Briefing Note:	Confirmation of a harmful algal bloom in the drinking water reservoir at Sambaa K'e
Prepared by:	Jennifer Korosi[1], Rebecca Gasman[1], Michael McPhee[2], and Ruby Jumbo[2] [1]York University (Toronto, Ontario); [2]Sambaa K'e First Nation
Prepared for:	Local Government Administrators of the NWT Annual Conference & AGM
Date:	November 4-6th, 2024

An algal bloom (visible surface scum) was observed in the drinking water reservoir at Sambaa K'e in July 2024.

- Bloom was accompanied by complaints of noxious taste and odour compounds in tap water and reports of diarrhea and upset stomachs. It also occurred in association with a series of failures within the water treatment system that resulted in a boil water advisory.
- Examination under a field microscope revealed that the algal bloom was made up of cyanobacteria (a.k.a. blue-green algae) taxa that have the capacity to produce cyanotoxins that can be harmful to human and animal health.
- Commercial lab analysis of untreated reservoir water samples collected on July 15, 19, 24, and 25 confirmed the presence of cyanotoxins at levels higher than federal guidelines for maximum acceptable concentrations in drinking water. Treated water was not tested and so we cannot confirm if gastrointestinal illness reports are linked to cyanotoxins.

Background on harmful algal blooms:

- An algal bloom is an excessive overgrowth of algae or cyanobacteria in water bodies that is often visible as surface scums, oily sheens, pea soup, spilled paint, floating clumps, or discoloured (green, blue, turquoise) streaks.
- When a bloom produces toxins, it is called a harmful algal bloom (HAB).
- Cyanotoxins come in three major forms: hepatotoxins (liver), neurotoxins (brain), and dermatoxins (skin). At low concentrations, they cause several symptoms including skin irritations, headaches, fever, diarrhea, and vomiting/nausea.
- Cyanotoxin production is not well understood. Cyanobacteria blooms do not always produce toxins, and cyanotoxins can also accumulate when no bloom is visible.

The water treatment plant at Sambaa K'e cannot remove cyanobacteria toxins effectively.

- Drinking water treatment needs to be able to remove both cyanobacteria cells and extracellular cyanotoxins that are released to the water when the cells rupture.
- Sambaa K'e has a Corix Water Treatment Plant (2012) that uses a combination of coagulation, membrane filtration, and chlorination. It is not designed to remove extracellular cyanotoxins.
- Cyanobacteria blooms in drinking water systems also block intake valves and filters, which could compromise the effectiveness of water treatment methods for other compounds of concern.
- Boil-water advisories also do not work to remove cyanotoxins. Boiling water may actually increase risk if it causes the cells to rupture and release intracellular toxins.

The drinking water reservoir in Sambaa K'e is favourable for bloom development.

- The reservoir is a standing water body with a black liner. It receives direct sunlight and is filled once or twice per year. This leads to stagnant warm waters and concentrates nutrients by evaporation, which promotes bloom development. *This problem will get worse with climate change as summers get longer and hotter.*
- The reservoir is open to the air and unprotected from windblown sediment. Waterfowl and other wildlife are often observed in the reservoir, and fecal coliform exceedances have been documented in the past.
- Excessive algal growth in the reservoir can also attract wildlife. A snail outbreak accompanied the July algal bloom.

Targeted strategies are needed to protect NWT residents from exposure to cyanotoxins.

- Sambaa K'e requires upgrades to its drinking water infrastructure to be resilient against future climate change. Physical control measures that have the potential to reduce the frequency of HABs in the reservoir include aeration, mechanical mixing, and shading.
- The feasibility of advanced treatment methods (e.g. activated carbon, ozone treatment) to remove cyanotoxins in the drinking water treatment process should be explored.
- Local communities and water treatment plant operators need training and support to be able to identify, monitor for, and respond to harmful algal blooms. Development of government reporting tools and response protocols would help treatment plant operators, and the general public, know to report bloom sightings in drinking source waters so that appropriate and timely advisories can be issued when needed.
- Sambaa K'e has confirmed a HAB in their drinking water reservoir, and HABs are likely to occur again in future. Sampling protocols are needed to allow for detection of cyanotoxins in both raw and treated water.

Supporting Documents:

- Photographs of the algal bloom in the reservoir, and microscope images of the cyanobacteria cells that are capable of producing toxins.
- Commercial laboratory report of microcystin-LR concentrations in the reservoir water samples (July 15, 19, 24, 25). Microcystin-LR is the most commonly measured toxin, although there are others. The maximum acceptable concentration (MAC) established and recommended by the federal government for total microcystins in drinking water is 1.5 µg/L for adults and 0.4 µg/L for infants.

Confirmation of a Harmful Algal Bloom in the Drinking Water Reservoir at Sambaa K'e:
Supporting Images

Photo of a surface bloom in the Sambaa K'e drinking water reservoir as visible on July 19, 2024. Draining of the reservoir began a few days earlier, on July 16. Photo taken by Rebecca Gasman, York University.

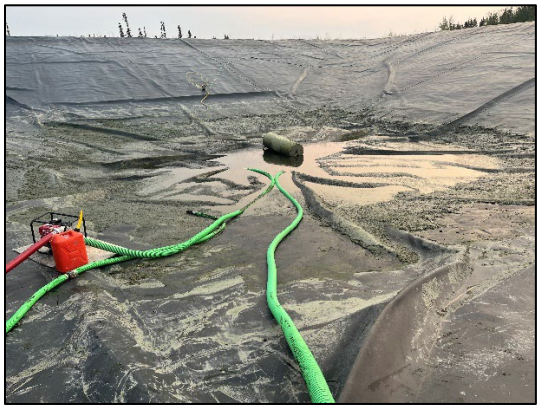
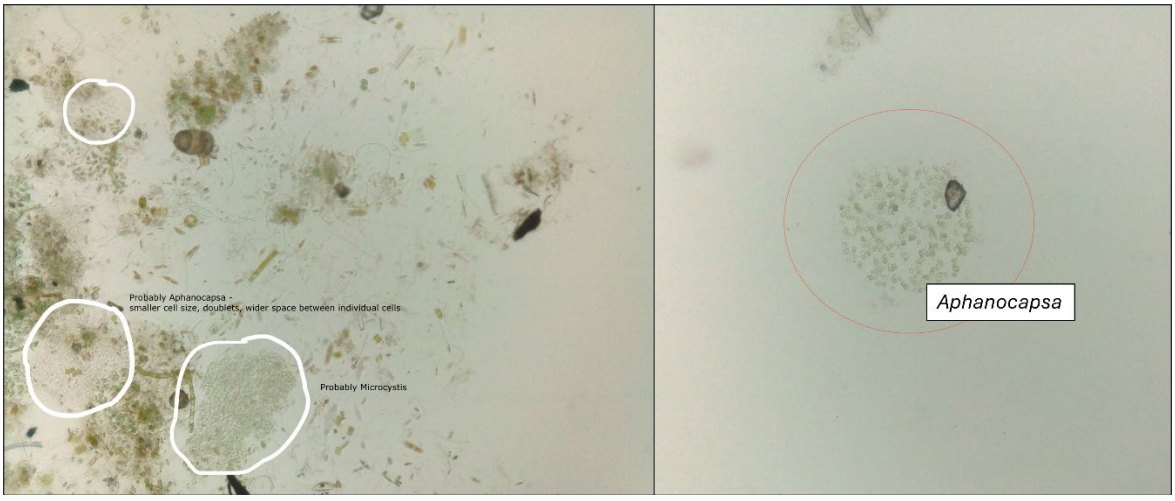


Photo of the drinking water reservoir after it was drained, before the cyanobacteria residue was cleaned. Draining and cleaning of the reservoir took 3 weeks, during which time residents in Sambaa K'e did not have access to treated water. All water tanks in the community were also emptied and cleaned. Photo taken by Rebecca Gasman, York University.



Photographs of the drinking water reservoir bloom sampled on July 16, as viewed under an ioLight portable microscope. Cells belonging to several different species of cyanobacteria were observed, including *Microcystis, Aphanocapsa,* and others capable of producing cyanotoxins. Other (non-toxic) algal groups (e.g. green algae, diatoms) were also observed in the samples, along with pollen. Quantification of cyanobacteria cell numbers is ongoing at York University.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2401295**	Page	: 1 of 2
Client	: **Cash Clients Canada**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jennifer Korosi	Account Manager	: Oliver Gregg
Address	: 116-314 Old Airport Rd. Yellowknife NT Canada X1A 3T3	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 26-Aug-2024 14:19
PO	: ----	Date Analysis Commenced	: 04-Sep-2024
C-O-C number	: ----	Issue Date	: 09-Sep-2024 14:02
Sampler	: ----		
Site	: ----		
Quote number	: YL24-CASH100-009		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
William Lake	Analyst	Microbiology, Winnipeg, Manitoba

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Surface Water**
(Matrix: **Water**)

					Client sample ID	**SK-DWTP**	**SK-DWTP**	**SK-DWTP**	**SK-DWTP**	**----**
					Client sampling date / time	15-Jul-2024 00:00	19-Jul-2024 00:00	24-Jul-2024 00:00	25-Jul-2024 00:00	----
Analyte	*CAS Number*	*Method/Lab*	*LOR*	*Unit*		**YL2401295-001**	**YL2401295-002**	**YL2401295-003**	**YL2401295-004**	**--------**
						Result	Result	Result	Result	----
Organic Parameters										
Microcystin	101043-37-2	E576/WP	0.20	µg/L		1.72	1.18	1.16	1.14	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2401295**	Page	: 1 of 5
Client	: **Cash Clients Canada**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jennifer Korosi	Account Manager	: Oliver Gregg
Address	: 116-314 Old Airport Rd. Yellowknife NT Canada X1A 3T3	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 26-Aug-2024 14:19
PO	: ----	Issue Date	: 09-Sep-2024 14:02
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-CASH100-009		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Microcystin by ELISA (Extraction by Sonication)										
Compliant container SK-DWTP	E576	25-Jul-2024	----	----	----		04-Sep-2024	14 days	41 days	× EHTR
Aggregate Organics : Microcystin by ELISA (Extraction by Sonication)										
Compliant container SK-DWTP	E576	24-Jul-2024	----	----	----		04-Sep-2024	14 days	42 days	× EHTR
Aggregate Organics : Microcystin by ELISA (Extraction by Sonication)										
Compliant container SK-DWTP	E576	19-Jul-2024	----	----	----		04-Sep-2024	14 days	47 days	× EHTR
Aggregate Organics : Microcystin by ELISA (Extraction by Sonication)										
Compliant container SK-DWTP	E576	15-Jul-2024	----	----	----		04-Sep-2024	14 days	51 days	× EHTR

Legend & Qualifier Definitions

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Microcystin by ELISA (Extraction by Sonication)	E576	1631615	1	15	6.6	5.0	✓
Laboratory Control Samples (LCS)							
Microcystin by ELISA (Extraction by Sonication)	E576	1631615	1	15	6.6	5.0	✓
Method Blanks (MB)							
Microcystin by ELISA (Extraction by Sonication)	E576	1631615	1	15	6.6	5.0	✓
Matrix Spikes (MS)							
Microcystin by ELISA (Extraction by Sonication)	E576	1631615	1	15	6.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by “mod”).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Microcystin by ELISA (Extraction by Sonication)	E576 ALS Environmental - Winnipeg	Water	ENVIROLOGIX QUANTIPLATE KIT CAT. EP022	Total Microcystins (intraceller and extraceller) in aqueous matrices is determined by the Enzyme-Linked ImmunoSorbent Assay (ELISA) method. Extraction is by sonication

QUALITY CONTROL REPORT

Work Order	: **YL2401295**	Page	: 1 of 3
Client	: Cash Clients Canada	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jennifer Korosi	Account Manager	: Oliver Gregg
Address	: 116-314 Old Airport Rd. Yellowknife NT Canada X1A 3T3	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
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Site	: ----		
Quote number	: YL24-CASH100-009		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
William Lake	Analyst	Winnipeg Microbiology, Winnipeg, Manitoba

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Aggregate Organics (QC Lot: 1631615)											
WP2420400-001	Anonymous	Microcystin	101043-37-2	E576	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Aggregate Organics (QCLot: 1631615)						
Microcystin	101043-37-2	E576	0.2	µg/L	<0.20	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Aggregate Organics (QCLot: 1631615)									
Microcystin	101043-37-2	E576	0.2	µg/L	0.5 µg/L	102	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Aggregate Organics (QCLot: 1631615)										
WP2420400-001	Anonymous	Microcystin	101043-37-2	E576	1.31 µg/L	1 µg/L	131	50.0	150	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Page of

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	York University
Contact:	Jennifer Korosi, Faculty of Environmental and Urban Change
Phone:	613-888-0804
	Company address below will appear on the final report
Street:	4700 Keele Street
City/Province:	Toronto, Ontario
Postal Code:	M3J 1P3
Invoice To	Same as Report To [x] YES [ ] NO
	Copy of Invoice with Report [x] YES [ ] NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: [ ] PDF [x] EXCEL [ ] EDD (DIGITAL)

Merge QC/QCI Reports with COA [ ] YES [x] NO [ ] N/A

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

Select Distribution: [x] EMAIL MAIL [ ] FAX

Email 1 or Fax: jkorosi@yorku.ca

Email 2: lands@sambaakefn.com

Email 3: manager@sambaakefn.com

Invoice Recipients

Select Invoice Distribution: [x] EMAIL MAIL [ ] FAX

Email 1 or Fax: vendorinvoices@yorku.ca

Email 2: jkorosi@yorku.ca

Turnaround Time (TAT) Requested

[x] 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 for non-routine tests.

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

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information	
ALS Account # / Quote #:	
Job #:	
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Microcystin-LR	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRE	SUSPECTED HAZARD (see notes)
	SK-DWTP	15-Jul-24		surface water	2	R			
	SK-DWTP	19-Jul-24		surface water	2	R			
	SK-DWTP	24-Jul-24		surface water	2	R			
	SK-DWTP	25-Jul-24		surface water	2	R			

Environmental Division
Yellowknife
Work Order Reference
YL2401295

Telephone : +1 867 873 5593

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

Are samples taken from a Regulated DW System? [x] 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 (ALS 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			
-2.1							

SHIPMENT RELEASE (client use)		
Jennifer Korosi	August 26 2024	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)		
Received by: SA	Date: AUG 26/24	Time: 14:19

FINAL SHIPMENT RECEPTION (ALS use only)		
Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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.**