETER(S)**	**TEST PARAMETER(S)**	**TEST PARAMETER(S)**	**TEST PARAMETER(S)**
OCP/PCB/OPP/Toxaphene or NDMA/Nitrosamines or Alkanolamines (MEA, DEA, DIPA) or Nonylphenol Ethoxylates or Sulfolane or Bisphenol A or Carbamates	SVOC (Low-Level) or NDMA/Nitrosamines (Low-Level) or PCBs (Low-Level)	Alcohols and Glycols	Acidity, Alkalinity, Anions (Cl, Br, SO_4, F, NO_3, NO_2), Colour, Conductivity, ORP, Orthophosphate, pH, Silica, Tannin & Lignin, TIC/DIC, Turbidity, UV Abs/Trans, Routine Level TDS (10 mg/L LOR) and Routine Level TSS (3 mg/L LOR) or NTA or Total VFA	TSS Low (1 mg/L LOR) + all General Water Quality tests, or Whole Bottle TSS	BOD or CBOD
NOTES	**NOTES**	**NOTES**	**NOTES**	**NOTES**	**NOTES**
2 x 100 mL - OCP/PCB/OPP/ Toxaphene; 1 x 100 mL - All other tests.			pH should be tested in the field as per CCME, BC ENV.		Please submit immediately to the lab.
HOLDING TIME	**HOLDING TIME**	**HOLDING TIME**	**HOLDING TIME**	**HOLDING TIME**	**HOLDING TIME**
PCBs - unlimited, 14 days (ON); OCP/OPP/Toxaphene - 7 days, 14 days (ON); NDMA/Nitrosamines - 14 days; Alkanolamines/Carbamates/ NPE/Sulfolane - 7 days; Bisphenol A - 28 days.	SVOC - 7 days, 14 days (ON); NDMA/Nitrosamines - 14 days; PCBs - unlimited, 14 days (ON)	7 days	pH - 15 mins, 4 days (ON-MISA), 28 days (ON); Alkalinity/Acidity - 14 days; EC/Br/Cl/F/SO_4 - 28 days; EC - 4 days (ON-MISA); TSS/TDS - 7 days; Colour/Turbidity - 3 days, 2 days (ON); Orthophosphate/NO_2/NO_3/NH_3 - 3 days, 7 days (ON); NTA - 30 days (ON); 24 hours (BC); Total VFA - 7 days.	TSS/TDS - 7 days see General Water Quality for other tests.	BOD/CBOD - 48 hours (AB, MB, Pulp and Paper); 3 days (BC); 4 days (ON).
ORANGE	**ORANGE**	**ORANGE**	**GREEN**	**GREEN**	**GREEN**