Quality Assurance and Quality Control Plan

Utilidor System

Hamlet of Resolute Bay, Resolute Bay, Nunavut

Government of Nunavut

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Plan

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1 Introduction

The purpose of this document is to provide guidance to ensure that the monitoring program samples collected from the Hamlet's Utilidor system (water and wastewater disposal facilities) are done so with a high degree of quality, in order to ensure that they accurately reflect the physical and chemical nature of the matrix being tested.

1.1 Background

The Hamlet of Resolute Bay (Hamlet) is located on the South coast of Cornwallis Island of the Perry Channel at 74043'01 "N and 94058'10"W. The current population is 290 in 2020. This is the National training ground of the Canadian Force. Their population varies from 200 to about 700 in summer.

The Nunavut Water Board (NWB) issued a Class B Water Licence (No. 3BM-RUT1520) to the Government of Nunavut on March 29, 2015. This QA/QC document is to fulfill the requirements for the application of a Class B Water Licence. The Water Licence governs water use and waste disposal within the Hamlet. The Class B Water Licence will be expired on March 29,2020. This licence is recommended to be renewed as Type A for 10 (ten) years term.

1.2 Quality Assurance and Quality Control Monitoring

This Water Licence includes a monitoring program. The monitoring program specifies the locations of two (2) sampling locations, along with the analytical parameters to be tested. The following quality assurance (QA) and quality control (QC) program is to be implemented to ensure that the analytical results received are accurate and dependable. A QA/QC program is a system of documented checks that validate the reliability of the data collected regarding any given site. Quality Assurance is a system that ensures that quality control procedures are correctly performed and documented. Quality Control refers to the established procedures observed both in the field and in the laboratory, designed to ensure that the resulting end data meet intended quality objectives. The proposed program will verify compliance with regulations.

1.3 Definitions

The following definitions that are relevant to this plan include:

- Quality Assurance is a system that ensures that quality control procedures are correctly performed and documented;
- Quality Control refers to the established procedures observed both in the field and in the laboratory, designed to ensure that the resulting end data meet intended quality objectives;
- Field Blank is a sample of analyte-free (i.e., clean) water poured into the container in the field, preserved and shipped to the laboratory with field samples and is analyzed along with field samples to check contamination from field conditions during sampling. Blind Duplicate is a duplicate sample that is not labelled as such. The purpose of the blind duplicate sample is to ensure analytical precision;
- Trip Blank is a sample of a matrix that is taken from the laboratory to the sampling site and transported back to the laboratory without having been exposed to sampling procedures;
- CALA refers to the Canadian Association for Laboratory Accreditation, formally known as the Canadian Association for Environmental Analytical Laboratories (CAEAL);
- Chain of Custody Documentation refers to the documentation that accompanies samples sent to an analytical laboratory. It is a legal document which ensures that the sample taken at a specific site is the same sample received in the laboratory. It also provides information on the sample condition and integrity as received.

Figure 1: Location of the Hamlet of Resolute Bay

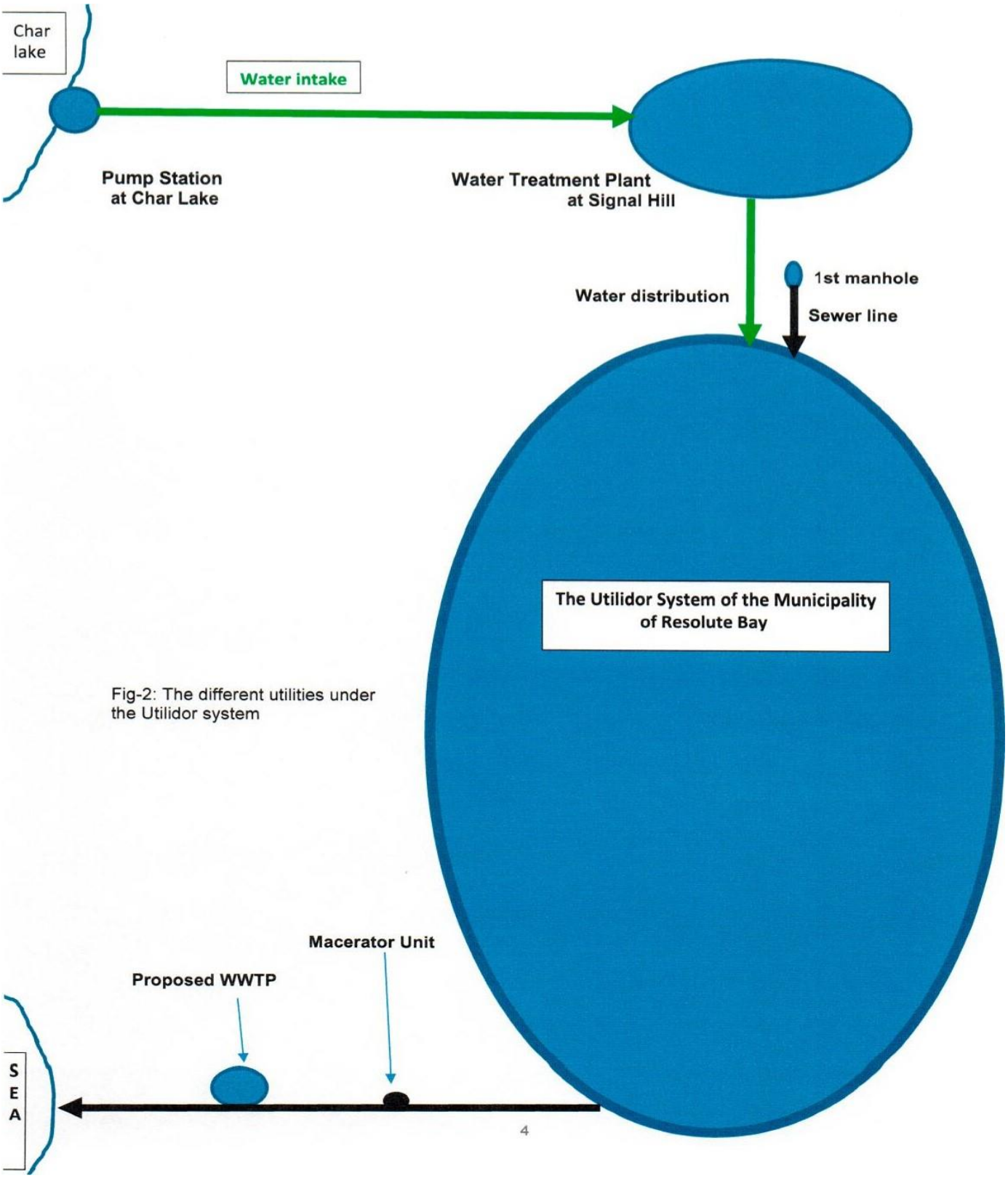

Fig-2: The different utilities under the Utilidor system

Figure 2: Utilidor System of the Hamlet of Resolute Bay

2 Sampling for Regulatory Compliance

2.1 Sampling Locations

This Water Licence specifies two (2) monitoring locations. Table 2.1 provides a description of the sampling points.

Table 2.1: Monitoring Locations

Monitoring Program Station Number	Description	Status
RUT-1	Raw water supply prior to treatment (monthly)	Active (volume)
RUT-2	Effluent – sewage disposal facility (monthly)	Active (volume and quality)

2.2 Sampling Frequency

The following outlines the Sampling Testing and Compliance requirements, as outlined in the Hamlet's Water Licence. Any other additional sampling during the year will be at the request of the regulatory agencies. Once collected, the samples will be shipped to the laboratory and analyzed using the same test/method/procedure. The Licensee is required to measure and record, in cubic metres, the daily, monthly and annual quantities of water pumped at Monitoring Program Stations RUT-I at Char Lake Pump station. The Licensee is also required to measure and record, in cubic metres, the daily, monthly and annual quantities of the sewage at the outfall at RUT-2.

2.3 Sampling Parameters

2.3.1 Water Samples

The requirements for drinking water sample collection frequency, and analytical testing is provided below.

Microbiological Properties: The current population of the community is less than 500. Therefore, monthly bacteria sampling is required. Samples will be collected from five locations: raw water, treated water and three different taps. Each sample bottle is to be filled up to 200 mL mark. The samples are forwarded to the GN- DOH lab in Iqaluit for testing and reporting.

Chemical Analysis: As required by the Public Health Act, the licensee samples the raw water and treated water twice annually and forward samples to Caduceon Environmental Laboratories, a CALA accredited lab in Ottawa. Laboratory accreditation documents are included in Appendix A.

Samples collected from Monitoring Station RUT-1 Station shall be analyzed for the following parameters:

- Alkyl benzene sulfonate (ABS)
- Arsenic (As)
- Barium (Ba)
- Cadmium (Cd)
- Carbon Chloroform Extract (CCE)
- Chloride (Cl)
- Chromium (hexavalent) (Cr^{6+})
- Copper (Cu)
- Cyanide (CN)
- Iron (Fe)
- Lead (Pb)
- Manganese (Mn)
- Nitrate (NO_3)
- Phenols
- Selenium (Se)
- Silver (Ag)
- Sulfate (SO_4)
- Total dissolved solids

- Fluoride (F)
- Zinc (Zn)

2.3.2 Wastewater Samples

Samples collected from Monitoring Stations RUT-2 shall be analyzed for the following parameters:

- Biochemical Oxygen Demand — BOD_5
- pH
- Total Suspended Solids
- Nitrate-Nitrite
- Total Chromium
- Sodium
- Magnesium
- Total Lead
- Total Phenols
- Total Arsenic
- Total Cadmium
- Total Copper
- Total Iron
- Total Mercury
- Total Zinc
- Fecal Coliform
- Conductivity
- Oil and Grease (visual)
- Ammonia Nitrogen
- Sulphate
- Potassium
- Calcium
- Total Nickel
- Total Phosphorous

2.4 Compliance Point (Part E.3) for Wastewater Effluent

The water licence has set the final discharge from the WWTP (Monitoring Station RUT-2) as the compliance point as it is the last point of measurement and control. The effluent released from the WWTP must meet the criteria list in Tables 2.4(A) and Table 2.4 (B).

Table 2.4A: for flow greater than 600 Lcd

Parameter	Maximum Concentration of any grab sample
BOD_5	80 mg/L
Total Suspended Solids	70 mg/L
Oil and Grease	No visible sheen
pH	6 – 9
Fecal Coliform	To be established as part of the new water licence

Table 2.4B: for flow between 150 and 600 Lcd

Parameter	Maximum Concentration of any grab sample
BOD_5	120 mg/L
Total Suspended Solids	80 mg/L
Oil and Grease	No visible sheen
pH	6 – 9

Fecal Coliform	To be established as part of the new water licence

2.5 Sampling Procedures (Wastewater & Leachate)

All sampling, sample preservation and analyses are to be conducted in accordance with methods described in the current edition of Standard Methods for the Examination of Water and Wastewater (American Public Health Association, American Water Works Association, and Water Environment Federation, most current edition). Also, additional guidance can be obtained from the contract laboratory (accredited by the CALA).

To obtain meaningful results from the analyses, the following six factors are of particular importance:

- Sample collection as per schedule and location;
- Correct usage of container/sample bottle for parameter being tested;
- Correct labelling of sample bottles and filling out record/field sheet;
- Correct procedure for sampling;
- Proper and timely shipment of samples to the laboratory; and
- Timely delivery of samples to the laboratory from the air cargo facility.

2.6 Sampling Collection (Wastewater)

Refer to the future Wastewater Treatment Facility Process Operation Manual, for specific details related to Health and Safety considerations, facility components and processes, as well as monitoring and testing procedures.

2.6.1 Sampling Equipment

Dedicated latex or nitrile gloves (i.e., one pair per sample) are to be used during sample collection and sample handling. Monitoring program samples collected for analysis of selected chemical parameters are to be placed directly into new pre-cleaned, laboratory-supplied sample bottles. All monitoring samples are to be placed in clean coolers for transportation to the subcontract laboratory. The samples are transported/submitted under Chain of Custody documentation. Included on a Chain of Custody form is the client information, the sample information, the analyses requested, the relevant regulations, the turnaround time for the analytical results, comments, and temperature of the samples at the time they arrived in the laboratory.

2.6.2 Sampling Equipment

Samples for water, wastewater and leachate have their own set of containers. The following photographs indicate the containers in each kit.

Water – eight (8) bottles

Wastewater – seven (7) bottles

Leachate – twelve (12) bottles

2.6.3 Sampling Methods

All monitoring program samples will be collected by suitably trained municipal staff. The following techniques are to be used (when possible) whenever grab samples are collected:

- If the sample is being collected from a surface water body, a tank or sump, the sample is to be collected from a location where there is good mixing and the sample will be representative. The sample is not to be skimmed from the surface, taken very close to the bottom, or near any sidewalls;
- The sample is to be taken from a middle zone, if possible, where there is good mixing and the geometry of the surface water channel or tank/sump and any equipment within will not affect the quality of the sample;
- If the sample is taken from a sample tap from a tank or pipe, care is to be taken to flush the sample line. The operator is to open the sample valve to flush the contents of the sample line into a container. This material is disposed of or returned to the process if possible. Immediately after flushing the line, the operator then collects the appropriate volume of sample directly into new precleaned, laboratory-supplied sample bottles. The volume to be flushed prior to sampling will depend on the size of the line and distance between the sample valve and the main line/tank. Ideally, the entire volume of this sample line is to be flushed to ensure the collected sample is fresh and representative;
- If the treated water is collected from the end of water truck hose, allow flushing for a minimum 30 seconds before sampling. During sampling, reduce the flow through the nozzle;
- The monitoring program samples need to be shipped to the analytical laboratory for analysis immediately or as soon as practical after collecting the sample; and
- Samples should always be collected into new, pre-cleaned, laboratory-supplied sample bottles.

2.7 Sampling Handling

All monitoring program samples are to be collected into new, pre-cleaned laboratory-supplied containers with the proper preservative, where applicable. Refer to the Environmental Monitopring Program Checklist found in Appendix B for pre-sampling details and general sampling instructions.

All sample containers are to be tightly sealed and properly labelled with the sample ID, date and time of sample collection, location of sample collection and parameters to be analyzed. The outside of the bottles are to be cleaned with soap and water after sampling and dried off prior to placing the samples in the cooler. The samples are to be stored on ice in a cooler until delivery to the laboratory. A Chain of Custody form is to be filled out completely and is used to track the samples and placed in the cooler with the samples, in a Ziplock bag. Keep the last page of the Chain of Custody and give it to the Hamlet Foreman for their records. The following checks are generally performed by the laboratory upon receipt: Verification of the integrity and condition of all sample coolers. A sample chain of custody form is included in Appendix C.

- Verification of the integrity and condition of all sample containers.
- Checks for leakage, cracked or broken closures or containers, evidence of grossly contaminated container exteriors or shipping cooler interiors, and obvious odours, etc.
- Verification of receipt of complete documentation for each container.
- Verification that sample identification numbers on sample transmittal forms corresponds to sample identification numbers on the sample containers.
- Verifications that holding times were met and samples were kept cool during transit.

2.8 Quality Assurance and Quality Control Program

Cross contamination is a common source of error in sampling procedures. QC samples help identify when and how contamination might occur. There are various types of QC samples. It is recommended the following number of quality control samples based on the number of samples collected:

- One field blank per cooler.
- 10% blind duplicates.
- One trip blank per cooler.

If the total number of samples collected is less than five, include at a minimum, one blind duplicate.

It is essential to request extra bottle sets from the contract laboratory when placing the bottle order in order to allow the collection of field blanks, trip blanks and blind duplicate samples.

3 Laboratory Analysis

3.1 Laboratory Accreditation

As indicated in the Guidelines, the Licensee should use an analytical laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA); formally known as the Canadian Association for Environmental Analytical Laboratories (CAEAL) for the Water Licence monitoring program.

Note that the GN-DOH does bacteria testing in their own lab in Iqaluit following their own guidelines.

3.2 Method Detection Limits

The method detection limits (MDLs) are provided on the contract laboratory's Certificates of Analysis.

3.3 Methodology

As indicated above, the contract laboratory is accredited by CALA for specific tests and complies with the requirements of ISO/IEC Standard 17025.

4 Reporting Requirements

As a condition of NWB Licence 3BM-RUT1520, the Licensee is required to submit an Annual Report to the NWB, no later than March 31st of the year following the calendar year reported. Among other requirements, the annual report is required to include tabular summaries of all analytical data generated under the Monitoring Program (compared to the Maximum Concentration of any Grab Sample — provided in Part H of the NWB Licence 3BM-RUT1520 — where applicable).

5 References

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, Department of Indian and Northern Affairs Canada, Water Resources Division and the Northwest Territories Water Board, July 1996.

Standard Methods for the Examination of Water and Wastewater, American Public Health Association, American Water Works Association, and Water Environment Federation, Latest Edition.

APPENDIX A

LABORATORY ACCREDITATION DOCUMENTS

CALA
Canadian Association for Laboratory Accreditation Inc.

CALA Directory of Laboratories

Membership Number: 2644
Laboratory Name: Caduceon Environmental Laboratories (Ottawa)
Parent Institution: Caduceon Enterprises Inc.
Address: 2378 Holly Lane Ottawa ON K1V 7P1
Contact: Mr. Greg Clarkin
Phone: (613) 526-0123
Fax: (613) 526-1244
Email: gclarkin@caduceonlabs.com; sburrows@caduceonlabs.com

Standard: Conforms with requirements of ISO/IEC 17025
Clients Served:
Revised On: September 12, 2019
Valid To: August 1, 2021

Scope of Accreditation

Air (Inorganic)
Metals - Air [Filter] (012)
D-ICP-02; modified from NIOSH 7303 and SM 3120 B
ICP - DIGESTION
Cadmium
Copper
Lead
Zinc

Air (Inorganic)
Total Suspended Particulates - Air [Filter, Particulate] (018)
A-TSP-01; modified from ON MOECC E3288A
GRAVIMETRIC
Total Suspended Particulates

Dustfall
Dustfall - Dustfall (020)
A-DF-01; modified from ON MOECC E3043A
FILTRATION - GRAVIMETRIC
Insoluble Dustfall
Total Dustfall

† "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

Fluoride Candles
Fluoride - Fluoride Candles (019)
A-FISE-01; modified from ON MOECC FSIE-1983D
DIGESTION - ISE
Fluoride

Solids (Inorganic)
Anions - Solids [Biosolid, Soil] (069)
A-IC-01; modified from SM 4110 C
ION CHROMATOGRAPHY - EXTRACTION
Chloride
Nitrate
Nitrite
Sulphate (Sulfate)

Solids (Inorganic)
Boron (Hot Water Soluble) - Solids [Soil] (098)
D-ICP-02; ON MOECC E3470
ICP/AES - EXTRACTION
Boron

Solids (Inorganic)
Conductivity - Solids [Sediment, Soil] (099)
A-COND-03; modified from ON MOECC E3530 and SM 2510 B
CONDUCTIVITY METER - EXTRACTION
Conductivity

Solids (Inorganic)
Extractable Anions - Solids (090)
A-IC-01; modified from EPA 1311 (PREPARATION) and SM 4110 C (ANALYSIS)
ION CHROMATOGRAPHY - TCLP
Nitrate
Nitrite

Solids (Inorganic)
Extractable Metals - Solids (091)
D-ICP-01; modified from EPA 1311 (PREPARATION) and SM 3120 B (ANALYSIS)
ICP/AES - TCLP
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Lead
Nickel
Silver
Zinc

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Solids (Inorganic)
Extractable Metals - Solids (092)
D-ICPMS-01; modified from EPA 1311 (PREPARATION) and EPA 200.8 (ANALYSIS)
ICP/MS - TCLP
Antimony
Arsenic
Selenium
Uranium

Solids (Inorganic)
Extractable Metals - Solids (093)
D-HG-02; modified from EPA 1311 (PREPARATION) and SM 3112 B (ANALYSIS)
COLD VAPOUR AA - TCLP
Mercury

Solids (Inorganic)
Flashpoint - Solids [Ash, Soil] (096)
C-FPCC-01; modified from ASTM D93
CLOSED CUP FLASH POINT TESTER
Flashpoint

Solids (Inorganic)
Hexavalent Chromium - Solids [Soil] (094)
D-CRVI-02; modified from EPA 3060A and EPA 7196A
COLORIMETRIC - MANUAL
Hexavalent Chromium

Solids (Inorganic)
Mercury - Solids [Biosolid, Soil] (017)
D-HG-01; modified from EPA 7471A
COLD VAPOUR AA - DIGESTION
Mercury

Solids (Inorganic)
Metals - Solids [Biosolid, Soil] (015)
D-ICP-02; modified from EPA 6010
ICP/OES - DIGESTION
Aluminum
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese

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Molybdenum
Nickel
Potassium
Silver
Sodium
Strontium
Tin
Titanium
Tungsten
Vanadium
Zinc

Solids (Inorganic)
pH - Solids [Sediment, Sludge, Soil] (100)
A-PH-03; modified from ON MOECC E3530 and SM 4500-H+
pH METER - EXTRACTION
pH

Solids (Inorganic)
Total Metals - Solids [Biosolid, Soil] (070)
D-ICPMS-01; modified from EPA 6020
ICP/MS - DIGESTION
Antimony
Arsenic
Selenium
Silver
Thallium
Uranium

Water (Inorganic) OSDWA †
Alkalinity - Water (088)
A-ALK-03; modified from SM 2320 B
AUTO TITRIMETRIC
Alkalinity (pH 4.5)

Water (Inorganic) OSDWA †
Anions - Water [Liquid Biosolid, Wastewater] (002)
A-IC-01; modified from SM 4110 C
ION CHROMATOGRAPHY
Bromide
Chloride
Fluoride
Nitrate
Nitrite
Sulfate

Water (Inorganic) OSDWA †
Carbon - Water (054)
C-OC-01; modified from EPA 415.2 and SM 5310 C
IR-UV-PERSULFATE
Organic Carbon

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Water (Inorganic) OSDWA †
Chemical Oxygen Demand (COD) - Water (083)
C-COD-01; modified from SM 5220 D
COLORIMETRIC
COD

Water (Inorganic) OSDWA †
Colour - Water (027)
A-COL-01; modified from SM 2120 C
SPECTROPHOTOMETRIC
True Colour

Water (Inorganic) OSDWA †
Conductivity - Water (003)
A-COND-01; modified from SM 2510 B
CONDUCTIVITY METER
Conductivity (25˚C)

Water (Inorganic) OSDWA †
Conductivity - Water (087)
A-COND-02; modified from SM 2510 B
AUTO CONDUCTIVITY METER
Conductivity (25˚C)

Water (Inorganic) OSDWA †
Dissolved and Extractable Metals - Water (004)
D-ICP-01; modified from SM 3120 B
ICP
Aluminum
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum
Nickel
Potassium
Silicon
Silver
Sodium
Strontium
Tin

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Titanium
Tungsten
Vanadium
Yttrium
Zinc
Zirconium

Water (Inorganic) OSDWA †
Dissolved Metals - Water (049)
D-ICPMS-01; modified from EPA 200.8
ICP/MS
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Molybdenum
Selenium
Silver
Thallium
Uranium
Vanadium

Water (Inorganic)
Hexavalent Chromium - Water (095)
D-CRVI-01; modified from ON MOECC E3056
COLORIMETRIC - MANUAL
Hexavalent Chromium

Water (Inorganic) OSDWA †
Mercury - Water [Wastewater] (025)
D-HG-02; modified from SM 3112 B
COLD VAPOUR AA - DIGESTION
Mercury

Water (Inorganic) OSDWA †
pH - Water (086)
A-pH-02; modified from SM 4500-H+ B
AUTO - pH METER
pH

Water (Inorganic) OSDWA †
pH - Water [Liquid Biosolid, Wastewater] (005)
A-pH-01; modified from SM 4500-H+
pH METER
pH

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Water (Inorganic)
Total Metals - Water [Liquid Biosolid, Wastewater] (067)
D-ICP-01; modified from SM 3120 B
ICP/AES - DIGESTION

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Bismuth
- Boron
- Cadmium
- Calcium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Lithium
- Magnesium
- Manganese
- Molybdenum
- Nickel
- Potassium
- Silver
- Sodium
- Strontium
- Tin
- Titanium
- Tungsten
- Vanadium
- Yttrium
- Zinc
- Zirconium

Water (Inorganic)
Total Metals - Water [Liquid Biosolid, Wastewater] (071)
D-ICPMS-01; modified from EPA 6020
ICP/MS - DIGESTION

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt

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Copper
Lead
Molybdenum
Selenium
Silver
Vanadium

Water (Inorganic)
Turbidity - Water (026)
A-TURB-01; modified from SM 2130 B
NEPHELOMETRY
Turbidity
OSDWA †

Water (Microbiology)
Coliforms - Water (050)
B-ECTC-01; modified from ON MOECC E3407
MEMBRANE FILTRATION (DC)
Background Bacteria
Escherichia coli
Total Coliforms
OSDWA †

Water (Microbiology)
Escherichia coli (E. coli) - Water (010)
B-MFEC-01; modified from ON MOECC E3371
MEMBRANE FILTRATION (EC)
Escherichia coli
OSDWA †

Water (Microbiology)
Fecal (Thermotolerant) Coliforms - Water (065)
B-MFFC-01; modified from ON MOECC E3371
MEMBRANE FILTRATION (mFC)
Fecal (Thermotolerant) Coliforms
OSDWA †

Water (Microbiology)
Heterotrophic Plate Count (HPC) - Water (021)
B-HPC-01; modified from SM 9215 C
SPREAD PLATE
Heterotrophic Plate Count (HPC)
OSDWA †

Water (Microbiology)
Total Coliforms - Water (066)
B-MFTC-01; modified from ON MOECC E3371
MEMBRANE FILTRATION (mENDO)
Background Counts
Total Coliforms
OSDWA †

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APPENDIX B

ENVIRONMENTAL MONITORING PROGRAM CHECKLIST

Environmental Monitoring Program Checklist
Hamlet of Resolute Bay

Pre-Sampling Activities		
Bottle Order	At least two weeks before upcoming environmental sampling, send a request to the contact laboratory for the appropriate sample sets for the required sampling test groups.	◯
Personnel Protective Equipment	Ensure that the required personal protective equipment (PPE), such a latex gloves are on hands before commencing the environmental monitoring program.	◯
Bottle Shipment	Ensure that the bottle shipment has arrived from the contract laboratory in time for the sampling program and verify the integrity of all sampling containers.	◯
Sampling Location Inspection	Perform an initial inspection of all routinely monitored sampling locations before the commencement of the monitoring program. Make note of any equipment damage or conditions that may prevent the collection of the environmental monitoring program samples.	◯
General Sampling Instructions		
Prevention Case Contamination	Ensure that any laboratory provided sampling instructions as strictly followed. Latex or nitrite gloves should be worn during sampling and should be replaced with fresh gloves after all sample containers are filled at each sampling location. Dedicated sampling equipment such as sampling poles should be cleaned with soap and water after each sample is collected to prevent cross-contamination. As a general recommendation, please refrain from using insect repellant, disinfection hand get gel or other chemical products before and during sample collection. Also, please refrain from smoking during sample collection.	◯
Sample care (including packing of cooler)	All sample containers should be tightly sealed and properly labeled with the sample ID, date and time of sample collection. Location of sample collection and parameters to be analyzed. The outside of the bottles should be cleaned with soap and water and dried prior to placing the samples in the cooler. The samples should be stored on ice in a cooler until delivery to the laboratory. A chain of custody form should be filled out completely and be used to track the samples and placed in the cooler with samples, in a Ziploc bag. Keep the last page of the chain of custody and give it to the Hamlet Foreman for their records.	◯

APPENDIX C

CHAIN OF CUSTODY DOCUMENT

GENERAL SAMPLE SUBMISSION FORM

CADUCEON™
ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Proudly Canadian.

SAMPLES SUBMITTED TO:

- ☐ Kingston
- ☐ Ottawa
- ☐ Richmond Hill
- ☐ Barrie
- ☐ London
- ☐ Windsor

TESTING REQUIREMENTS

- ☐ O'Reg 153/04
- ☐ O'Reg 406/19
- ☐ RPI
- ☐ Coarse
- ☐ MISA
- ☐ Other: _____
- ☐ Table (1 - 9)
- ☐ Table (1 - 9.1)
- ☐ ICC
- ☐ Medium/Fine
- ☐ PWQO
- ☐ Record of Site
- ☐ SPLP Table (1 - 9.1)
- ☐ Agricultural
- ☐ O'Reg 558 TCLP
- ☐ Landfill Monitoring

REPORT NUMBER (Lab Use)

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? ☐ Yes ☐ No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization:	Address:	Invoicing Address (if different):
Contact:		
Tel: / Fax:		
Email:	Quote #:	Project Name/#:
Additional Info (email, cell, etc):	P.O. #:	Additional Info:

ANALYSES REQUESTED

Suspected Highly Contaminated

TURNAROUND SERVICE REQUESTED (see back page)

*Must be arranged in advance

- ☐ Platinum* 200% Surcharge
- ☐ Gold* 100% Surcharge
- ☐ Silver 50% Surcharge
- ☐ Bronze 25% Surcharge
- ☐ Standard 5-7 days
- ☐ Specific Date: _____

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

Lab No.	Sample Source and/or Sample Identification	S.P.L.	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided	X	Field pH	Field Temp.	# Bottles/ Sample	Field Filtered Y/N

SAMPLE SUBMISSION INFORMATION

	Sampled by:	Submitted by:
Print:		
Sign:		
	Date (yy-mm-dd)/Time:	Date (yy-mm-dd)/Time:

SHIPPING INFORMATION

- ☐ Courier (Client account)
- ☐ Courier (Caduceon account)
- ☐ Drop Off
- ☐ Caduceon (Pick-up)

Invoice

# of Pieces

REPORTING / INVOICING

- ☐ Report by Fax
- ☐ Report by Email
- ☐ Invoice by Email
- ☐ Invoice by Mail

SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)

Received By (print): | Signature:

Date Received (yy-mm-dd): | Time Received:

Laboratory Prepared Bottles: ☐ Yes ☐ No

Sample Temperature °C: | Labeled by:

Comments:

Page _____ of _____

G

GENERAL TERMS, CONDITIONS AND SAMPLING INFORMATION GUIDE

Sample Acceptance

Caduceon Enterprises is a commercial testing laboratory specializing in environmental analyses of samples including, but not limited to the following:
Drinking Water, Groundwater, Surface Water, Wastewater and/or Industrial Process Water/Effluents, Liquid and Solid Sludge, Soil and Sediment, Oil (limited types).

Caduceon does not accept samples including but not limited to the following matrices unless otherwise prearranged with an authorized Caduceon representative:
Human or Animal Tissue, Unprocessed Human or Animal Waste, Food or Beverage (other than Drinking Water), Unknown solids and liquids, Vegetation, Hazardous Waste, Highly contaminated samples (which cause process and instrument complications).

Samples submitted to Caduceon without proper designation are subject to supplementary charges, but not limited to the following:
Sample Disposal Fees, Process and Handling Fees, Instrument Maintenance and Refurbishment Fees (parts and labour).

Chain of Custody Forms must be completed with all required information. Analyses of samples will not commence until all required information is received. Receipt of samples will only occur at this time.

Samples must be submitted in Caduceon sampling containers and/or acceptable alternatives with appropriate preservatives (if required).
Samples must be received at the laboratory within required sample holding times. If samples require RUSH analyses based on sample holding times, surcharges may apply. See Turnaround Time Terms and Conditions.

Turnaround Time

Platinum Service – 200% Surcharge (minimum)** Fastest possible Turnaround Time available and/or achievable, same day service or does not meet one of the other listed categories. Subject to additional fees for weekend and/or after hours service. Arrangments must be made in advance with your local laboratory prior to submission of samples.

Gold Service – 100% Surcharge Samples received prior to 2 p.m. will be reported by 5 p.m. on the next business day from the day of receipt. Samples received after 2 p.m. will be reported by 12 p.m. on the second business day from the day of receipt. Arrangments must be made in advance with your local laboratory prior to submission of samples.

Silver Service - 50% Surcharge Samples received prior to 2 p.m. will be reported by 5 p.m. on the second business day from the day of receipt. Samples received after 2 p.m. will be reported by 12 p.m. on the third business day from the day of receipt.

Bronze Service - 25% Surcharge Samples received prior to 2 p.m. will be reported by 5 p.m. on the third business day from the day of receipt. Samples received after 2 p.m. will be reported by 12 p.m. on the fourth business day from the day of receipt.

Standard Service – No Surcharge 5- 7 business days from the time of receipt. Note: Samples received after 2 p.m. are considered received the next business day.

Note: If the specific level of Turnaround Time requested is not met the next level of service achieved will be surcharged accordingly. This is at the sole discretion of the laboratory.

Payment

By submission of samples and signing of the chain of custody you agree to Caduceon's Payment Terns and Conditions. (See Caduceon website for details www.caduceonlabs.com)

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www.caduceonlabs.com

Laboratory & Depot Locations/Shipping Addresses

Kingston Lab - 285 Dalton Ave., Kingston, ON K7K 6Z1, Tel: (613) 544-2001 Fax: (613) 544-2770 Email: supplieskingston@caduceonlabs.com
Ottawa Lab - 2378 Holly Lane, Ottawa, ON K1V 7P1, Tel: (613) 526-0123 Fax: (613) 526-1244 Email: suppliesottawa@caduceonlabs.com
Richmond Hill Lab - #14-110 West Beaver Creek Rd., ON L4B 1J9, Tel: (289) 475-5442 Fax: (866) 562-1963 Email: suppliesgta@caduceonlabs.com
Windsor Lab - #5-3201 Marentette Ave., Windsor, ON N8X 4G3, Tel: (519) 966-9541 Fax: (519) 966-9567 Email: supplieswindsor@caduceonlabs.com
Barrie Lab - 112 Commerce Park Drive, Unit L, Barrie, ON L4N 8W8, Tel: (705) 252-5743 Fax: (705) 252-5746 Email: suppliesgta@caduceonlabs.com
London Depot - #1-600 Newbold St., London, ON N6E 2T7, Tel: (519) 601-1833 Fax: (519) 601-1833 Email: supplieslondon@caduceonlabs.com