ANNUAL REPORT
FOR GN-CGS RANKIN INLET WATER AND WASTEWATER

YEAR BEING REPORTED: 2023

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water Licence No. **3AM-GRA1624** issued to the **Government of Nunavut, Department of Community and Government Services (GN-CGS)**.

Below are tabular summaries of all data generated under the "Monitoring Program".

I. Monthly and annual quantities of freshwater obtained by daily logs for all freshwater sources and estimated sewage waste discharged.

Table 1: Summary of water obtained from Nippisar Lake and estimated sewage water discharge in m^3.

Month Reported	Quantity of Water Obtained from all sources (m^3)	Quantity of Sewage Waste Discharged (m^3)
January	71,099.00	Same
February	59,852.00	Same
March	69,229.00	Same
April	65,847.00	Same
May	72,570.00	Same
June	58,993.00	Same
July	61,415.00	Same
August	60,459.00	Same
September	51,017.00	Same
October	51,075.00	Same
November	51,243.00	Same
December	52,118.00	Same
ANNUAL TOTAL	724,917.00	Same

Table 2: Summary of water obtained from Lower Landing Lake water pumped to Nippisar Lake Cells in m^3.

Month Reported	Estimated Water Transferred from Lower Landing Lake pumped to Nippisar Lake (m^3)
June	16,319
July	53,401
TOTAL	**72,420**

Pumping from Lower Landing Lake began on June 27, 2023 and ended on July 17, 2023. An estimated total of m^3 was pumped to Nipissar Lake in 2023.

II. Below are the elevation measurements for Nipissar Lake and Lower Landing Lake taken from the datum to the shoreline.

Table 3: Elevation measurements for Nipissar Lake and Lower Landing Lake in meters

Date	Nipissar Lake Elevation (m)	Lower Landing Lake Elevation (m)
July	2.66	1.29
August 03	2.65	1.40

Note: Water Elevation is a measurement taken from the datum to the shoreline. Therefore, a decrease in elevation measurement represents an increase in lake water level.

III. As per Part H, Item 5 of the Water License No: 3AM-GRA1624, below is a summary of solids removed from Sewage Treatment Facility (GRA-4).

The WWTP consists of a splitter tank which diverts flow of wastewater collected to either one of two screening channels where the screening system is used to remove large solids. Solids collected from the screening system are transported to the Rankin Inlet Landfill and effluent is discharged through a diffuser into Prairie Bay.

Table 4: Approximate cubic meters of solids removed each month.

Month Reported	Solids Removed from the Sewage Treatment Facility (m^3)
January	0.246
February	0.246
March	0.246
April	0.246
May	0.246
June	0.246
July	0.246
August	0.246
September	0.246
October	0.246
November	0.246
December	0.246
ANNUAL TOTAL	**2.952**

IV. A summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities:

- No Upgrades or repairs carried out at the Wastewater Treatment Plant.
- Repair and maintenance activities at the Water Treatment Plant carried out in 2023:
  - Wet wells were removed.
  - Treated Water Pumps were upgraded.
  - Pipe network connecting the new pumps was upgraded.
  - Pump Control Systems were upgraded.

V. A list of unauthorized discharges and summary of follow-up action taken:

After the spill was reported, the investigation and follow-up was taken up and addressed by Sakku Enterprises, Rankin Inlet.

Table 5: List of spills reported to the NT-NU Spill Report Line and are listed on the Hazardous Materials Spills Database of Rankin Inlet in 2023 under Licence 3AM-GRA1631

Spill	Occurrence Date	Location Description	Product Spilled	Quantity
2023064	23-Feb-2023	Williamson Lake Pumphouse	Petroleum – Fuel oil (Jet A, diesel, turbo A, heat)	3000.00L
2023179	02-May-2023	1 Atausiq St – Johnson Cove Lift Station	Petroleum – Fuel oil (jet A, diesel, turbo A, heat)	250.00L

VI. A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year:

- None

VII. A summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned:

- Design of new water treatment plant is currently ongoing and is expected to be completed in early 2025

VIII. Any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and

- None

IX. updates or revisions to the approved Operation and Maintenance Plans:

- None

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

Water Licensing Sampling Points:

GRA-1: Raw water supply Nipissar Lake
GRA-3: Wastewater treatment Plant
GRA-7: Lower Landing Lake

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- CIRNAC did not provide a report following the 2023 inspection.

- CIRNAC report of September 2024 is attached.

Appendix A:	>	Landing Lake Volumes pumped into Nippisar Lake (daily logs)
	>	Daily Log forms for pumping at Nippisar Lake and at Waste Water Treatment Plant
Appendix B:	>	Spill Reports
Appendix C:	>	GRA-3 Effluent Quality Limits Summary
Appendix D:	>	Certificate of Analysis WP2317759 July 23, 2023 (GRA-3)
	>	Certificate of Analysis WP2316808 July 24, 2023 (GRA-1, GRA-7)

Appendix A

Lower Landing Lake Water Pumped to Nipissar Lake

Water Licence No. 3AM-GRA1631

GRA-7

Date	Time	Flow Meter Reading (m^3)	Name
27/6/23	2:15	398911	BR
28/6/23	3:30	404488	BR
29/06/23	4:16pm	410535	SR
30/06/23	3:31pm	416230	JB
04/07/23	4:09pm	417,735	SR
05/07/23	3:18pm	423,599	SR
06/07/23	4:05	429619	BR
07/07/23	11:45AM	434566	SR
11/7/23	3:30	436381	BR
12/7/23	4:30	442265	BR
13/7/23	4:00	447685	BR
14/7/23	2:00	453784	BR
15/7/23	1:38	458892	BR
16/7/23	1:30	464831	BR
17/7/23	4:00	471136	BR

DAILY LOG SHEET: WILLIAMSON LAKE PUMP HOUSE

WEEK STARTING - DAY: MONTH: YEAR:

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Time								
	STORAGE TANK							
	STORAGE TANK LEVEL READ (meters)							
	STORAGE TANK PIPE TEMP							
	BREAK TANK							
	WATER PRESSURE							
	IN SERVICE PUMP PRESSURE							
	TOWN SUPPLY PRESSURE							
	OLD TOWN Supply PRESSURE							
	OLD TOWN RETURN PRESSURE							
	AREA 5 SUPPLY PSI							
	WATER TEMPERATURE							
	TOWN SUPPLY (HONEYWELL)							
	OLD TOWN RETURN CONTROL TEMP (cpu)							
	NUVUK RETURN TEMP (cpu)							
	NEW TOWN RETURN TEMP (cpu)							
	KIVALLIQ RETURN TEMP (cpu)							
	AREA 5 (cpu)							
	NIPISSAR INJECTION TEMP CONTROL (honeywell)							
	OUTSIDE TEMP READ (cpu)							
	HEATING/MECHANICAL							
	BOILER #2	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
	BOILER #2 TEMPERATURE							
	BOILER #2 PRESSURE							
	BOILER #1	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
	BOILER #1 TEMPERATURE							
	BOILER #1 PRESSURE							
	OIL METER TO DAY TANK READ							
	CHLORINE ROOM							
	EXHAUST FAN TEST							
	MAIN CONTROL PANEL							
	DIALER	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
	MAIN IN SERVICE PUMP	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
	NIPISSAR INJECTION PUMP	105 / 106	105 / 106	105 / 106	105 / 106	105 / 106	105 / 106	105 / 106
	BOILER LOOP PUMP	P1 / P2	P1 / P2	P1 / P2	P1 / P2	P1 / P2	P1 / P2	P1 / P2
	ELECTRICAL							
	GENSET REMOTE ON	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
	GENSET HOURS							

DAILY LOG SHEET: SEWAGE TREATMENT PLANT - Page No. 1

WEEK STARTING:

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Boiler 1							
Boiler Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Disconnect Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Boiler Tri-Gauge Pressure/Temperature							
Boiler Circ Pump #1							
Circ Pump 1 Control Panel	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Circ Pump 1 Temperature Settings							
Building Supply Temperature							
Building Return Temperature							
Boiler 2							
Boiler Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Disconnect Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Boiler Gauge Temperature							
Boiler Circ Pump #2							
Circ Pump 2 Control Panel	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Circ Pump 2 Temperature Settings							
Building Supply Temperature							
Building Return Temperature							
DAYTANK GLYCOL							
Power	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND
Valve	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED
Glycol Pump	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Pressure Read							
Tank Level in Litres							
Glycol Strength							
DAYTANK FUEL							
Fuel Oil Pump #1	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Pump #1 Main Disconnect	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Fuel Oil Pump #2	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Pump #2 Main Disconnect	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF

SEWAGE TREATMENT PLANT
DAILY LOG SHEET page 2

DATE:							
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
HWT							
Limit Setting 120	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Gauge Temperature							
Glycol Circ Pump CP-4	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	YES / NO
Glycol Circ Pump CP-11	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Low Temp Alarm Stat Setting TSL01 10°	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Unit Heater #12	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
EXHAUST FAN OPERATIONAL	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
CONTROL PANEL POWER	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
ALARMS							
JOHNSTON COVE LIFT STATION FLOW M^3							
NUVUK FORCE MAIN FLOW M^3							
AUGER SPRAY WASH - ELAPSED TIME							
AUGER SPRAY WASH-ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
CONTROL ROOM 1							
AUGER/GRINDER CONTROLS							
Grinder	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
Auger	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
LOCAL/REMOTE							
Failure Alarm	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Supply Fan #1	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
Supply Fan #2	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
CONTROL ROOM 2							
AUGER/GRINDER CONTROLS							
Grinder	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
Auger	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
LOCAL/REMOTE							
Failure Alarm	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Supply Fan #1	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO
Supply Fan #2	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO	ON / OFF / AUTO

SEWAGE TREATMENT PLANT
DAILY LOG SHEET page 3

DATE:							
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
CONTROL PANEL							
FN-5	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
FC-3 FAULT	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
FC-4 FAULT	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
FC-2	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
FC-1	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
FN-6	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
FN-9	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON
FN-8	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON	HAND / OFF / ON
FN-11	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
FC-5	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
FN-13	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
HCP-1	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
HCP-3	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
HCP-4	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO	HAND /OFF /AUTO
WATER METER							
m^3							
AUGER							
AUGER - ON/OFF/AUTO	ON / OFF/ AUTO	ON / OFF/ AUTO	ON / OFF/ AUTO	ON / OFF/ AUTO	ON / OFF/ AUTO	ON / OFF/ AUTO	ON / OFF/ AUTO
AUGER LEVEL							
SCREENING REMOVAL							
PUMP EP-1	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
PUMP EP-2	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
PUMP EP-3	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF

DAILY LOG SHEET: SEWAGE TREATMENT PLANT - Page No. 1

WEEK STARTING:

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
CONTROL ROOM							
Boiler Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Disconnect Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Boiler Tri-Gauge Pressure/Temperature							
Boiler Circ Pump #1							
Circ Pump 1 Control Panel	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Circ Pump 1 Temperature Settings							
Building Supply Temperature							
Building Return Temperature							
Boiler 2							
Boiler Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Disconnect Switch	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Boiler Gauge Temperature							
Boiler Circ Pump #2							
Circ Pump 2 Control Panel	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Circ Pump 2 Temperature Settings							
Building Supply Temperature							
Building Return Temperature							
DAYTANK GLYCOL							
Power	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND	ON / OFF / HAND
Valve	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED	OPEN/CLOSED
Glycol Pump	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Pressure Read							
Tank Level in Litres							
Glycol Strength							
DAYTANK FUEL							
Fuel Oil Pump #1	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Pump #1 Main Disconnect	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Fuel Oil Pump #2	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO	HAND / OFF/ AUTO
Pump #2 Main Disconnect	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
CONTROL ROOM							
Exhaust Fan Operational	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N
Control Panel - Power	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF	ON / OFF
Alarms							
Johnston Cove Lift Station Flow M^3							
Nuvuk Force Main Flow M^3							
Dialers							

Appendix B

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

Northwest Territories | Nunavut | Canada

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR **04-02-23**	REPORT TIME **1131am**	☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR **unknow**	OCCURRENCE TIME **unknown**		
C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION **Johnston cove lift station**	REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE DEGREES **62** MINUTES **48** SECONDS **37**	LONGITUDE DEGREES **092** MINUTES **04** SECONDS **44**		
F	RESPONSIBLE PARTY OR VESSEL NAME **Sakku Enterprises**	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION **rankin inlet**		
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION		
H	PRODUCT SPILLED **p-50 heating fuel**	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES **unkown**	U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE) **n/a**	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES **n/a**	U.N. NUMBER	
I	SPILL SOURCE **possible overfill of fuel tank**	SPILL CAUSE **human error**	AREA OF CONTAMINATION IN SQUARE METRES **56 Sq Meters**	
J	FACTORS AFFECTING SPILL OR RECOVERY **drain ditches around area**	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT	

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

signs of a spill discovered by CGS Maintenance staff, CGS reported findings back to Sakku Enterprises in Rankin Inlet.

contractor is starting investigation

L	REPORTED TO SPILL LINE BY **steve fitzpatrick**	POSITION **facilities manager**	EMPLOYER **GN**	LOCATION CALLING FROM **rankin inlet**	TELEPHONE **8676458156**
M	ANY ALTERNATE CONTACT **stephen green**	POSITION **fuel manager**	EMPLOYER **Sakku Ent**	ALTERNATE CONTACT LOCATION **rankin inlet**	ALTERNATE TELEPHONE **8676453150**

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

Northwest Territories | Nunavut | Canada

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR **02/24/2023**	REPORT TIME **10:25 am**	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR **02/24/2023**	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION **Williamson Lake Pump House**	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

F	RESPONSIBLE PARTY OR VESSEL NAME **Sakku Enterprises Ltd**	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION **1 airport road**
G	ANY CONTRACTOR INVOLVED **Arctic Heating**	CONTRACTOR ADDRESS OR OFFICE LOCATION **145-1 Mivvik Ave**

H	PRODUCT SPILLED **P-50**	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES **500L**	U.N. NUMBER **1202**
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES **ABOUT 600 LITERS**	U.N. NUMBER **1202**
I	SPILL SOURCE **Fuel Truck**	SPILL CAUSE **Overfill**	AREA OF CONTAMINATION IN SQUARE METRES **10 square metres**
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

L	REPORTED TO SPILL LINE BY **Chris Ricahrdson**	POSITION **Fuel Manager**	EMPLOYER **Sakku Ent Ltd**	LOCATION CALLING FROM **Rankin Inlet**	TELEPHONE **(867)645-2778**
M	ANY ALTERNATE CONTACT **Max MacDonald**	POSITION **General Manager**	EMPLOYER **Sakku Ent Ltd**	ALTERNATE CONTACT LOCATION **Rankin Inlet**	ALTERNATE TELEPHONE **867-645-2778**

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

Appendix C

GRA-3 Effluent Quality limits

Parameter	Maximum Concentration of any Grab Sample	July 18, 2023
BOD_5	100 mg/L	92.9
Total Suspended Solids	120 mg/L	108
Fecal Coliform	$1x10^6$ CFU/100 mL	>24200*
Oil and Grease	No visible sheen	30.2
pH	Between 6 and 9	7.27

*exceeded recommended hold time

Appendix D

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2316808**	Page	: 1 of 7
Client	: **Government of Nunavut**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Megan Muckpah-Gavin	Account Manager	: Craig Riddell
Address	: P.O. Box 490 Rankin Inlet NU Canada X0C 0G0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: ----	Telephone	: +1 204 255 9720
Project	: ----	Date Samples Received	: 25-Jul-2023 12:25
PO	: ----	Date Analysis Commenced	: 25-Jul-2023
C-O-C number	: ----	Issue Date	: 01-Aug-2023 14:32
Sampler	: ----		
Site	: ----		
Quote number	: Analytical Testing DW & WW		
No. of samples received	: 2		
No. of samples analysed	: 2		

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
- Guideline Comparison

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*
Ana Srzic		Organics, Winnipeg, Manitoba
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Livia Ciolan	Analyst	Organics, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Organics, Winnipeg, Manitoba
Oren Wurenqiqige	Analyst	Microbiology, Winnipeg, Manitoba
Wayne Smith	Client Services Specialist	Inorganics, Waterloo, Ontario

No Breaches Found

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	GRA-1	GRA-7	----	----	----	----	----
				Sampling date/time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					WP2316808-001	WP2316808-002	--------	--------	--------	--------	--------
Physical Tests											
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP			35.9	----	----	----	----	----	----
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WP	mg/L		43.8	34.8	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP			<1.0	----	----	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WP	mg/L		<1.0	<1.0	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP			<1.0	----	----	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WP	mg/L		<1.0	<1.0	----	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WP			<1.0	----	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP	mg/L		35.9	----	----	----	----	----	----
Conductivity	----	E100/WP			198	161	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		53.4	39.1	----	----	----	----	----
pH	----	E108/WP			7.78	7.67	----	----	----	----	----
Solids, total suspended [TSS]	----	E160/WP	mg/L		<3.0	<3.0	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E303/WP			<0.010	<0.010	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/WP	mg/L		27.0	25.5	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WP			<0.020	<0.020	----	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WP	mg/L		<0.0224	<0.0224	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WP			<0.010	<0.010	----	----	----	----	----
Phosphorus, total	7723-14-0	E372/WP	mg/L		<0.020	<0.020	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP			12.9	5.91	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		5.17	5.65	----	----	----	----	----
Microbiological Tests											
Coliforms, Escherichia coli [E. coli]	----	E010-H/WP			<10	30	----	----	----	----	----
Coliforms, thermotolerant [fecal]	----	E010.FC-H/WP	MPN/10 0mL		<10	10	----	----	----	----	----
Coliforms, total	----	E010-H/WP			30	120	----	----	----	----	----
Total Metals											

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	GRA-1	GRA-7	----	----	----	----	----
				Sampling date/time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					WP2316808-001	WP2316808-002	--------	--------	--------	--------	--------
Total Metals											
Aluminum, total	7429-90-5	E420/WP	mg/L		0.0105	0.0078	----	----	----	----	----
Antimony, total	7440-36-0	E420/WP			<0.00010	<0.00010	----	----	----	----	----
Arsenic, total	7440-38-2	E420/WP	mg/L		0.00076	0.00051	----	----	----	----	----
Barium, total	7440-39-3	E420/WP			0.0155	0.0160	----	----	----	----	----
Beryllium, total	7440-41-7	E420/WP	mg/L		<0.000020	<0.000020	----	----	----	----	----
Bismuth, total	7440-69-9	E420/WP			<0.000050	<0.000050	----	----	----	----	----
Boron, total	7440-42-8	E420/WP	mg/L		0.027	0.016	----	----	----	----	----
Cadmium, total	7440-43-9	E420/WP			<0.0000050	<0.0000050	----	----	----	----	----
Calcium, total	7440-70-2	E420/WP	mg/L		15.3	11.3	----	----	----	----	----
Cesium, total	7440-46-2	E420/WP			0.000012	0.000013	----	----	----	----	----
Chromium, total	7440-47-3	E420/WP	mg/L		<0.00050	<0.00050	----	----	----	----	----
Cobalt, total	7440-48-4	E420/WP			<0.00010	<0.00010	----	----	----	----	----
Copper, total	7440-50-8	E420/WP	mg/L		0.00096	0.00091	----	----	----	----	----
Iron, total	7439-89-6	E420/WP			0.023	0.090	----	----	----	----	----
Lead, total	7439-92-1	E420/WP	mg/L		<0.000050	<0.000050	----	----	----	----	----
Lithium, total	7439-93-2	E420/WP			0.0025	0.0019	----	----	----	----	----
Magnesium, total	7439-95-4	E420/WP	mg/L		3.70	2.64	----	----	----	----	----
Manganese, total	7439-96-5	E420/WP			0.0125	0.00953	----	----	----	----	----
Mercury, total	7439-97-6	E508/WP	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/WP			0.000545	0.000322	----	----	----	----	----
Nickel, total	7440-02-0	E420/WP	mg/L		0.00070	0.00063	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/WP			<0.050	<0.050	----	----	----	----	----
Potassium, total	7440-09-7	E420/WP	mg/L		2.10	1.65	----	----	----	----	----
Rubidium, total	7440-17-7	E420/WP			0.00183	0.00206	----	----	----	----	----
Selenium, total	7782-49-2	E420/WP	mg/L		0.000059	<0.000050	----	----	----	----	----
Silicon, total	7440-21-3	E420/WP			<0.10	0.18	----	----	----	----	----
Silver, total	7440-22-4	E420/WP	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/WP			17.0	14.6	----	----	----	----	----
Strontium, total	7440-24-6	E420/WP	mg/L		0.0760	0.0647	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: GRA-1	GRA-7	----	----	----	----	----
				Sampling date/time: 24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----	----	----
				Sub-Matrix: Water	Water	----	----	----	----	----
				WP2316808-001	WP2316808-002	--------	--------	--------	--------	--------
Total Metals										
Sulfur, total	7704-34-9	E420/WP		4.96	2.38	----	----	----	----	----
Tellurium, total	13494-80-9	E420/WP	mg/L	<0.00020	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/WP		<0.000010	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420/WP	mg/L	<0.00010	<0.00010	----	----	----	----	----
Tin, total	7440-31-5	E420/WP		<0.00010	<0.00010	----	----	----	----	----
Titanium, total	7440-32-6	E420/WP	mg/L	0.00036	<0.00030	----	----	----	----	----
Tungsten, total	7440-33-7	E420/WP		<0.00010	<0.00010	----	----	----	----	----
Uranium, total	7440-61-1	E420/WP	mg/L	0.000130	0.000052	----	----	----	----	----
Vanadium, total	7440-62-2	E420/WP		<0.00050	<0.00050	----	----	----	----	----
Zinc, total	7440-66-6	E420/WP	mg/L	<0.0030	<0.0030	----	----	----	----	----
Zirconium, total	7440-67-7	E420/WP		<0.00020	<0.00020	----	----	----	----	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	E550/WP	mg/L	<2.0	<2.0	----	----	----	----	----
Carbonaceous biochemical oxygen demand [CBOD]	----	E555/WP		<2.0	<2.0	----	----	----	----	----
Oil & grease (gravimetric)	----	E567/WP	mg/L	5.2	<5.0	----	----	----	----	----
Phenols, total (4AAP)	----	E562/WT		<0.0010	<0.0010	----	----	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611A/WP	mg/L	<0.00050	<0.00050	----	----	----	----	----
Ethylbenzene	100-41-4	E611A/WP		<0.00050	<0.00050	----	----	----	----	----
Toluene	108-88-3	E611A/WP	mg/L	<0.00050	<0.00050	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WP		<0.00040	<0.00040	----	----	----	----	----
Xylene, o-	95-47-6	E611A/WP	mg/L	<0.00030	<0.00030	----	----	----	----	----
Xylenes, total	1330-20-7	E611A/WP		<0.00050	<0.00050	----	----	----	----	----
BTEX, total	----	E611A/WP	mg/L	<0.0010	<0.0010	----	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WP		<0.10	<0.10	----	----	----	----	----
F1-BTEX	----	EC580/WP	mg/L	<0.100	<0.100	----	----	----	----	----
F2 (C10-C16)	----	E601/WP		<0.10	<0.10	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	GRA-1	GRA-7	----	----	----	----	----
				Sampling date/time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					WP2316808-001	WP2316808-002	--------	--------	--------	--------	--------
Hydrocarbons											
F3 (C16-C34)	----	E601/WP	mg/L		<0.25	<0.25	----	----	----	----	----
F4 (C34-C50)	----	E601/WP			<0.25	<0.25	----	----	----	----	----
TEH (C10-C50)	n/a	E601/WP	mg/L		<0.40	<0.40	----	----	----	----	----
TEH (C16-C50)	----	E601/WP			<0.40	<0.40	----	----	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WP	%		89.8	87.4	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WP			113	126	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WP	%		112	110	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WP			106	108	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT			<0.010	<0.010	----	----	----	----	----
Acridine	260-94-6	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Anthracene	120-12-7	E641A/WT			<0.010	<0.010	----	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT			<0.0050	<0.0050	----	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT			<0.015	<0.015	----	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT			<0.010	<0.010	----	----	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT			<0.0050	<0.0050	----	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Fluorene	86-73-7	E641A/WT			<0.010	<0.010	----	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT			<0.010	<0.010	----	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L		<0.015	<0.015	----	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT			<0.010	<0.010	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	GRA-1	GRA-7	----	----	----	----	----
				Sampling date/time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					WP2316808-001	WP2316808-002	--------	--------	--------	--------	--------
Polycyclic Aromatic Hydrocarbons											
Naphthalene	91-20-3	E641A/WT	µg/L		<0.050	<0.050	----	----	----	----	----
Phenanthrene	85-01-8	E641A/WT			<0.020	<0.020	----	----	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
Quinoline	91-22-5	E641A/WT			<0.050	<0.050	----	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	µg/L		<0.010	<0.010	----	----	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT			<0.030	<0.030	----	----	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	µg/L		<0.060	<0.060	----	----	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT			<0.070	<0.070	----	----	----	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	µg/L		<0.065	<0.065	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT			122	117	----	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		124	117	----	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT			125	119	----	----	----	----	----

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.

Key:

CERTIFICATE OF ANALYSIS

Work Order	: **WP2316808**	Page	: 1 of 7
Client	: **Government of Nunavut**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Megan Muckpah-Gavin	Account Manager	: Craig Riddell
Address	: P.O. Box 490 Rankin Inlet NU Canada X0C 0G0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg MB Canada R2J 3T4
Telephone	: ----	Telephone	: +1 204 255 9720
Project	: ----	Date Samples Received	: 25-Jul-2023 12:25
PO	: ----	Date Analysis Commenced	: 25-Jul-2023
C-O-C number	: ----	Issue Date	: 01-Aug-2023 14:32
Sampler	: ----		
Site	: ----		
Quote number	: Analytical Testing DW & WW		
No. of samples received	: 2		
No. of samples analysed	: 2		

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
- Surrogate Control Limits

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*
Ana Srzic		Organics, Winnipeg, Manitoba
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Livia Ciolan	Analyst	Organics, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Organics, Winnipeg, Manitoba
Oren Wurenqiqige	Analyst	Microbiology, Winnipeg, Manitoba
Wayne Smith	Client Services Specialist	Inorganics, Waterloo, Ontario

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.

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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
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
pH units	pH units

<: 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: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GRA-1	GRA-7	----	----	----
					Client sampling date / time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----
						WP2316808-001	WP2316808-002	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP	1.0	mg/L		35.9	----	----	----	----
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WP	1.0	mg/L		43.8	34.8	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WP	1.0	mg/L		<1.0	<1.0	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WP	1.0	mg/L		<1.0	<1.0	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WP	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP	1.0	mg/L		35.9	----	----	----	----
Conductivity	----	E100/WP	2.0	µS/cm		198	161	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	0.50	mg/L		53.4	39.1	----	----	----
pH	----	E108/WP	0.10	pH units		7.78	7.67	----	----	----
Solids, total suspended [TSS]	----	E160/WP	3.0	mg/L		<3.0	<3.0	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E303/WP	0.010	mg/L		<0.010	<0.010	----	----	----
Chloride	16887-00-6	E235.Cl/WP	0.50	mg/L		27.0	25.5	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WP	0.020	mg/L		<0.020	<0.020	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WP	0.0050	mg/L		<0.0224	<0.0224	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WP	0.010	mg/L		<0.010	<0.010	----	----	----
Phosphorus, total	7723-14-0	E372/WP	0.020	mg/L		<0.020	<0.020	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	0.30	mg/L		12.9	5.91	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/WP	0.50	mg/L		5.17	5.65	----	----	----
Microbiological Tests										
Coliforms, Escherichia coli [E. coli]	----	E010-H/WP	10	MPN/100mL		<10	30	----	----	----
Coliforms, thermotolerant [fecal]	----	E010.FC-H/WP	10	MPN/100mL		<10	10	----	----	----
Coliforms, total	----	E010-H/WP	10	MPN/100mL		30	120	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/WP	0.0030	mg/L		0.0105	0.0078	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GRA-1	GRA-7	----	----	----
					Client sampling date / time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WP2316808-001	WP2316808-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Antimony, total	7440-36-0	E420/WP	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/WP	0.00010	mg/L		0.00076	0.00051	----	----	----
Barium, total	7440-39-3	E420/WP	0.00010	mg/L		0.0155	0.0160	----	----	----
Beryllium, total	7440-41-7	E420/WP	0.000020	mg/L		<0.000020	<0.000020	----	----	----
Bismuth, total	7440-69-9	E420/WP	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/WP	0.010	mg/L		0.027	0.016	----	----	----
Cadmium, total	7440-43-9	E420/WP	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Calcium, total	7440-70-2	E420/WP	0.050	mg/L		15.3	11.3	----	----	----
Cesium, total	7440-46-2	E420/WP	0.000010	mg/L		0.000012	0.000013	----	----	----
Chromium, total	7440-47-3	E420/WP	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/WP	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, total	7440-50-8	E420/WP	0.00050	mg/L		0.00096	0.00091	----	----	----
Iron, total	7439-89-6	E420/WP	0.010	mg/L		0.023	0.090	----	----	----
Lead, total	7439-92-1	E420/WP	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/WP	0.0010	mg/L		0.0025	0.0019	----	----	----
Magnesium, total	7439-95-4	E420/WP	0.0050	mg/L		3.70	2.64	----	----	----
Manganese, total	7439-96-5	E420/WP	0.00010	mg/L		0.0125	0.00953	----	----	----
Mercury, total	7439-97-6	E508/WP	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/WP	0.000050	mg/L		0.000545	0.000322	----	----	----
Nickel, total	7440-02-0	E420/WP	0.00050	mg/L		0.00070	0.00063	----	----	----
Phosphorus, total	7723-14-0	E420/WP	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/WP	0.050	mg/L		2.10	1.65	----	----	----
Rubidium, total	7440-17-7	E420/WP	0.00020	mg/L		0.00183	0.00206	----	----	----
Selenium, total	7782-49-2	E420/WP	0.000050	mg/L		0.000059	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/WP	0.10	mg/L		<0.10	0.18	----	----	----
Silver, total	7440-22-4	E420/WP	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/WP	0.050	mg/L		17.0	14.6	----	----	----
Strontium, total	7440-24-6	E420/WP	0.00020	mg/L		0.0760	0.0647	----	----	----
Sulfur, total	7704-34-9	E420/WP	0.50	mg/L		4.96	2.38	----	----	----
Tellurium, total	13494-80-9	E420/WP	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/WP	0.000010	mg/L		<0.000010	<0.000010	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GRA-1	GRA-7	----	----	----
					Client sampling date / time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WP2316808-001	WP2316808-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Thorium, total	7440-29-1	E420/WP	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/WP	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/WP	0.00030	mg/L		0.00036	<0.00030	----	----	----
Tungsten, total	7440-33-7	E420/WP	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/WP	0.000010	mg/L		0.000130	0.000052	----	----	----
Vanadium, total	7440-62-2	E420/WP	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/WP	0.0030	mg/L		<0.0030	<0.0030	----	----	----
Zirconium, total	7440-67-7	E420/WP	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	E550/WP	2.0	mg/L		<2.0	<2.0	----	----	----
Carbonaceous biochemical oxygen demand [CBOD]	----	E555/WP	2.0	mg/L		<2.0	<2.0	----	----	----
Oil & grease (gravimetric)	----	E567/WP	5.0	mg/L		5.2	<5.0	----	----	----
Phenols, total (4AAP)	----	E562/WT	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611A/WP	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Ethylbenzene	100-41-4	E611A/WP	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Toluene	108-88-3	E611A/WP	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Xylene, m+p-	179601-23-1	E611A/WP	0.00040	mg/L		<0.00040	<0.00040	----	----	----
Xylene, o-	95-47-6	E611A/WP	0.00030	mg/L		<0.00030	<0.00030	----	----	----
Xylenes, total	1330-20-7	E611A/WP	0.00050	mg/L		<0.00050	<0.00050	----	----	----
BTEX, total	----	E611A/WP	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WP	0.10	mg/L		<0.10	<0.10	----	----	----
F1-BTEX	----	EC580/WP	0.100	mg/L		<0.100	<0.100	----	----	----
F2 (C10-C16)	----	E601/WP	0.10	mg/L		<0.10	<0.10	----	----	----
F3 (C16-C34)	----	E601/WP	0.25	mg/L		<0.25	<0.25	----	----	----
F4 (C34-C50)	----	E601/WP	0.25	mg/L		<0.25	<0.25	----	----	----
TEH (C10-C50)	n/a	E601/WP	0.40	mg/L		<0.40	<0.40	----	----	----
TEH (C16-C50)	----	E601/WP	0.40	mg/L		<0.40	<0.40	----	----	----
Hydrocarbons Surrogates										

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GRA-1	GRA-7	----	----	----
					Client sampling date / time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WP2316808-001	WP2316808-002	--------	--------	--------
						Result	Result	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WP	1.0	%		89.8	87.4	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WP	1.0	%		113	126	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WP	1.0	%		112	110	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WP	1.0	%		106	108	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Acridine	260-94-6	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Anthracene	120-12-7	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT	0.015	µg/L		<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	0.015	µg/L		<0.015	<0.015	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Naphthalene	91-20-3	E641A/WT	0.050	µg/L		<0.050	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/WT	0.020	µg/L		<0.020	<0.020	----	----	----
Pyrene	129-00-0	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A/WT	0.050	µg/L		<0.050	<0.050	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	0.010	µg/L		<0.010	<0.010	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT	0.030	µg/L		<0.030	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	0.060	µg/L		<0.060	<0.060	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GRA-1	GRA-7	----	----	----
					Client sampling date / time	24-Jul-2023 14:30	24-Jul-2023 14:45	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WP2316808-001	WP2316808-002	--------	--------	--------
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons										
PAHs, total (CCME sewer 18)	n/a	E641A/WT	0.070	µg/L		<0.070	<0.070	----	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	0.065	µg/L		<0.065	<0.065	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/WT	0.1	%		122	117	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%		124	117	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%		125	119	----	----	----

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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 15 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	Government of Nunavut - CGS
Contact:	Megan Muckpah-Gavin
Phone:	867-645-8120
	Company address below will appear on the final report
Street:	PO Box 490
City/Province:	Rankin Inlet, NU
Postal Code:	X0C 0G0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

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

Quality Control (QC) Report with Report ☐ YES ☐ NO

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

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: mgavin@gov.nu.ca

Email 2: echalmers@gov.nu.ca

Email 3:

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Project Information

ALS Account # / Quote #: W8133

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 # (lab use only):

ALS Contact: Sampler:

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4] ☐ | 3 day [P3] ☐ | 2 day [P2] ☐

EMERGENCY: 1 Business day [E1] ☐ | Same Day, Weekend or Statutory holiday [E0] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	Routine	CBOD	Total Metals	Total Mercury	Nutrients/Phenols (x2)	Bacteria	Oil & Grease (x2)	BTEX-F1 (x2) x2	F2-F4 (x2)	PAH (x2)			Number of Containers
	GRA-1	24/07/23	2:30 pm	Water	R	R	R	R	R	R	R	R	R	R	R			17
	GRA-7	24/07/23	2:45 pm	Water	R	R	R	R	R	R	R	R	R	R	R			17

Environmental Division Winnipeg

Work Order Reference

WP2316808

Telephone : +1 204 255 9720

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

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

Are samples for human drinking water use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

NUNAVUT-WW-GRP1-WP, BTEX, F1-F4, PAH

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
11.4					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: MEGHAN LOCKWOOD	Date: July 24th/23	Time:	Received by: CH	Date: JUL 25 2023	Time: 12:25	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 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**.

Field Log

Name of Sampler(s): MEGAN MCGRATH - GAVIN

Date of Sampling: July 24th / 2023

Time of Sampling: 2:45pm

Monitoring Station Number: GRA-1

GPS Coordinates: N ____ ° ____ ' ____ " W ____ ° ____ ' ____ "

Weather Conditions: CLOUDY - LIGHT WIND

Samples:

- [x] 500 mL BOD
- [x] 500 mL Routine
- [x] 500 mL CBOD
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 100 mL Amber Nutrients + Pres
- [x] 100 mL Amber Phenols + Pres
- [x] 250 mL Sterile Bacteria Bottle
- [x] **2 x** 250 mL Amber Oil & Grease + Pres
- [x] 60 mL Metals + Pres
- [x] ~~3~~ 2 x 40 mL BTEX, F1 Vials + Pres
- [x] **2 x** 100 mL Amber F2-F4 Vials + Pres
- [x] **2 x** 250 mL Amber PAH + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, reason sample was not taken, etc.)

Field Log

Name of Sampler(s): MEGAN MUCKPAH-GAVIN

Date of Sampling: JULY 24th / 2023

Time of Sampling: 2:30

Monitoring Station Number: GRA-7

GPS Coordinates: N ____ ° ____ ' ____ " W ____ ° ____ ' ____ "

Weather Conditions: CLOUDY - WINDY

Samples:

- [x] 500 mL BOD
- [x] 500 mL Routine
- [x] 500 mL CBOD
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 100 mL Amber Nutrients + Pres
- [x] 100 mL Amber Phenols + Pres
- [x] 250 mL Sterile Bacteria Bottle
- [x] **2 x** 250 mL Amber Oil & Grease + Pres
- [x] 60 mL Metals + Pres
- [x] **3 x** 40 mL BTEX, F1 Vials + Pres 2x
- [x] **2 x** 100 mL Amber F2-F4 Vials + Pres
- [x] **2 x** 250 mL Amber PAH + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, reason sample was not taken, etc.)

_____

_____

_____

_____

_____

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2317759**	Page	: 1 of 8
Client	: **Government of Nunavut**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Steve Fitzpatrick	Account Manager	: Craig Riddell
Address	: P.O. Box 490 Rankin Inlet NU Canada X0C 0G0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 867 645 8155	Telephone	: +1 204 255 9720
Project	: Rankin Inlet WWTP Monthly Effluent	Date Samples Received	: 01-Aug-2023 12:16
PO	: ----	Date Analysis Commenced	: 02-Aug-2023
C-O-C number	: ----	Issue Date	: 09-Aug-2023 18:05
Sampler	: ----		
Site	: ----		
Quote number	: Analytical Testing DW & WW		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Guideline Comparison

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*
Ana Srzic		Organics, Winnipeg, Manitoba
Dung Hoang		Organics, Winnipeg, Manitoba
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Organics, Winnipeg, Manitoba
Oren Wurenqiqige	Analyst	Microbiology, Winnipeg, Manitoba

No Breaches Found

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Sample Comments

Sample	Client Id	Comment
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	RRR: Surrogate recovery is outside ALS DQO limits. Detection limits for affected compounds have been raised accordingly

Qualifiers

Qualifier	Description
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
PEHR	*Parameter exceeded recommended holding time on receipt: Proceeded with analysis as requested.*
RRR	*Refer to report comments for issues regarding this analysis.*
SHMI	*Surrogate recovery was outside ALS DQO (High) due to Matrix Interference*

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: RANKIN INLET WWTP - EFFLUENT	----	----	----	----	----	----
				Sampling date/time: 28-Jul-2023 09:30	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				WP2317759-001	--------	--------	--------	--------	--------	--------
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP		128	----	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP	mg/L	<1.0	----	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP		<1.0	----	----	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WP	mg/L	<1.0	----	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP		128	----	----	----	----	----	----
Conductivity	----	E100/WP	µS/cm	473	----	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP		74.5	----	----	----	----	----	----
pH	----	E108/WP	pH units	7.27	----	----	----	----	----	----
Solids, total suspended [TSS]	----	E160/WP		108	----	----	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E303/WP	mg/L	22.7	----	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/WP		50.5	----	----	----	----	----	----
Fluoride	16984-48-8	E235.F/WP	mg/L	0.037	----	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WP		<0.020	----	----	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WP	mg/L	<0.0224	----	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WP		<0.010	----	----	----	----	----	----
Phosphorus, total	7723-14-0	E372/WP	mg/L	3.89	----	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP		16.8	----	----	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/WP	mg/L	56.1	----	----	----	----	----	----
Microbiological Tests										
Coliforms, Escherichia coli [E. coli]	----	E010-H/WP		>24200 PEHR	----	----	----	----	----	----
Coliforms, thermotolerant [fecal]	----	E010.FC-H/WP	MPN/100mL	>24200 PEHR	----	----	----	----	----	----
Coliforms, total	----	E010-H/WP		>24200 PEHR	----	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/WP	mg/L	0.185	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	RANKIN INLET WWTP - EFFLUENT	----	----	----	----	----	----
				Sampling date/time	28-Jul-2023 09:30	----	----	----	----	----	----
				Sub-Matrix	Water	----	----	----	----	----	----
				WP2317759-001	--------	--------	--------	--------	--------	--------	--------
Total Metals											
Antimony, total	7440-36-0	E420/WP	mg/L	0.00026	----	----	----	----	----	----	----
Arsenic, total	7440-38-2	E420/WP	mg/L	0.00102	----	----	----	----	----	----	----
Barium, total	7440-39-3	E420/WP	mg/L	0.0212	----	----	----	----	----	----	----
Beryllium, total	7440-41-7	E420/WP	mg/L	<0.000020	----	----	----	----	----	----	----
Bismuth, total	7440-69-9	E420/WP	mg/L	0.00497	----	----	----	----	----	----	----
Boron, total	7440-42-8	E420/WP	mg/L	0.073	----	----	----	----	----	----	----
Cadmium, total	7440-43-9	E420/WP	mg/L	0.000120	----	----	----	----	----	----	----
Calcium, total	7440-70-2	E420/WP	mg/L	20.5	----	----	----	----	----	----	----
Cesium, total	7440-46-2	E420/WP	mg/L	0.000062	----	----	----	----	----	----	----
Chromium, total	7440-47-3	E420/WP	mg/L	0.00179	----	----	----	----	----	----	----
Cobalt, total	7440-48-4	E420/WP	mg/L	0.00036	----	----	----	----	----	----	----
Copper, total	7440-50-8	E420/WP	mg/L	0.142	----	----	----	----	----	----	----
Iron, total	7439-89-6	E420/WP	mg/L	0.457	----	----	----	----	----	----	----
Lead, total	7439-92-1	E420/WP	mg/L	0.00100	----	----	----	----	----	----	----
Lithium, total	7439-93-2	E420/WP	mg/L	0.0026	----	----	----	----	----	----	----
Magnesium, total	7439-95-4	E420/WP	mg/L	5.66	----	----	----	----	----	----	----
Manganese, total	7439-96-5	E420/WP	mg/L	0.0659	----	----	----	----	----	----	----
Mercury, total	7439-97-6	E508/WP	mg/L	0.0000161	----	----	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/WP	mg/L	0.00104	----	----	----	----	----	----	----
Nickel, total	7440-02-0	E420/WP	mg/L	0.00380	----	----	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/WP	mg/L	4.19	----	----	----	----	----	----	----
Potassium, total	7440-09-7	E420/WP	mg/L	8.75	----	----	----	----	----	----	----
Rubidium, total	7440-17-7	E420/WP	mg/L	0.00813	----	----	----	----	----	----	----
Selenium, total	7782-49-2	E420/WP	mg/L	0.000324	----	----	----	----	----	----	----
Silicon, total	7440-21-3	E420/WP	mg/L	0.39	----	----	----	----	----	----	----
Silver, total	7440-22-4	E420/WP	mg/L	0.000151	----	----	----	----	----	----	----
Sodium, total	7440-23-5	E420/WP	mg/L	31.1	----	----	----	----	----	----	----
Strontium, total	7440-24-6	E420/WP	mg/L	0.0913	----	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: RANKIN INLET WWTP - EFFLUENT	----	----	----	----	----	----
				Sampling date/time: 28-Jul-2023 09:30	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				WP2317759-001	--------	--------	--------	--------	--------	--------
Total Metals										
Sulfur, total	7704-34-9	E420/WP		8.21	----	----	----	----	----	----
Tellurium, total	13494-80-9	E420/WP	mg/L	<0.00020	----	----	----	----	----	----
Thallium, total	7440-28-0	E420/WP		<0.000010	----	----	----	----	----	----
Thorium, total	7440-29-1	E420/WP	mg/L	<0.00010	----	----	----	----	----	----
Tin, total	7440-31-5	E420/WP		0.00118	----	----	----	----	----	----
Titanium, total	7440-32-6	E420/WP	mg/L	0.00436	----	----	----	----	----	----
Tungsten, total	7440-33-7	E420/WP		<0.00010	----	----	----	----	----	----
Uranium, total	7440-61-1	E420/WP	mg/L	0.000263	----	----	----	----	----	----
Vanadium, total	7440-62-2	E420/WP		0.00050	----	----	----	----	----	----
Zinc, total	7440-66-6	E420/WP	mg/L	0.207	----	----	----	----	----	----
Zirconium, total	7440-67-7	E420/WP		0.00081	----	----	----	----	----	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	E550/WP	mg/L	92.9	----	----	----	----	----	----
Carbonaceous biochemical oxygen demand [CBOD]	----	E555/WP		79.7	----	----	----	----	----	----
Oil & grease (gravimetric)	----	E567/WP	mg/L	30.2	----	----	----	----	----	----
Phenols, total (4AAP)	----	E562/WT		0.0135 DLM	----	----	----	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611A/WP	mg/L	<0.00050	----	----	----	----	----	----
Ethylbenzene	100-41-4	E611A/WP		<0.00050	----	----	----	----	----	----
Toluene	108-88-3	E611A/WP	mg/L	0.00750	----	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WP		<0.00040	----	----	----	----	----	----
Xylene, o-	95-47-6	E611A/WP	mg/L	<0.00030	----	----	----	----	----	----
Xylenes, total	1330-20-7	E611A/WP		<0.00050	----	----	----	----	----	----
BTEX, total	----	E611A/WP	mg/L	0.0075	----	----	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WP		<0.10	----	----	----	----	----	----
F1-BTEX	----	EC580/WP	mg/L	<0.100	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	----	----	----	----	----	----
				RANKIN INLET WWTP - EFFLUENT	----	----	----	----	----	----
				Sampling date/time: 28-Jul-2023 09:30	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				WP2317759-001	--------	--------	--------	--------	--------	--------
Hydrocarbons										
F2 (C10-C16)	----	E601/WP		0.67	----	----	----	----	----	----
F3 (C16-C34)	----	E601/WP	mg/L	11.6	----	----	----	----	----	----
F4 (C34-C50)	----	E601/WP		3.67	----	----	----	----	----	----
TEH (C10-C50)	n/a	E601/WP	mg/L	15.9	----	----	----	----	----	----
TEH (C16-C50)	----	E601/WP		15.3	----	----	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WP	%	92.8	----	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WP		93.5	----	----	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WP	%	79.0	----	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WP		104	----	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	µg/L	<0.089 RRR	----	----	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT		<0.077 RRR	----	----	----	----	----	----
Acridine	260-94-6	E641A/WT	µg/L	0.097	----	----	----	----	----	----
Anthracene	120-12-7	E641A/WT		0.083	----	----	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L	0.223	----	----	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT		0.251	----	----	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L	0.237	----	----	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT		0.473	----	----	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L	0.201	----	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT		0.236	----	----	----	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L	0.207	----	----	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT		0.211	----	----	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L	<0.244 DLM	----	----	----	----	----	----
Fluorene	86-73-7	E641A/WT		<0.108 DLM	----	----	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L	0.221	----	----	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT		<0.143 RRR	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: RANKIN INLET WWTP - EFFLUENT	----	----	----	----	----	----
				Sampling date/time: 28-Jul-2023 09:30	----	----	----	----	----	----
				Sub-Matrix: Water	----	----	----	----	----	----
				WP2317759-001	--------	--------	--------	--------	--------	--------
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L	<0.230	----	----	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT		<0.180 RRR	----	----	----	----	----	----
Naphthalene	91-20-3	E641A/WT	µg/L	<0.126 RRR	----	----	----	----	----	----
Phenanthrene	85-01-8	E641A/WT		0.116	----	----	----	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L	<0.285 DLM	----	----	----	----	----	----
Quinoline	91-22-5	E641A/WT		<0.572 DLM	----	----	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	µg/L	0.558	----	----	----	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT		1.79	----	----	----	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	µg/L	<0.212	----	----	----	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT		1.99	----	----	----	----	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	µg/L	1.99	----	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/WT		111	----	----	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%	166 SHMI	----	----	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT		119	----	----	----	----	----	----

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.

Key:

CERTIFICATE OF ANALYSIS

Work Order	: **WP2317759**	Page	: 1 of 7
Client	: **Government of Nunavut**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Steve Fitzpatrick	Account Manager	: Craig Riddell
Address	: P.O. Box 490 Rankin Inlet NU Canada X0C 0G0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg MB Canada R2J 3T4
Telephone	: 867 645 8155	Telephone	: +1 204 255 9720
Project	: Rankin Inlet WWTP Monthly Effluent	Date Samples Received	: 01-Aug-2023 12:16
PO	: ----	Date Analysis Commenced	: 02-Aug-2023
C-O-C number	: ----	Issue Date	: 09-Aug-2023 18:04
Sampler	: ----		
Site	: ----		
Quote number	: Analytical Testing DW & WW		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Surrogate Control Limits

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*
Ana Srzic		Organics, Winnipeg, Manitoba
Dung Hoang		Organics, Winnipeg, Manitoba
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Organics, Winnipeg, Manitoba
Oren Wurenqiqige	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
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
pH units	pH units

<: 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.

Sample Comments

Sample	Client Id	*Comment*
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	RRR: Surrogate recovery is outside ALS DQO limits. Detection limits for affected compounds have been raised accordingly

Qualifiers

Qualifier	*Description*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
PEHR	*Parameter exceeded recommended holding time on receipt: Proceeded with analysis as requested.*
RRR	*Refer to report comments for issues regarding this analysis.*
SHMI	*Surrogate recovery was outside ALS DQO (High) due to Matrix Interference*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	RANKIN INLET WWTP - EFFLUENT	----	----	----	----
					Client sampling date / time	28-Jul-2023 09:30	----	----	----	----
						WP2317759-001	--------	--------	--------	--------
						Result	----	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP	1.0	mg/L		128	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WP	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP	1.0	mg/L		128	----	----	----	----
Conductivity	----	E100/WP	2.0	µS/cm		473	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	0.50	mg/L		74.5	----	----	----	----
pH	----	E108/WP	0.10	pH units		7.27	----	----	----	----
Solids, total suspended [TSS]	----	E160/WP	3.0	mg/L		108	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E303/WP	0.010	mg/L		22.7	----	----	----	----
Chloride	16887-00-6	E235.Cl/WP	0.50	mg/L		50.5	----	----	----	----
Fluoride	16984-48-8	E235.F/WP	0.020	mg/L		0.037	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WP	0.020	mg/L		<0.020	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WP	0.0050	mg/L		<0.0224	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WP	0.010	mg/L		<0.010	----	----	----	----
Phosphorus, total	7723-14-0	E372/WP	0.020	mg/L		3.89	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	0.30	mg/L		16.8	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/WP	0.50	mg/L		56.1	----	----	----	----
Microbiological Tests										
Coliforms, Escherichia coli [E. coli]	----	E010-H/WP	10	MPN/100mL		>24200 PEHR	----	----	----	----
Coliforms, thermotolerant [fecal]	----	E010.FC-H/WP	10	MPN/100mL		>24200 PEHR	----	----	----	----
Coliforms, total	----	E010-H/WP	10	MPN/100mL		>24200 PEHR	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/WP	0.0030	mg/L		0.185	----	----	----	----
Antimony, total	7440-36-0	E420/WP	0.00010	mg/L		0.00026	----	----	----	----

Analytical Results

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

				Client sample ID	RANKIN INLET WWTP - EFFLUENT	----	----	----	----
				Client sampling date / time	28-Jul-2023 09:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2317759-001	--------	--------	--------	--------
					Result	----	----	----	----
Total Metals									
Arsenic, total	7440-38-2	E420/WP	0.00010	mg/L	0.00102	----	----	----	----
Barium, total	7440-39-3	E420/WP	0.00010	mg/L	0.0212	----	----	----	----
Beryllium, total	7440-41-7	E420/WP	0.000020	mg/L	<0.000020	----	----	----	----
Bismuth, total	7440-69-9	E420/WP	0.000050	mg/L	0.00497	----	----	----	----
Boron, total	7440-42-8	E420/WP	0.010	mg/L	0.073	----	----	----	----
Cadmium, total	7440-43-9	E420/WP	0.0000050	mg/L	0.000120	----	----	----	----
Calcium, total	7440-70-2	E420/WP	0.050	mg/L	20.5	----	----	----	----
Cesium, total	7440-46-2	E420/WP	0.000010	mg/L	0.000062	----	----	----	----
Chromium, total	7440-47-3	E420/WP	0.00050	mg/L	0.00179	----	----	----	----
Cobalt, total	7440-48-4	E420/WP	0.00010	mg/L	0.00036	----	----	----	----
Copper, total	7440-50-8	E420/WP	0.00050	mg/L	0.142	----	----	----	----
Iron, total	7439-89-6	E420/WP	0.010	mg/L	0.457	----	----	----	----
Lead, total	7439-92-1	E420/WP	0.000050	mg/L	0.00100	----	----	----	----
Lithium, total	7439-93-2	E420/WP	0.0010	mg/L	0.0026	----	----	----	----
Magnesium, total	7439-95-4	E420/WP	0.0050	mg/L	5.66	----	----	----	----
Manganese, total	7439-96-5	E420/WP	0.00010	mg/L	0.0659	----	----	----	----
Mercury, total	7439-97-6	E508/WP	0.0000050	mg/L	0.0000161	----	----	----	----
Molybdenum, total	7439-98-7	E420/WP	0.000050	mg/L	0.00104	----	----	----	----
Nickel, total	7440-02-0	E420/WP	0.00050	mg/L	0.00380	----	----	----	----
Phosphorus, total	7723-14-0	E420/WP	0.050	mg/L	4.19	----	----	----	----
Potassium, total	7440-09-7	E420/WP	0.050	mg/L	8.75	----	----	----	----
Rubidium, total	7440-17-7	E420/WP	0.00020	mg/L	0.00813	----	----	----	----
Selenium, total	7782-49-2	E420/WP	0.000050	mg/L	0.000324	----	----	----	----
Silicon, total	7440-21-3	E420/WP	0.10	mg/L	0.39	----	----	----	----
Silver, total	7440-22-4	E420/WP	0.000010	mg/L	0.000151	----	----	----	----
Sodium, total	7440-23-5	E420/WP	0.050	mg/L	31.1	----	----	----	----
Strontium, total	7440-24-6	E420/WP	0.00020	mg/L	0.0913	----	----	----	----
Sulfur, total	7704-34-9	E420/WP	0.50	mg/L	8.21	----	----	----	----
Tellurium, total	13494-80-9	E420/WP	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/WP	0.000010	mg/L	<0.000010	----	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	RANKIN INLET WWTP - EFFLUENT	----	----	----	----
					Client sampling date / time	28-Jul-2023 09:30	----	----	----	----
						WP2317759-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Thorium, total	7440-29-1	E420/WP	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/WP	0.00010	mg/L		0.00118	----	----	----	----
Titanium, total	7440-32-6	E420/WP	0.00030	mg/L		0.00436	----	----	----	----
Tungsten, total	7440-33-7	E420/WP	0.00010	mg/L		<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/WP	0.000010	mg/L		0.000263	----	----	----	----
Vanadium, total	7440-62-2	E420/WP	0.00050	mg/L		0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/WP	0.0030	mg/L		0.207	----	----	----	----
Zirconium, total	7440-67-7	E420/WP	0.00020	mg/L		0.00081	----	----	----	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	E550/WP	2.0	mg/L		92.9	----	----	----	----
Carbonaceous biochemical oxygen demand [CBOD]	----	E555/WP	2.0	mg/L		79.7	----	----	----	----
Oil & grease (gravimetric)	----	E567/WP	5.0	mg/L		30.2	----	----	----	----
Phenols, total (4AAP)	----	E562/WT	0.0010	mg/L		0.0135 DLM	----	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611A/WP	0.00050	mg/L		<0.00050	----	----	----	----
Ethylbenzene	100-41-4	E611A/WP	0.00050	mg/L		<0.00050	----	----	----	----
Toluene	108-88-3	E611A/WP	0.00050	mg/L		0.00750	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WP	0.00040	mg/L		<0.00040	----	----	----	----
Xylene, o-	95-47-6	E611A/WP	0.00030	mg/L		<0.00030	----	----	----	----
Xylenes, total	1330-20-7	E611A/WP	0.00050	mg/L		<0.00050	----	----	----	----
BTEX, total	----	E611A/WP	0.0010	mg/L		0.0075	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WP	0.10	mg/L		<0.10	----	----	----	----
F1-BTEX	----	EC580/WP	0.100	mg/L		<0.100	----	----	----	----
F2 (C10-C16)	----	E601/WP	0.10	mg/L		0.67	----	----	----	----
F3 (C16-C34)	----	E601/WP	0.25	mg/L		11.6	----	----	----	----
F4 (C34-C50)	----	E601/WP	0.25	mg/L		3.67	----	----	----	----
TEH (C10-C50)	n/a	E601/WP	0.40	mg/L		15.9	----	----	----	----
TEH (C16-C50)	----	E601/WP	0.40	mg/L		15.3	----	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: RANKIN INLET WWTP - EFFLUENT	----	----	----	----
					Client sampling date / time: 28-Jul-2023 09:30	----	----	----	----
					WP2317759-001	--------	--------	--------	--------
					Result	----	----	----	----
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WP	1.0	%	92.8	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WP	1.0	%	93.5	----	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611A/WP	1.0	%	79.0	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WP	1.0	%	104	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A/WT	0.010	µg/L	<0.089 RRR	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	0.010	µg/L	<0.077 RRR	----	----	----	----
Acridine	260-94-6	E641A/WT	0.010	µg/L	0.097	----	----	----	----
Anthracene	120-12-7	E641A/WT	0.010	µg/L	0.083	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	0.010	µg/L	0.223	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	0.0050	µg/L	0.251	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.010	µg/L	0.237	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT	0.015	µg/L	0.473	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.010	µg/L	0.201	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.010	µg/L	0.236	----	----	----	----
Chrysene	218-01-9	E641A/WT	0.010	µg/L	0.207	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.0050	µg/L	0.211	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	0.010	µg/L	<0.244 DLM	----	----	----	----
Fluorene	86-73-7	E641A/WT	0.010	µg/L	<0.108 DLM	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.010	µg/L	0.221	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.010	µg/L	<0.143 RRR	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	0.015	µg/L	<0.230	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.010	µg/L	<0.180 RRR	----	----	----	----
Naphthalene	91-20-3	E641A/WT	0.050	µg/L	<0.126 RRR	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	0.020	µg/L	0.116	----	----	----	----
Pyrene	129-00-0	E641A/WT	0.010	µg/L	<0.285 DLM	----	----	----	----
Quinoline	91-22-5	E641A/WT	0.050	µg/L	<0.572 DLM	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	0.010	µg/L	0.558	----	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT	0.030	µg/L	1.79	----	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: RANKIN INLET WWTP - EFFLUENT	----	----	----	----
					Client sampling date / time: 28-Jul-2023 09:30	----	----	----	----
					WP2317759-001	--------	--------	--------	--------
					Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	0.060	µg/L	<0.212	----	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT	0.070	µg/L	1.99	----	----	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	0.065	µg/L	1.99	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates									
Chrysene-d12	1719-03-5	E641A/WT	0.1	%	111	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%	166 SHMI	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%	119	----	----	----	----

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	: **WP2317759**	Page	: 1 of 14
Client	: **Government of Nunavut**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Steve Fitzpatrick	Account Manager	: Craig Riddell
Address	: P.O. Box 490 Rankin Inlet NU Canada X0C 0G0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 867 645 8155	Telephone	: +1 204 255 9720
Project	: Rankin Inlet WWTP Monthly Effluent	Date Samples Received	: 01-Aug-2023 12:16
PO	: ----	Issue Date	: 09-Aug-2023 18:05
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Analytical Testing DW & WW		
No. of samples received	: 1		
No. of samples analysed	: 1		

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 Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

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.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Total Metals	QC-MRG2-1069209 001	----	Silver, total	7440-22-4	E420	0.000060 B mg/L	0.00001 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Laboratory Control Sample (LCS) Recoveries								
Total Metals	QC-MRG2-1069209 002	----	Boron, total	7440-42-8	E420	130 % MES	80.0-120%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Regular Sample Surrogates

Sub-Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Polycyclic Aromatic Hydrocarbons Surrogates	WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Naphthalene-d8	1146-65-2	166 %	60.0-140 %	Recovery greater than upper data quality objective

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 / 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 : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT 3d] RANKIN INLET WWTP - EFFLUENT	E550	28-Jul-2023	----	----	----		02-Aug-2023	3 days	5 days	× EHTR
Aggregate Organics : Biochemical Oxygen Demand (Carbonaceous) - 5 day										
HDPE [BOD HT 3d] RANKIN INLET WWTP - EFFLUENT	E555	28-Jul-2023	----	----	----		02-Aug-2023	3 days	5 days	× EHTR
Aggregate Organics : Oil & Grease by Gravimetry										
Amber glass (hydrochloric acid) RANKIN INLET WWTP - EFFLUENT	E567	28-Jul-2023	03-Aug-2023	28 days	6 days	✓	03-Aug-2023	40 days	0 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) RANKIN INLET WWTP - EFFLUENT	E562	28-Jul-2023	05-Aug-2023	28 days	8 days	✓	08-Aug-2023	20 days	3 days	✓
Anions and Nutrients : Ammonia in Water by Colour										
HDPE RANKIN INLET WWTP - EFFLUENT	E303	28-Jul-2023	02-Aug-2023	3 days	5 days	× EHTR	03-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE RANKIN INLET WWTP - EFFLUENT	E235.Cl	28-Jul-2023	02-Aug-2023	28 days	5 days	✓	02-Aug-2023	23 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE RANKIN INLET WWTP - EFFLUENT	E235.F	28-Jul-2023	02-Aug-2023	28 days	5 days	✓	02-Aug-2023	23 days	0 days	✓

Matrix: **Water**

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

Analyte Group / 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
Anions and Nutrients : Nitrate in Water by IC										
HDPE RANKIN INLET WWTP - EFFLUENT	E235.NO3	28-Jul-2023	02-Aug-2023	3 days	5 days	✗ EHTR	02-Aug-2023	-2 days	0 days	✗ UCP
Anions and Nutrients : Nitrite in Water by IC										
HDPE RANKIN INLET WWTP - EFFLUENT	E235.NO2	28-Jul-2023	02-Aug-2023	3 days	5 days	✗ EHTR	02-Aug-2023	-2 days	0 days	✗ UCP
Anions and Nutrients : Sulfate in Water by IC										
HDPE RANKIN INLET WWTP - EFFLUENT	E235.SO4	28-Jul-2023	02-Aug-2023	28 days	5 days	✓	02-Aug-2023	23 days	0 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.02 mg/L)										
HDPE RANKIN INLET WWTP - EFFLUENT	E372	28-Jul-2023	03-Aug-2023	3 days	6 days	✗ EHTR	04-Aug-2023	28 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) RANKIN INLET WWTP - EFFLUENT	E581.F1	28-Jul-2023	03-Aug-2023	14 days	6 days	✓	04-Aug-2023	8 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) RANKIN INLET WWTP - EFFLUENT	E601	28-Jul-2023	08-Aug-2023	14 days	11 days	✓	09-Aug-2023	40 days	1 days	✓
Microbiological Tests : Thermotolerant (Fecal) Coliform (Enzyme Substrate) 1:10										
Sterile HDPE (Sodium thiosulphate) RANKIN INLET WWTP - EFFLUENT	E010.FC-H	28-Jul-2023	----	----	----		02-Aug-2023	30 hrs	130 hrs	✗ EHTR
Microbiological Tests : Total Coliforms and E. coli (Enzyme Substrate)- 1:10										
Sterile HDPE (Sodium thiosulphate) RANKIN INLET WWTP - EFFLUENT	E010-H	28-Jul-2023	----	----	----		02-Aug-2023	30 hrs	130 hrs	✗ EHTR
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
HDPE RANKIN INLET WWTP - EFFLUENT	E355-L	28-Jul-2023	02-Aug-2023	3 days	5 days	✗ EHTR	02-Aug-2023	28 days	0 days	✓

Matrix: **Water**

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

Analyte Group / 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
Physical Tests : Alkalinity Species by Titration										
HDPE RANKIN INLET WWTP - EFFLUENT	E290	28-Jul-2023	02-Aug-2023	14 days	5 days	✓	02-Aug-2023	9 days	0 days	✓
Physical Tests : Conductivity in Water										
HDPE RANKIN INLET WWTP - EFFLUENT	E100	28-Jul-2023	02-Aug-2023	28 days	5 days	✓	02-Aug-2023	23 days	0 days	✓
Physical Tests : pH by Meter										
HDPE RANKIN INLET WWTP - EFFLUENT	E108	28-Jul-2023	02-Aug-2023	0.01 hrs	0.25 hrs	× EHTR-FM	02-Aug-2023	-123.32 hrs	0.01 hrs	× UCP
Physical Tests : TSS by Gravimetry										
HDPE RANKIN INLET WWTP - EFFLUENT	E160	28-Jul-2023	----	----	----		03-Aug-2023	7 days	6 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) RANKIN INLET WWTP - EFFLUENT	E641A	28-Jul-2023	04-Aug-2023	14 days	7 days	✓	08-Aug-2023	40 days	4 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) RANKIN INLET WWTP - EFFLUENT	E508	28-Jul-2023	04-Aug-2023	28 days	7 days	✓	04-Aug-2023	21 days	0 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) RANKIN INLET WWTP - EFFLUENT	E420	28-Jul-2023	03-Aug-2023	180 days	6 days	✓	03-Aug-2023	174 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) RANKIN INLET WWTP - EFFLUENT	E611A	28-Jul-2023	03-Aug-2023	14 days	6 days	✓	04-Aug-2023	8 days	1 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

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

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

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

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)							
Alkalinity Species by Titration	E290	1067726	1	4	25.0	5.0	✓
Ammonia in Water by Colour	E303	1068040	1	20	5.0	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	1068634	1	20	5.0	5.0	✓
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555	1068633	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1070199	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1070201	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	1067681	1	18	5.5	5.0	✓
Conductivity in Water	E100	1067725	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1067685	1	2	50.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1067682	1	2	50.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1067683	1	2	50.0	5.0	✓
pH by Meter	E108	1067724	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1072733	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1067684	1	1	100.0	5.0	✓
Thermotolerant (Fecal) Coliform (Enzyme Substrate) 1:10	E010.FC-H	1068681	1	4	25.0	5.0	✓
Total Coliforms and E. coli (Enzyme Substrate)- 1:10	E010-H	1068756	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1071778	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1069210	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1067942	1	16	6.2	5.0	✓
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1070570	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1068243	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1067726	1	4	25.0	5.0	✓
Ammonia in Water by Colour	E303	1068040	1	20	5.0	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	1068634	1	20	5.0	5.0	✓
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555	1068633	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1070199	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1070201	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1074985	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1067681	1	18	5.5	5.0	✓
Conductivity in Water	E100	1067725	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1067685	1	2	50.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1067682	1	2	50.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1067683	1	2	50.0	5.0	✓
Oil & Grease by Gravimetry	E567	1069323	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1072162	1	2	50.0	5.0	✓

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 Control Samples (LCS) - Continued							
pH by Meter	E108	1067724	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1072733	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1067684	1	1	100.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1071778	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1069210	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1067942	1	16	6.2	5.0	✓
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1070570	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1068243	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1067726	1	4	25.0	5.0	✓
Ammonia in Water by Colour	E303	1068040	1	20	5.0	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	1068634	1	20	5.0	5.0	✓
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555	1068633	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1070199	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1070201	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1074985	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1067681	1	18	5.5	5.0	✓
Conductivity in Water	E100	1067725	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1067685	1	2	50.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1067682	1	2	50.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1067683	1	2	50.0	5.0	✓
Oil & Grease by Gravimetry	E567	1069323	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1072162	1	2	50.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1072733	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1067684	1	1	100.0	5.0	✓
Thermotolerant (Fecal) Coliform (Enzyme Substrate) 1:10	E010.FC-H	1068681	1	4	25.0	5.0	✓
Total Coliforms and E. coli (Enzyme Substrate)- 1:10	E010-H	1068756	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1071778	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1069210	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1067942	1	16	6.2	5.0	✓
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1070570	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1068243	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia in Water by Colour	E303	1068040	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1070199	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1070201	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	1067681	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1067685	1	2	50.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1067682	1	2	50.0	5.0	✓

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*
Matrix Spikes (MS) - Continued							
Nitrite in Water by IC	E235.NO2	1067683	1	2	50.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1072733	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1067684	1	1	100.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1071778	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1069210	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1067942	1	16	6.2	5.0	✓
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1070570	1	20	5.0	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
Thermotolerant (Fecal) Coliform (Enzyme Substrate) 1:10	E010.FC-H ALS Environmental - Winnipeg	Water	APHA 9223 (mod)	The enzyme substrate test detects Thermotolerant Coliforms in a 100 mL sample after an 18 hour incubation at 44.5 ±0.2°C. Sample dilution performed.
Total Coliforms and E. coli (Enzyme Substrate) - 1:10	E010-H ALS Environmental - Winnipeg	Water	APHA 9223 (mod)	The enzyme substrate test simultaneously detects Total Coliforms and E. coli in a 100 mL sample after incubation at 35.0 ±0.5°C for either 18 or 24 hours (dependent on reagent used). Sample dilution performed.
Conductivity in Water	E100 ALS Environmental - Winnipeg	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Winnipeg	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Winnipeg	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Chloride in Water by IC	E235.Cl ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Winnipeg	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia in Water by Colour	E303 ALS Environmental - Winnipeg	Water	APHA 4500 NH3-NITROGEN (AMMONIA)	This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Total Phosphorus by Colourimetry (0.02 mg/L)	E372 ALS Environmental - Winnipeg	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total metals in Water by CRC ICPMS	E420 ALS Environmental - Winnipeg	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Winnipeg	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Biochemical Oxygen Demand - 5 day	E550 ALS Environmental - Winnipeg	Water	APHA 5210 B (mod)	Samples are diluted and incubated for a specified time period, after which the oxygen depletion is measured using a dissolved oxygen meter. Free chlorine is a negative interference in the BOD method; please advise ALS when free chlorine is present in samples.
Biochemical Oxygen Demand (Carbonaceous) - 5 day	E555 ALS Environmental - Winnipeg	Water	APHA 5210 B (mod)	Samples are diluted and incubated for a specified time period, after which the oxygen depletion is measured using a dissolved oxygen meter. Nitrification inhibitor is added to samples to prevent nitrogenous compounds from consuming oxygen resulting in only carbonaceous oxygen demand being reported by this method. Free chlorine is a negative interference in the BOD method; please advise ALS when free chlorine is present in samples.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Waterloo	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
Oil & Grease by Gravimetry	E567 ALS Environmental - Winnipeg	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane and the extract is evaporated to dryness. The residue is then weighed to determine Oil and Grease.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Winnipeg	Water	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Winnipeg	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Winnipeg	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Winnipeg	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in $CaCO_3$ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Winnipeg	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
F1-BTEX	EC580 ALS Environmental - Winnipeg	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Winnipeg	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Winnipeg	Water		Preparation for Total Organic Carbon by Combustion
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Winnipeg	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Oil & Grease Extraction for Gravimetry	EP567 ALS Environmental - Winnipeg	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane by liquid-liquid extraction.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Winnipeg	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Winnipeg	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

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QUALITY CONTROL REPORT

Work Order	: **WP2317759**	Page	: 1 of 16
Client	: Government of Nunavut	Laboratory	: ALS Environmental - Winnipeg
Contact	: Steve Fitzpatrick	Account Manager	: Craig Riddell
Address	: P.O. Box 490 Rankin Inlet NU Canada X0C 0G0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	:	Telephone	: +1 204 255 9720
Project	: Rankin Inlet WWTP Monthly Effluent	Date Samples Received	: 01-Aug-2023 12:16
PO	: ----	Date Analysis Commenced	: 02-Aug-2023
C-O-C number	: ----	Issue Date	: 09-Aug-2023 18:05
Sampler	: ---- 867 645 8155		
Site	: ----		
Quote number	: Analytical Testing DW & WW		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ana Srzic		Winnipeg Organics, Winnipeg, Manitoba
Dung Hoang		Winnipeg Organics, Winnipeg, Manitoba
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Lee McTavish		Winnipeg Inorganics, Winnipeg, Manitoba
Lee McTavish		Winnipeg Metals, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Winnipeg Organics, Winnipeg, Manitoba
Oren Wurenqiqige	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
Physical Tests (QC Lot: 1067724)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	pH	----	E108	0.10	pH units	7.27	7.29	0.275%	4%	----
Physical Tests (QC Lot: 1067725)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Conductivity	----	E100	2.0	µS/cm	473	476	0.632%	10%	----
Physical Tests (QC Lot: 1067726)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	128	129	0.854%	20%	----
Physical Tests (QC Lot: 1068243)											
WP2317768-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	162	158	2.49%	20%	----
Anions and Nutrients (QC Lot: 1067681)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Chloride	16887-00-6	E235.Cl	0.50	mg/L	50.5	50.2	0.585%	20%	----
Anions and Nutrients (QC Lot: 1067682)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1067683)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1067684)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	16.8	16.8	0.145%	20%	----
Anions and Nutrients (QC Lot: 1067685)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.037	0.035	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1068040)											
WP2317776-007	Anonymous	Ammonia, total (as N)	7664-41-7	E303	0.500	mg/L	11.5	11.8	2.42%	20%	----
Anions and Nutrients (QC Lot: 1070570)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Phosphorus, total	7723-14-0	E372	0.400	mg/L	3.89	3.70	0.185	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1067942)											
WP2317568-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	6.98	7.01	0.493%	20%	----
Microbiological Tests (QC Lot: 1068681)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Coliforms, thermotolerant [fecal]	----	E010.FC-H	10	MPN/100mL	>24200	>24200	0.00%	65%	----

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*
Microbiological Tests (QC Lot: 1068756)											
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Coliforms, Escherichia coli [E. coli]	----	E010-H	10	MPN/100mL	>24200	>24200	0.00%	65%	----
		Coliforms, total	----	E010-H	10	MPN/100mL	>24200	>24200	0.00%	65%	----
Total Metals (QC Lot: 1069210)											
WP2317751-002	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.576	0.588	2.17%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0251	0.0254	0.968%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	0.000022	0.000002	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.017	0.017	0.0002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	0.0000058	0.0000008	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	21.2	21.5	1.42%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000053	0.000051	0.000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00089	0.00098	0.00009	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00022	0.00023	0.000008	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00179	0.00174	0.00004	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.460	0.466	1.36%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000236	0.000240	0.000004	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0073	0.0072	0.00003	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	9.99	10.0	0.577%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00930	0.00959	3.10%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000445	0.000441	0.000004	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00138	0.00137	0.000005	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	2.16	2.16	0.191%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00212	0.00233	9.34%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000113	0.000134	0.000022	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.46	3.52	1.73%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	8.90	8.96	0.652%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0704	0.0700	0.469%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	6.94	7.14	2.84%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000011	<0.000010	0.0000009	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	0.00020	0.00019	0.00001	Diff <2x LOR	----

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*
Total Metals (QC Lot: 1069210) - continued											
WP2317751-002	Anonymous	Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.0199	0.0203	2.28%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000494	0.000482	2.32%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00193	0.00197	0.00004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	0.00059	0.00057	0.00002	Diff <2x LOR	----
Total Metals (QC Lot: 1071778)											
WP2317248-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1068633)											
WP2317486-001	Anonymous	Carbonaceous biochemical oxygen demand [CBOD]	----	E555	2.0	mg/L	<2.0	<2.0	0.0%	30%	----
Aggregate Organics (QC Lot: 1068634)											
WP2317444-001	Anonymous	Biochemical oxygen demand [BOD]	----	E550	2.0	mg/L	5.5	5.7	3.6%	30%	----
Aggregate Organics (QC Lot: 1072733)											
BF2300186-003	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1070199)											
WP2317754-003	Anonymous	Benzene	71-43-2	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.00040 mg/L	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.00030 mg/L	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1070201)											
WP2317754-003	Anonymous	F1 (C6-C10)	----	E581.F1	100	µg/L	<0.10 mg/L	<100	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
Physical Tests (QCLot: 1067725)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1067726)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1068243)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1067681)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1067682)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1067683)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1067684)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1067685)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1068040)						
Ammonia, total (as N)	7664-41-7	E303	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1070570)						
Phosphorus, total	7723-14-0	E372	0.02	mg/L	<0.020	----
Organic / Inorganic Carbon (QCLot: 1067942)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Microbiological Tests (QCLot: 1068681)						
Coliforms, thermotolerant [fecal]	----	E010.FC-H	10	MPN/100mL	<10	----
Microbiological Tests (QCLot: 1068756)						
Coliforms, Escherichia coli [E. coli]	----	E010-H	10	MPN/100mL	<10	----
Coliforms, total	----	E010-H	10	MPN/100mL	<10	----
Total Metals (QCLot: 1069210)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1069210) - continued						
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	# 0.000060	B
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1071778)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1071778) - continued						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 1068633)						
Carbonaceous biochemical oxygen demand [CBOD]	----	E555	2	mg/L	<2.0	----
Aggregate Organics (QCLot: 1068634)						
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	<2.0	----
Aggregate Organics (QCLot: 1069323)						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
Aggregate Organics (QCLot: 1072733)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1070199)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1070201)						
F1 (C6-C10)	----	E581.F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1074985)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1072162)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1072162) - continued						
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

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	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1067724)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1067725)									
Conductivity	----	E100	1	µS/cm	1412 µS/cm	98.7	90.0	110	----
Physical Tests (QCLot: 1067726)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	100 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1068243)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	99.8	85.0	115	----
Anions and Nutrients (QCLot: 1067681)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1067682)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1067683)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1067684)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 1067685)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1068040)									
Ammonia, total (as N)	7664-41-7	E303	0.01	mg/L	0.25 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1070570)									
Phosphorus, total	7723-14-0	E372	0.02	mg/L	0.5 mg/L	92.0	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1067942)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Total Metals (QCLot: 1069210)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	107	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	115	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1069210) - continued									
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	109	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	# 130	80.0	120	MES
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	107	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	109	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	97.5	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	112	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	110	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	108	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	113	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	113	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	111	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	115	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	120	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	114	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	97.5	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	107	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	107	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	106	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	104	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	107	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	112	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	108	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	105	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.8	80.0	120	----
Total Metals (QCLot: 1071778)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	97.3	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Aggregate Organics (QCLot: 1068633)									
Carbonaceous biochemical oxygen demand [CBOD]	----	E555	2	mg/L	198 mg/L	101	85.0	115	----
Aggregate Organics (QCLot: 1068634)									
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	198 mg/L	98.5	85.0	115	----
Aggregate Organics (QCLot: 1069323)									
Oil & grease (gravimetric)	----	E567	5	mg/L	100 mg/L	107	70.0	130	----
Aggregate Organics (QCLot: 1072733)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	99.6	85.0	115	----
Volatile Organic Compounds (QCLot: 1070199)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	94.2	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	92.6	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	85.4	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	104	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	108	70.0	130	----
Hydrocarbons (QCLot: 1070201)									
F1 (C6-C10)	----	E581.F1	100	µg/L	5390 µg/L	74.4	70.0	130	----
Hydrocarbons (QCLot: 1074985)									
F2 (C10-C16)	----	E601	100	µg/L	3404 µg/L	104	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	6777 µg/L	91.4	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5835 µg/L	100.0	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1072162)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5263 µg/L	99.2	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5263 µg/L	95.2	50.0	140	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5263 µg/L	92.8	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5263 µg/L	92.0	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5263 µg/L	99.5	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5263 µg/L	95.7	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5263 µg/L	89.4	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5263 µg/L	114	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5263 µg/L	95.9	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5263 µg/L	104	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5263 µg/L	98.1	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5263 µg/L	101	50.0	140	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1072162) - continued									
Fluorene	86-73-7	E641A	0.01	µg/L	0.5263 µg/L	99.0	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5263 µg/L	113	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5263 µg/L	97.6	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5263 µg/L	100	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5263 µg/L	98.6	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5263 µg/L	100	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5263 µg/L	99.6	50.0	140	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5263 µg/L	110	50.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

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
Anions and Nutrients (QCLot: 1067681)										
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Chloride	16887-00-6	E235.Cl	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1067682)										
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Nitrate (as N)	14797-55-8	E235.NO3	2.50 mg/L	2.5 mg/L	100.0	75.0	125	----
Anions and Nutrients (QCLot: 1067683)										
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Nitrite (as N)	14797-65-0	E235.NO2	0.518 mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1067684)										
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1067685)										
WP2317759-001	RANKIN INLET WWTP - EFFLUENT	Fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1068040)										
WP2317776-007	Anonymous	Ammonia, total (as N)	7664-41-7	E303	ND mg/L	0.25 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 1070570)										
WP2317761-001	Anonymous	Phosphorus, total	7723-14-0	E372	0.238 mg/L	0.25 mg/L	95.1	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1067942)										
WP2317751-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Metals (QCLot: 1069210)										
WP2317751-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	0.2 mg/L	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0423 mg/L	0.04 mg/L	106	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0108 mg/L	0.01 mg/L	108	70.0	130	----
		Boron, total	7440-42-8	E420	0.104 mg/L	0.1 mg/L	104	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00970 mg/L	0.01 mg/L	97.0	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0426 mg/L	0.04 mg/L	106	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0207 mg/L	0.02 mg/L	103	70.0	130	----

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
Total Metals (QCLot: 1069210) - continued										
WP2317751-002	Anonymous	Copper, total	7440-50-8	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Iron, total	7439-89-6	E420	2.12 mg/L	2 mg/L	106	70.0	130	----
		Lead, total	7439-92-1	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0995 mg/L	0.1 mg/L	99.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.6 mg/L	10 mg/L	106	70.0	130	----
		Potassium, total	7440-09-7	E420	4.18 mg/L	4 mg/L	104	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0425 mg/L	0.04 mg/L	106	70.0	130	----
		Silicon, total	7440-21-3	E420	10.5 mg/L	10 mg/L	105	70.0	130	----
		Silver, total	7440-22-4	E420	0.00427 mg/L	0.004 mg/L	107	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	20.5 mg/L	20 mg/L	103	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00405 mg/L	0.004 mg/L	101	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		Tin, total	7440-31-5	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00397 mg/L	0.004 mg/L	99.4	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.104 mg/L	0.1 mg/L	104	70.0	130	----
		Zinc, total	7440-66-6	E420	0.410 mg/L	0.4 mg/L	103	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
Total Metals (QCLot: 1071778)										
WP2317248-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000965 mg/L	0.0001 mg/L	96.5	70.0	130	----
Aggregate Organics (QCLot: 1072733)										
BF2300186-003	Anonymous	Phenols, total (4AAP)	----	E562	0.0196 mg/L	0.02 mg/L	98.3	75.0	125	----
Volatile Organic Compounds (QCLot: 1070199)										
WP2317754-003	Anonymous	Benzene	71-43-2	E611A	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Ethylbenzene	100-41-4	E611A	84.3 µg/L	100 µg/L	84.3	60.0	140	----

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
Volatile Organic Compounds (QCLot: 1070199) - continued										
WP2317754-003	Anonymous	Toluene	108-88-3	E611A	80.0 µg/L	100 µg/L	80.0	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	200 µg/L	200 µg/L	100	60.0	140	----
		Xylene, o-	95-47-6	E611A	102 µg/L	100 µg/L	102	60.0	140	----
Hydrocarbons (QCLot: 1070201)										
WP2317754-003	Anonymous	F1 (C6-C10)	----	E581.F1	4630 µg/L	5390 µg/L	85.9	60.0	140	----

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	Nunavut - CGS - Rankin Inlet W8133
Contact:	Steve Fitzpatrick
Phone:	867-645-8172
	Company address below will appear on the final report
Street:	Box 490
City/Province:	Rankin Inlet, NU
Postal Code:	X0C 0G0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	Nunavut CGS W8133
Contact:	

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	kivalliqwatersamples@gov.nu.ca
Email 2	sfitzpatrick1@gov.nu.ca
Email 3	jstrickland@gov.nu.ca

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	smerkosak@gov.nu.ca
Email 2	

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4] ☐		1 Business day [E1] ☐
	3 day [P3] ☐		Same Day, Weekend or Statutory holiday [E0] ☐
	2 day [P2] ☐		

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

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	W8133	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: Craig Riddell	Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX F1-F4-WP	PAH-PANH-WP	NUNAVDE-WW-GRP1-WP	F-IC-N-WP	TC-EC-QT97-WP								Number of Containers
					P	P	P	P		P	P						
	Rankin Inlet WWTP - Effluent	28/7/23	9:30	Waste													15

Environmental Division
Winnipeg
Work Order Reference
WP2317759

Telephone : +1 204 255 9720

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☑ YES ☐ NO	Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
Are samples for human drinking water use? ☑ YES ☐ NO	MB-CH-PWS-WP THMs (treated water only) HAAs (treated water only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C		
	12.9			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Bill Ross	Date: 28/7/23	Time: 9:30	Received by:	Date: AUG 1 0 2023	Time: 12:16	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 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.