



REPORT

DAMOTI LAKE SURVEILLANCE NETWORK PROGRAM

Results From June 2024 Monitoring Event

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1.0 INTRODUCTION

The Damoti Lake Site (Damoti) is located 200 km north of Yellowknife in the Northwest Territories (NT), within the Wek'èezhìi co-management land boundaries. Nighthawk Gold Corp (Nighthawk), subsidiary of STLLR Gold Inc. (STLLR), in this report referenced as STLLR, currently holds the leases to Damoti. WSP Canada Inc. (WSP), carried out the Surveillance Network Program (SNP) monitoring on behalf of STLLR on 3 June 2024, to meet the requirements of Type A Water Licence W2021L2-0004 (Water Licence; WLWB 2023). This report summarizes the results of the June 2024 SNP field program.

2.0 METHODS

2.1 Sampling Locations

2.1.1 Water Licence Surveillance Network Program

SNP stations were visited to collect in situ measurements and surface water grab samples on 3 June 2024 (Table 1, Figure 1 and Figure 2, Appendix A). Station SNP 5-14 was visited, although water quality samples were not collected for analysis because insufficient water was present at this location (Appendix A, Photograph A-10).

Table 1: Surveillance Network Program Stations Sampled on 3 June 2024

Station ^(a)	Location ^(b)	UTM Coordinates ^(c)	
		Easting (m)	Northing (m)
SNP 5-4	Inflow from wetlands into Lardass Lake	591819	7113641
SNP 5-5	Lardass Lake	591759	7113638
SNP 5-6	Runoff from ore rock pile	591876	7113876
SNP 5-8	Damoti Lake site decline ramp (Minewater pooled at entrance of Adit)	591859	7113979
SNP 5-9	Pool of standing water immediately west of waste rock pile	591894	7113983
SNP 5-11	Pool of standing water next to waste rock/ore stockpiles	591904	7113947
SNP 5-12	Pool of standing water in rock pile area	591908	7113934
SNP 5-13	Pool of standing water in waste rock/ore pile area	591882	7113922
SNP 5-14 ^(d)	Flow pathway between the rock/ore pile area and Lardass Lake	591821	7113754

Notes:

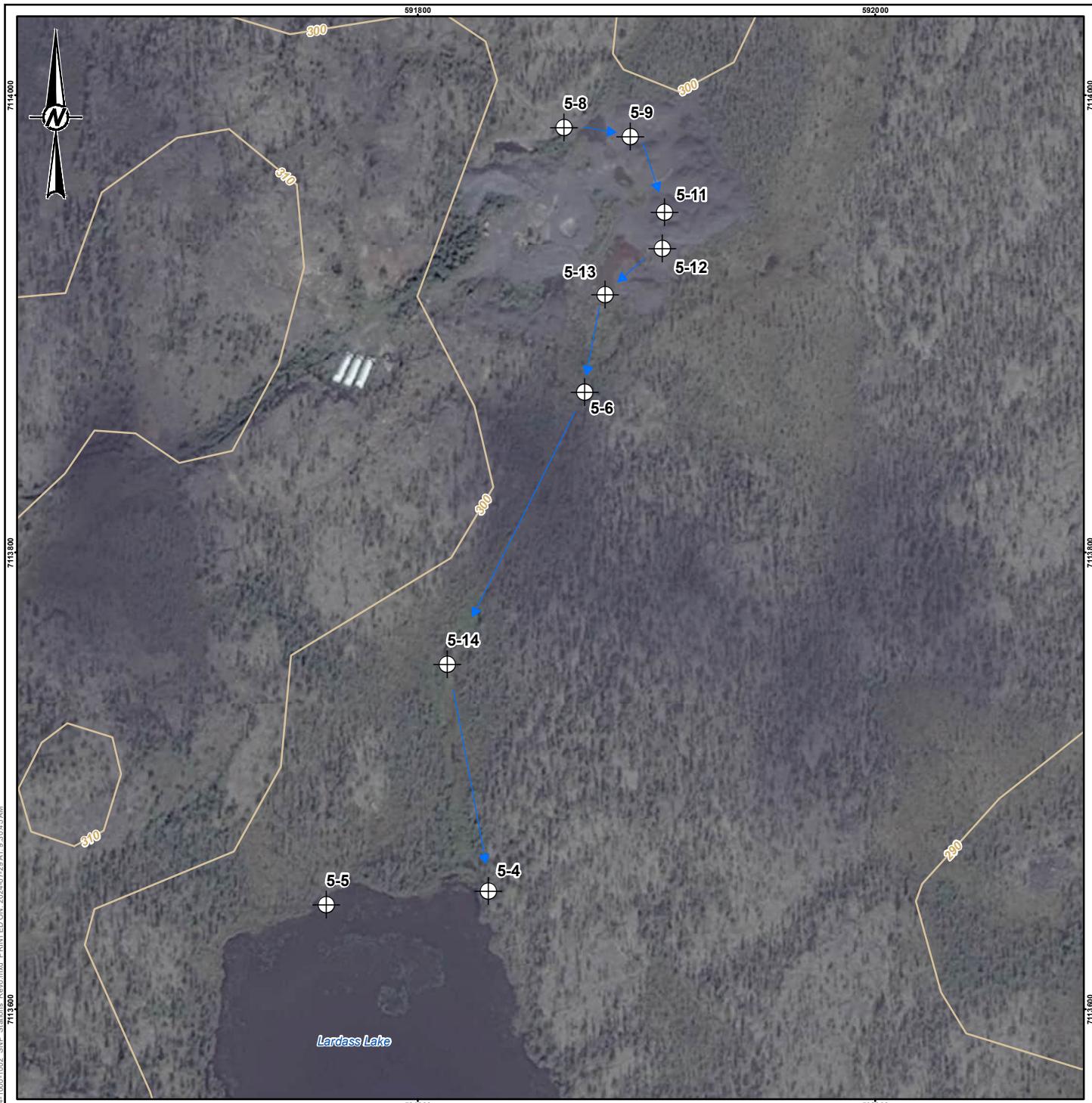
(a) SNP 5-1, SNP 5-2, SNP 5-3, and SNP 5-15 are currently inactive based on-site conditions (WLWB 2023). SNP 5-1 and SNP 5-2 were not sampled because minewater was not being discharged from the adit into the settling pond, SNP 5-3 was not sampled because water was not being pumped for camp use, and SNP 5-15 was not sampled because no artesian aquifers have been encountered.

(b) Photographs of stations visited during the June 2024 field program are provided in Appendix A.

(c) UTM coordinates are in NAD83, Zone 11W.

(d) Previously referred to as FB-100.

SNP = Surveillance Network Program; UTM = Universal Transverse Mercator; m = metres.


LEGEND

- SNP STATION
- ELEVATION CONTOUR (m)
- FLOW PATH

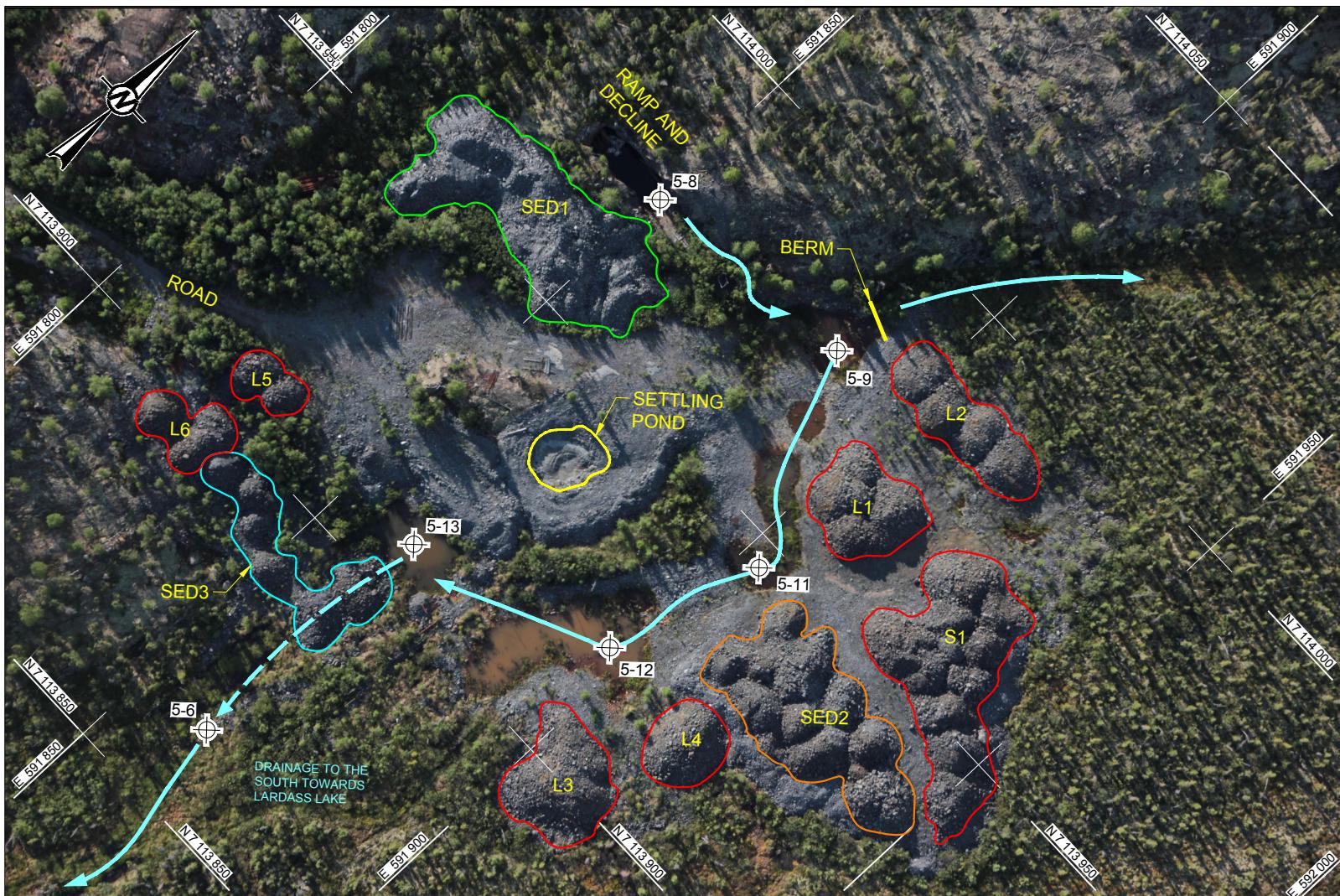

REFERENCE(S)

1. BACKGROUND IMAGERY OBTAINED FROM BING MAPS FOR ARCGIS PUBLISHED BY MICROSOFT CORPORATION, REDMOND, WA.
PROJECTION: UTM ZONE 11 DATUM: NAD83

YYYY-MM-DD	2024-07-29
DESIGNED	SP
PREPARED	NB
REVIEWED	MI
APPROVED	KS

WSP

PROJECT NO. CA0034908.5454 PHASE/TASK 1000.1002 REV. 0 FIGURE 1



LEGEND	
S1, L1, L2, L3, L4, L5, L6	SNP STATION
SED1	SURFICIAL DRAINAGE PATTERNS
SED2	GENERAL DRAINAGE PATTERNS
SED3	DOMINANT WASTE ROCK TYPE IN PILE
	S = SULPHIDE BANDED IRON FORMATION
	L = LOW SULPHIDE BANDED IRON FORMATION
	SED = SEDIMENTARY

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CONSULTANT



YYYY-MM-DD 2024-07-29

DESIGNED NB/SP

PREPARED GS

REVIEWED MI

APPROVED KS



PROJECT
DAMOTI SNP JUNE 2024

TITLE
**SITE DRAINAGE PATTERNS AT THE
DAMOTI LAKE ROCK PILE AREA**

PROJECT NO. CA0034908.5454 1000/1002
PHASE/TASK REV. 0

NOTES

- GRID IS DISPLAYED IN NAD83 UTM ZONE 11 COORDINATES.
- AIRPHOTO SCALE IS APPROXIMATE.

REFERENCE

JUNE 2012 AIRPHOTO TAKEN BY GOLDER ASSOCIATES LTD. FIELD STAFF.

2.2 Sampling Methods

2.2.1 Field Measurements

Prior to collecting surface water grab samples, ambient wind and weather conditions were recorded along with in-situ measurements of the following water quality parameters:

- water temperature (°C)
- pH
- dissolved oxygen (DO; milligrams per litre [mg/L] and percent saturation [%])
- specific conductivity (microsiemens per centimetre [$\mu\text{S}/\text{cm}$])

A YSI multiparameter water quality meter was used for the in-situ measurements. An Oakton 30 handheld pH meter was used to confirm field measurements. Water depth was measured at each sampling location. Flow and volume measurements were not recorded because water was not being pumped for camp or industrial use.

2.2.2 Water Quality and Acute Toxicity Sampling

Surface water quality grab samples were collected in accordance with WSP's technical procedures for surface water sample collection, using plastic and glass bottles depending on the parameter or parameter group being sampled. Sample bottles were submerged approximately 0.3 m below the water surface at each SNP station, except at the following stations where water depths were <0.3 m:

- SNP 5-6: A syringe was used to collect water from the surface and fill the sample bottle due to low water levels (<0.1 m), as well as to collect the sample from the same depth as the toxicity sample (near the surface).
- SNP 5-12: The sample bottle was submerged approximately 0.2 m below the water surface due to low water levels (<0.1 m).

Water quality samples were field-filtered and preserved according to laboratory instructions and were kept cool until delivery to ALS Environmental (ALS) in Yellowknife, NT. After delivery to ALS in Yellowknife, samples were shipped to Burnaby, British Columbia, for analysis.

Acute toxicity samples from SNP 5-6 were collected at the same depth of the water quality sample (i.e., near the surface, as the water level was low) using a peristaltic pump, tubing, and 10-litre low-density polyethylene plastic carboys. Although water level was low, an adequate volume of water was available for sample collection. Carboys and lids were rinsed three times with sample water prior to sample collection. Acute toxicity samples were kept cool and shipped to Nautilus Environmental (Nautilus) in Calgary, Alberta. Upon receipt at Nautilus, samples were refrigerated at 4°C and acute toxicity tests were initiated within five days of sample collection (within the recommended hold time for acute toxicity tests).

2.3 Laboratory Analyses

Surface water samples were analyzed for the parameters outlined in Table 2. These parameters are either required by the SNP annexed to the Water Licence or were analyzed to support the Interim Closure and Reclamation Plan and to develop the historical dataset for the aquatic receiving environment.

Table 2: Parameter List for Each Surveillance Network Program Station

Station	Parameters
SNP 5-4	Conventional (pH, specific conductivity, hardness, total suspended solids, total dissolved solids, and dissolved organic carbon), major ions (calcium, magnesium, potassium, sodium, and sulphate), nutrients (nitrate, nitrite, total ammonia, low-level total phosphorus, and dissolved phosphorus), total metals ^(a) (plus total mercury), dissolved metals ^(a)
SNP 5-5	
SNP 5-6	Conventional (pH, specific conductivity, hardness, total suspended solids, total dissolved solids, and dissolved organic carbon), major ions (calcium, magnesium, potassium, sodium, and sulphate), nutrients (nitrate, nitrite, total ammonia, low-level total phosphorus, and dissolved phosphorus), total metals ^(a) , dissolved metals ^(a) , acute toxicity (Rainbow Trout [<i>Oncorhynchus mykiss</i>] and <i>Daphnia magna</i>) ^(b)
SNP 5-8	
SNP 5-9	
SNP 5-11	
SNP 5-12	
SNP 5-13	
SNP 5-14 ^(c)	Conventional (pH, specific conductivity, and total suspended solids, total dissolved solids (calculated)), major ions (calcium, magnesium, potassium, sodium, and sulphate), nutrients (nitrate, nitrite, total ammonia, low-level total phosphorus, total metals ^(a) (plus total mercury), dissolved metals ^(a)

Notes:

- (a) Total and dissolved metals include metalloids such as arsenic and non-metals such as selenium (WLWB 2023). The list of elements include: aluminum (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), cobalt (Co), copper (Cu), chromium (Cr), cesium (Cs), iron (Fe), lead (Pb), lithium (Li), manganese (Mn), molybdenum (Mo), nickel (Ni), rubidium (Rb), selenium (Se), strontium (Sr), titanium (Ti), thallium (Tl), uranium (U), vanadium (V), and zinc (Zn).
- (b) Static pass/fail (single-concentration) test for Rainbow Trout and *Daphnia magna* per Environment Canada's Biological Test Methods Environment Protection Series (EPS 1/RM/13 – Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout [Environment Canada 2007], and EPS 1/RM/14 – Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* [Environment Canada 2000]).
- (c) SNP 5-14 was visited on 3 June, but no water quality sample was collected due to insufficient water.

SNP = Surveillance Network Program.

2.4 Data Analysis

Analytical results from station SNP 5-6 were compared to applicable effluent quality criteria (EQC) as specified in the Water Licence, i.e., maximum average concentration and maximum concentration of any grab sample. For SNP stations at Lardass Lake (SNP 5-4 and SNP 5-5), analytical results were compared to water quality objectives, i.e. the lowest of the Canadian Council of Ministers of the Environment (CCME) guidelines for the protection of aquatic life and livestock (wildlife) health (CCME 1999 with updates) as well as the federal environmental quality guidelines (FEQG) for cobalt (ECCC 2017), strontium (ECCC 2020), and vanadium (ECCC 2016).

Laboratory pH is considered less reliable than field pH because the recommended holding time of 15 minutes cannot be met due to sample transport and shipping. Field pH values were therefore used to calculate CCME guidelines, where applicable.

Results of acute toxicity testing for samples collected at SNP 5-6 were expressed as percent survival for Rainbow Trout (*Oncorhynchus mykiss*) and percent survival and immobility for *Daphnia magna*. A sample was considered acutely lethal if survival less than 50% was observed in the full-strength sample, per the regulatory definition (WLWB 2023).

2.5 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures and requirements are an important aspect of any field or laboratory testing program. The objective of the QA/QC program is to standardize methods such that field sampling, data entry, data analysis, and report preparation produce technically sound and scientifically defensible results.

As part of routine practices for field operations, the following QA procedures were undertaken:

- YSI/AquaTROLL water quality and Oakton pH meters were calibrated according to manufacturer recommendations prior to sample collection for the day.
- Field-measured pH values were verified using a second pH meter at the time of sample collection.
- Surface water samples were collected by experienced personnel following WSP's technical procedures for surface water sample collection.
- Detailed field notes were recorded in a waterproof field notebook.
- Field data were checked at the end of the sampling event for completeness and accuracy.
- Chain-of-custody (COC) forms were used to track all sample shipments from the field to the analytical laboratory.

The following QC samples were collected:

- A duplicate sample at SNP 5-6 to assess variability potentially introduced during sample collection, sample handling, and laboratory analytical procedures.
- A field blank at SNP 5-8 to assess potential contamination during sample collection.
- A travel blank to determine whether any contamination may have occurred during transportation, storage, or analysis.

The analytical laboratories, ALS and Nautilus, also have their own QA/QC programs, including laboratory replicate samples, sample blanks and control standards.

Upon receipt of the final Nautilus toxicity test reports, the following information was verified:

- The condition of samples received by Nautilus was acceptable (e.g., no broken containers or lids).
- The appropriate test species and test methods were used.
- Sample hold times were met.
- Sample temperatures at the time of sample receipt were within an acceptable range.
- Test conditions were within the required range and no unusual results were reported (e.g., pH, specific conductivity, storage temperature, or loading density).
- Test validity criteria were met for the laboratory control water as it pertains to the health histories and sensitivities of the organisms.
- No deviations from test procedures occurred that would influence the reliability of the data.

In addition, internal laboratory QC results were reviewed, and toxicity results were checked for completeness.

3.0 RESULTS

3.1 Water Quality and Acute Toxicity

Water quality results from the June 2024 program are presented in Appendix B. Ambient weather at the time of sampling included temperatures of approximately 12°C, mainly sunny and calm conditions with wind from the east, and cloud cover of approximately 20%.

Water quality and toxicity results for station SNP 5-6 are provided in Table B-1, including comparisons to applicable Water Licence limits (WLWB 2023). Results from Lardass Lake, SNP 5-4 and SNP 5-5, are provided in Table B-2, including comparisons to applicable CCME guidelines (CCME 1999 with updates). Results from the remaining SNP stations are presented in Table B-3. Analytical results provided by the laboratories (i.e., the certificate of analysis and the final toxicity report provided by Nautilus) are included in Appendix C.

At station SNP 5-6, parameter concentrations were below Water Licence EQC and within the required pH range of 5.5 to 9.5. The acute toxicity sample was not acutely toxic to Rainbow Trout or *D. magna* (survival = 100%) per the regulatory definition (Appendix B, Table B-1).

At Lardass Lake, SNP 5-4 and SNP 5-5, parameter concentrations were below the water quality objectives, i.e., the lowest of the CCME acute and chronic guidelines for the protection of aquatic life, the wildlife health guidelines, and applicable FEQG (Appendix B, Table B-2).

3.2 Quality Assurance/Quality Control

The QA/QC assessment of the data collected during the 3 June 2024 sampling event indicated that the data are adequate to address the objectives of the program (Appendix D). There was limited potential for contamination during sampling, transport, and laboratory analysis. Duplicate sample results indicated that intrastation variability was low (i.e., sampling precision was high). Parameter concentrations were consistently less than five times the detection limit in the field and travel blanks.

Recommended hold times between sample collection and analysis were generally met, except for total mercury. The low-level total mercury vials provided by ALS for sample collection were not cleaned by the laboratory to the required level to provide reliable detection limits. ALS analyzed this parameter 8 days after sample collection (within the standard hold time of 190 hours), but a qualifier was applied to the results.

All QA/QC requirements for the acute toxicity testing with samples collected from SNP 5-6 (Section 2.5) were met.

4.0 CLOSURE

We trust the above information satisfies the Water Licence requirements. If you have any questions or require additional information, please contact the undersigned.

WSP Canada Inc.



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SP/KS/MI/jlb/jr

5.0 REFERENCES

- CCME (Canadian Council of Ministers of the Environment). 1999. Canadian Environmental Quality Guidelines 1999, with updates to 2020. Winnipeg, MB. Accessed July 2023.
- EC (Environment Canada). 2000. Reference method for determining acute lethality of effluents to *Daphnia magna*, 2000. Environment Canada, EPS 1/RM/14. Second Edition.
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- ECCC (Environment and Climate Change Canada). 2016. Federal Environmental Quality Guidelines – Vanadium. Available at: [FEQG Vanadium EN.pdf \(ec.gc.ca\)](#).
- ECCC. 2017. Federal Environmental Quality Guidelines – Cobalt. Available at: [FEQG Cobalt Final EN.pdf \(ec.gc.ca\)](#).
- ECCC. 2020. Federal Environmental Quality Guidelines – Strontium. Available at: [Federal-environmental-quality-guidelines-strontium.pdf](#).
- WLWB (Wek'èezhìi Land and Water Board). 2023. Type A Water Licence W2021L2-0004. Issued 13 January 2023.

APPENDIX A

Site Photographs



Photograph A-1: SNP 5-4, Inflow from Wetlands into Lardass Lake. Note: Sample was collected at the edge of the submerged former dock, near the sign in the background. Photo Orientation: South.



Photograph A-2: SNP 5-4, Sampling location at inflow from Wetlands into Lardass Lake. Photo Orientation: South.



Photograph A-3: SNP 5-5, Lardass Lake. Photo Orientation: Southeast.



Photograph A-4: SNP 5-6, Combined Runoff from Damoti Rock Piles. Note: Carboys used for toxicity sampling can be seen near water. Photo Orientation: West.



Photograph A-5: SNP 5-8, Damoti Lake Site Decline Ramp (Minewater Pooled at Entrance of Adit). Photo Orientation: West.



Photograph A-6: SNP 5-9, Pool of Standing Water Immediately West of Waste Rock Pile. Photo Orientation: Northwest.



Photograph A-7: SNP 5-11, Pool of Standing Water Between Waste Rock/Ore Stockpiles. Photo Orientation: North.



Photograph A-8: SNP 5-12, Pool of Standing Water in Rock Pile Area. Photo Orientation: South.



Photograph A-9: SNP 5-13, Pool of Standing Water in Rock Pile Area. Photo Orientation: South.



Photograph A-10: SNP 5-14, Flow pathway between rock ore pile area and Lardass Lake. Note: Low water level and no flow observed. Field measurements were collected (probe shown in foreground) but a water quality sample was not collected. Photo Orientation: Southeast.



Photograph A-11: Aerial View of site and drainage to Lardass Lake. Photo Orientation: West.

APPENDIX B

Water Quality Data

Table B-1: Surveillance Network Program Results at SNP 5-6 Compared to Water Licence Limits, 3 June 2024

Parameter	Unit	Maximum Concentration of Any Grab Sample ^(a)	Maximum Average Concentration ^(b)	Station
				SNP 5-6
Field Measured Parameters				
pH	unitless	5.5 - 9.5	-	6.5
Specific conductivity	µS/cm	-	-	334
Temperature	°C	-	-	7.9
Dissolved oxygen	mg/L	-	-	2.7
Dissolved oxygen	%	-	-	23
Conventional Parameters				
pH	unitless	5.5 - 9.5	-	7.5
Specific conductivity	µS/cm	-	-	294
Hardness, as CaCO ₃	mg/L	-	-	129
Total alkalinity, as CaCO ₃	mg/L			24
Total dissolved solids (calculated)	mg/L	-	-	175
Total suspended solids	mg/L	30	15	5.9
Major Ions				
Calcium	mg/L	-	-	32
Chloride	mg/L	-	-	1.5
Fluoride	mg/L	-	-	0.16
Magnesium	mg/L	-	-	12
Potassium	mg/L	-	-	2.6
Sodium	mg/L	-	-	3.1
Sulphate	mg/L	-	-	102
Nutrients				
Nitrate	mg-N/L	-	-	<0.005
Nitrite	mg-N/L		-	<0.001
Total ammonia	mg-N/L	-	12	0.0084
Total phosphorus (colourimetric)	mg-P/L	-	-	0.039
Dissolved phosphorus	mg-P/L	-	-	<0.05
Total Metals				
Aluminum	mg/L	-	-	0.13
Antimony	mg/L	-	-	<0.0001
Arsenic	mg/L	0.2	0.1	0.00081
Barium	mg/L	-	-	0.014
Beryllium	mg/L	-	-	<0.00002
Bismuth	mg/L	-	-	<0.00005
Boron	mg/L	-	-	0.030
Cadmium	mg/L	0.002	0.001	0.000015
Cesium	mg/L	-	-	0.00076
Chromium	mg/L	-	-	<0.0005
Cobalt	mg/L	-	-	0.00066
Copper	mg/L	0.02	0.01	0.0035
Iron	mg/L	-	-	1.3
Lead	mg/L	0.04	0.02	0.00037
Lithium	mg/L	-	-	0.012
Manganese	mg/L	-	-	0.058
Molybdenum	mg/L	-	-	<0.00005
Nickel	mg/L	0.5	0.25	0.024
Rubidium	mg/L	-	-	0.0067
Selenium	mg/L	-	-	<0.00005
Silicon	mg/L	-	-	2.6
Silver	mg/L	-	-	<0.00001
Strontium	mg/L	-	-	0.094
Sulphur	mg/L	-	-	37
Tellurium	mg/L	-	-	<0.0002
Thallium	mg/L	-	-	<0.00001
Thorium	mg/L	-	-	<0.0001
Tin	mg/L	-	-	<0.0001
Titanium	mg/L	-	-	0.00062
Tungsten	mg/L	-	-	<0.0001
Uranium	mg/L	-	-	0.00011
Vanadium	mg/L	-	-	<0.0005
Zinc	mg/L	0.2	0.1	0.0071
Zirconium	mg/L	-	-	<0.0002

Table B-1: Surveillance Network Program Results at SNP 5-6 Compared to Water Licence Limits, 3 June 2024

Parameter	Unit	Maximum Concentration of Any Grab Sample ^(a)	Maximum Average Concentration ^(b)	Station
				SNP 5-6
Dissolved Metals				
Aluminum	mg/L	-	-	0.063
Antimony	mg/L	-	-	<0.0001
Arsenic	mg/L	-	-	0.00056
Barium	mg/L	-	-	0.013
Beryllium	mg/L	-	-	<0.00002
Bismuth	mg/L	-	-	<0.00005
Boron	mg/L	-	-	0.029
Cadmium	mg/L	-	-	0.000016
Cesium	mg/L	-	-	0.00077
Chromium	mg/L	-	-	<0.0005
Cobalt	mg/L	-	-	0.00076
Copper	mg/L	-	-	0.0025
Iron	mg/L	-	-	0.51
Lead	mg/L	-	-	0.00010
Lithium	mg/L	-	-	0.012
Manganese	mg/L	-	-	0.072
Molybdenum	mg/L	-	-	<0.00005
Nickel	mg/L	-	-	0.023
Rubidium	mg/L	-	-	0.0065
Selenium	mg/L	-	-	0.000054
Silicon	mg/L	-	-	2.5
Silver	mg/L	-	-	<0.00001
Strontium	mg/L	-	-	0.094
Sulphur	mg/L	-	-	36
Tellurium	mg/L	-	-	<0.0002
Thallium	mg/L	-	-	<0.00001
Thorium	mg/L	-	-	<0.0001
Tin	mg/L	-	-	<0.0001
Titanium	mg/L	-	-	<0.0003
Tungsten	mg/L	-	-	<0.0001
Uranium	mg/L	-	-	0.000080
Vanadium	mg/L	-	-	<0.0005
Zinc	mg/L	-	-	0.0063
Zirconium	mg/L	-	-	<0.0003
Acute Toxicity				
<i>Daphnia magna</i> survival	%	≥50	-	100
<i>Daphnia magna</i> immobility	%	-	-	0
Rainbow trout survival	%	≥50	-	100

Notes:

a) Maximum concentration of any grab sample as per Type A Water Licence W2021L2-0004 (WLWB 2023).

b) Maximum average concentration as per Type A Water Licence W2021L2-0004 (WLWB 2023).

WLWB = Wek'eezhii Land and Water Board; SNP = Surveillance Network Program; CaCO₃ = calcium carbonate; µS/cm = microsiemens per centimetre; mg/L = milligrams per litre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorus per litre; % = percent; °C = degrees Celsius; < = less than; - = no Water Licence limit.

Reference:

WLWB (Wek'eezhii Land and Water Board). 2023. Type A Water Licence W2021L2-0004. Issued 13 January 2023.

Table B-2: Surveillance Network Program Sample Results at Lardass Lake Compared to Water Quality Objectives, 3 June 2024

Parameter	Unit	Guideline:			Station	
		For the Protection of Aquatic Life		Wildlife Health (Livestock)	SNP 5-4	SNP 5-5
Acute	Chronic					
Field Measured Parameters						
pH	unitless	-	6.5 - 9.0	-	8.2	8.1
Specific conductivity	µS/cm	-	-	-	121	122
Temperature	°C	-	-	-	16	16
Dissolved oxygen	mg/L	-	6.5	-	10	10
Dissolved oxygen	%	-	-	-	105	105
Conventional Parameters						
pH	unitless	-	6.5 - 9.0	-	7.9	7.9
Specific conductivity	µS/cm	-	-	-	127	128
Hardness, as CaCO ₃	mg/L	-	-	-	59	57
Total alkalinity, as CaCO ₃	mg/L				43	44
Total dissolved solids (calculated)	mg/L	-	-	3000	88	88
Total suspended solids	mg/L	-	-	-	7.9	7.2
Dissolved organic carbon	mg/L	-	-	-	22	22
Major Ions						
Calcium	mg/L	-	-	1,000	17	16
Chloride	mg/L	640	120	-	0.79	0.77
Fluoride	mg/L	-	0.12	2	0.076	0.082
Magnesium	mg/L	-	-	-	4.2	4.3
Potassium	mg/L	-	-	-	1.4	1.4
Sodium	mg/L	-	-	-	2.5	2.7
Sulphate	mg/L	-	-	1,000	14	14
Nutrients						
Nitrate	mg-N/L	124	2.9	-	<0.005	<0.005
Nitrite	mg-N/L		0.06	10	<0.001	<0.001
Total ammonia	mg-N/L	-	0.35 ^(a)	-	0.033	0.032
Total phosphorus (colourimetric)	mg-P/L	-	-	-	0.021	0.019
Dissolved phosphorus	mg-P/L	-	-	-	<0.05	<0.05
Total Metals						
Aluminum	mg/L	-	0.10 ^(b)	5.0	0.091	0.095
Antimony	mg/L	-	-	-	<0.0001	<0.0001
Arsenic	mg/L	-	0.005	0.025	0.00026	0.00027
Barium	mg/L	-	-	-	0.0089	0.0092
Beryllium	mg/L	-	-	0.1	<0.00002	<0.00002
Bismuth	mg/L	-	-	-	<0.00005	<0.00005
Boron	mg/L	29	1.5	5.0	0.010	0.011
Cadmium	mg/L	0.0012 ^(c)	0.000099 ^(c)	0.08	<0.000005	<0.000005
Calcium	mg/L	-	-	-	16	16
Cesium	mg/L	-	-	-	0.000026	0.000028
Chromium	mg/L	-	0.001 ^(d)	0.05	<0.0005	0.00056
Cobalt	mg/L	-	0.00081 ^(e)	1.0	0.00014	0.00016
Copper	mg/L	-	0.002 ^(c)	0.5	0.00080	0.00084
Iron	mg/L	-	0.30	-	0.11	0.093
Lead	mg/L	-	0.001 ^(c)	0.1	<0.00005	<0.00005
Lithium	mg/L	-	-	-	0.0024	0.0024
Magnesium	mg/L	-	-	-	4.3	4.3
Manganese	mg/L	-	-	-	0.069	0.079
Mercury	mg/L	-	0.000026	0.003	0.0000019	0.0000021
Molybdenum	mg/L	-	0.073	0.5	0.000095	0.00011
Nickel	mg/L	-	0.025 ^(c)	1.0	0.0016	0.0019
Potassium	mg/L	-	-	-	1.4	1.4
Rubidium	mg/L	-	-	-	0.0024	0.0024
Selenium	mg/L	-	0.001	0.05	<0.00005	<0.00005
Silicon	mg/L	-	-	-	0.21	0.23
Silver	mg/L	-	0.00025	-	<0.00001	<0.00001
Sodium	mg/L	-	-	-	2.5	2.6
Strontium	mg/L	-	-	-	0.041	0.041
Sulphur	mg/L	-	-	-	5.1	5.3
Tellurium	mg/L	-	-	-	<0.0002	<0.0002
Thallium	mg/L	-	0.0008	-	<0.00001	<0.00001
Thorium	mg/L	-	-	-	<0.0001	<0.0001
Tin	mg/L	-	-	-	<0.0001	<0.0001
Titanium	mg/L	-	-	-	0.00058	0.00079
Tungsten	mg/L	-	-	-	<0.0001	<0.0001
Uranium	mg/L	0.033	0.015	0.2	0.00015	0.00015
Vanadium	mg/L	-	0.12 ^(f)	0.1	<0.0005	<0.0005
Zinc	mg/L	-	-	50	<0.003	<0.003
Zirconium	mg/L	-	-	-	<0.0002	<0.0002

Table B-2: Surveillance Network Program Sample Results at Lardass Lake Compared to Water Quality Objectives, 3 June 2024

Parameter	Unit	Guideline:			Station	
		For the Protection of Aquatic Life		Wildlife Health (Livestock)	SNP 5-4	SNP 5-5
Acute	Chronic					
Dissolved Metals						
Aluminum	mg/L	-	-	-	0.054	0.049
Antimony	mg/L	-	-	-	<0.0001	<0.0001
Arsenic	mg/L	-	-	-	0.00028	0.00026
Barium	mg/L	-	-	-	0.0080	0.0081
Beryllium	mg/L	-	-	-	<0.00002	<0.00002
Bismuth	mg/L	-	-	-	<0.00005	<0.00005
Boron	mg/L	-	-	-	<0.01	<0.01
Cadmium	mg/L	-	-	-	<0.000005	<0.000005
Cesium	mg/L	-	-	-	0.000025	0.000026
Chromium	mg/L	-	-	-	<0.0005	<0.0005
Cobalt	mg/L	-	-	-	<0.0001	<0.0001
Copper	mg/L	-	-	-	0.00064	0.00059
Iron	mg/L	-	-	-	0.018	<0.01
Lead	mg/L	-	-	-	<0.00005	<0.00005
Lithium	mg/L	-	-	-	0.0022	0.0022
Manganese	mg/L	4.1 ^(c)	0.22 ^(g)	-	0.0068	0.00055
Molybdenum	mg/L	-	-	-	0.00010	0.000089
Nickel	mg/L	-	-	-	0.0013	0.0012
Rubidium	mg/L	-	-	-	0.0023	0.0024
Selenium	mg/L	-	-	-	<0.00005	<0.00005
Silicon	mg/L	-	-	-	0.16	0.17
Silver	mg/L	-	-	-	<0.00001	<0.00001
Strontium	mg/L	-	2.5 ^(h)	-	0.040	0.042
Sulphur	mg/L	-	-	-	4.8	5.3
Tellurium	mg/L	-	-	-	<0.0002	<0.0002
Thallium	mg/L	-	-	-	<0.00001	<0.00001
Thorium	mg/L	-	-	-	<0.0001	<0.0001
Tin	mg/L	-	-	-	<0.0001	<0.0001
Titanium	mg/L	-	-	-	<0.0003	<0.0003
Tungsten	mg/L	-	-	-	<0.0001	<0.0001
Uranium	mg/L	-	-	-	0.00013	0.00012
Vanadium	mg/L	-	-	-	<0.0005	<0.0005
Zinc	mg/L	0.097 ⁽ⁱ⁾	0.022 ⁽ⁱ⁾	-	0.0010	<0.001
Zirconium	mg/L	-	-	-	<0.0003	<0.0003

Notes:

- a) The ammonia guideline is pH and temperature dependent. The ammonia guideline (0.35 mg-N/L) is based on the combination of field pH (8.2) and water temperature (16°C).
- b) Guideline is pH dependent. The guideline shown is based on the field pH (8.1 and 8.2).
- c) Guideline is hardness dependent. The guideline shown is based on the minimum hardness observed in the dataset (57 mg/L).
- d) Guideline is for chromium VI.
- e) Federal environmental quality guideline for cobalt is dependent on water hardness. The guideline shown is based on the minimum hardness observed in the dataset (57 mg/L) (ECCC 2017).
- f) Federal environmental quality guideline for vanadium (ECCC 2016).
- g) The chronic dissolved manganese guideline is pH and hardness dependent. The chronic manganese guideline (0.22 mg/L) is based on the combination of field pH (8.1) and hardness (57 mg/L).
- h) Federal environmental quality guideline for strontium (ECCC 2020).
- i) The acute and chronic dissolved zinc guidelines are dependent on pH, hardness, and DOC (acute only). The guidelines (0.097 and 0.022 mg/L, respectively) are based on the combination of field pH (8.1), hardness (57 mg/L), and DOC (22 mg/L) (CCME 1999).

CCME = Canadian Council of Ministers of the Environment; SNP = Surveillance Network Program; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre; mg/L = milligrams per litre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorus per litre; CaCO₃ = calcium carbonate; DOC = dissolved organic carbon; % = percent; °C = degrees Celsius; < = less than; - = no guideline.

References:

- CCME (Canadian Council of Ministers of the Environment). 1999. Canadian Environmental Quality Guidelines 1999, with updates to 2020. Winnipeg, MB. Accessed October 2022.
- ECCC (Environment and Climate Change Canada). 2016. Federal Environmental Quality Guidelines – Vanadium. Available at: <https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/canadian-environmental-protection-act-1999-8.html>
- ECCC. 2017. Federal Environmental Quality Guidelines – Cobalt. Available at: <https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/canadian-environmental-protection-act-1999-federal-environmental-quality-guidelines-cobalt.html>
- ECCC. 2020. Federal Environmental Quality Guidelines - Strontium. Available at: <https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/federal-environmental-quality-guidelines-strontium.html#toc7>

Table B-3: Surveillance Network Program Sample Results for Stations around the Rock Piles, 3 June 2024

Parameter	Unit	Station				
		SNP 5-8	SNP 5-9	SNP 5-11	SNP 5-12	SNP 5-13
Field Measured Parameters						
pH	unitless	6.6	6.5	6.5	6.6	6.6
Specific conductivity	µS/cm	113	379	383	291	286
Temperature	°C	2.9	8.8	11	13	11
Dissolved oxygen	mg/L	5.8	6.8	5.9	6.7	7.8
Dissolved oxygen	%	43	58	53	63	70
Conventional Parameters						
pH	unitless	7.4	7.9	7.5	7.3	7.4
Specific conductivity	µS/cm	115	505	374	304	302
Hardness, as CaCO ₃	mg/L	49	220	166	130	132
Total alkalinity, as CaCO ₃	mg/L	24	59	23	15	16
Total dissolved solids (calculated)	mg/L	68	303	221	178	177
Total suspended solids	mg/L	2.8	4.7	4.0	4.4	4.5
Major Ions						
Calcium	mg/L	13	60	42	33	33
Chloride	mg/L	1.4	3.9	1.9	1.5	1.4
Fluoride	mg/L	0.053	0.17	0.21	0.21	0.20
Magnesium	mg/L	3.8	17	15	12	12
Potassium	mg/L	1.7	3.2	3.4	2.8	2.9
Sodium	mg/L	1.6	5.5	3.5	3.1	3.1
Sulphate	mg/L	26	168	133	108	106
Nutrients						
Nitrate	mg-N/L	0.016	<0.005	<0.005	<0.005	<0.005
Nitrite	mg-N/L	<0.001	<0.001	<0.001	<0.001	<0.001
Total ammonia	mg-N/L	0.0065	0.023	0.027	0.012	0.010
Total phosphorus (colourimetric)	mg-P/L	0.024	0.018	0.012	0.015	0.015
Dissolved phosphorus	mg-P/L	<0.05	<0.05	<0.05	<0.05	<0.05
Total Metals						
Aluminum	mg/L	0.35	0.061	0.12	0.19	0.19
Antimony	mg/L	<0.0001	0.00074	0.00011	<0.0001	0.00010
Arsenic	mg/L	0.00065	0.00070	0.00068	0.00068	0.00068
Barium	mg/L	0.016	0.044	0.016	0.015	0.015
Beryllium	mg/L	0.00002	0.000022	0.000031	0.000039	0.000030
Bismuth	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron	mg/L	<0.01	0.031	0.037	0.032	0.031
Cadmium	mg/L	0.000031	0.000013	0.000041	0.000031	0.000036
Cesium	mg/L	0.00014	0.00026	0.00051	0.00065	0.00065
Chromium	mg/L	0.00094	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	0.0011	0.0021	0.0098	0.0058	0.0053
Copper	mg/L	0.0067	0.0048	0.0038	0.0040	0.0040
Iron	mg/L	0.56	1.8	1.6	1.5	1.5
Lead	mg/L	0.00025	0.00025	0.00032	0.00028	0.00029
Lithium	mg/L	0.0032	0.012	0.017	0.014	0.013
Manganese	mg/L	0.058	0.31	0.65	0.43	0.39
Molybdenum	mg/L	0.00046	0.000084	0.000052	<0.00005	0.000063
Nickel	mg/L	0.0096	0.026	0.071	0.053	0.052
Rubidium	mg/L	0.0039	0.0069	0.0076	0.0064	0.0063
Selenium	mg/L	0.000069	0.000066	0.000088	0.000078	0.000069
Silicon	mg/L	2.3	3.4	2.8	2.9	2.9
Silver	mg/L	0.000046	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	0.033	0.17	0.13	0.096	0.095
Sulphur	mg/L	9.3	60	49	38	38
Tellurium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Thallium	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Thorium	mg/L	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	0.0036	<0.0006	0.00058	0.00046	0.00072
Tungsten	mg/L	0.00047	<0.0001	<0.0001	<0.0001	<0.0001
Uranium	mg/L	0.00069	0.00014	0.00015	0.00015	0.00015
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	0.0055	0.0041	0.015	0.013	0.014
Zirconium	mg/L	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002
Dissolved Metals						
Aluminum	mg/L	0.21	0.027	0.041	0.078	0.074
Antimony	mg/L	<0.0001	0.00051	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	0.00059	0.00060	0.00047	0.00049	0.00050
Barium	mg/L	0.015	0.041	0.017	0.016	0.015
Beryllium	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron	mg/L	<0.01	0.030	0.033	0.030	0.030
Cadmium	mg/L	0.000028	0.000092	0.000038	0.000035	0.000034
Cesium	mg/L	0.00013	0.00028	0.00056	0.00071	0.00072
Chromium	mg/L	0.00068	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	0.00074	0.00037	0.0086	0.0053	0.0048
Copper	mg/L	0.0063	0.0034	0.0030	0.0032	0.0035
Iron	mg/L	0.13	0.48	0.40	0.48	0.48
Lead	mg/L	0.00008	0.000073	0.000076	0.000085	0.000085
Lithium	mg/L	0.0031	0.012	0.015	0.013	0.014
Manganese	mg/L	0.037	0.12	0.61	0.42	0.39
Molybdenum	mg/L	0.00047	0.00011	0.000050	<0.00005	0.00011
Nickel	mg/L	0.009	0.024	0.069	0.051	0.051
Rubidium	mg/L	0.0039	0.0072	0.0078	0.0069	0.0069
Selenium	mg/L	0.000066	0.000050	0.000063	0.000060	0.000061
Silicon	mg/L	2.2	3.4	2.7	2.9	2.9
Silver	mg/L	0.000021	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	0.034	0.18	0.13	0.10	0.11
Sulphur	mg/L	9	59	47	37	36
Tellurium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Thallium	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Thorium	mg/L	0.00017	<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	0.0012	<0.0003	<0.0003	<0.0003	<0.0003
Tungsten	mg/L	0.00037	<0.0001	<0.0001	<0.0001	<0.0001
Uranium	mg/L	0.00056	0.00012	0.000081	0.000092	0.000090
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	0.0041	0.0020	0.012	0.011	0.0097
Zirconium	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Notes:

SNP = Surveillance Network Program; µS/cm = microsiemens per centimetre; mg/L = milligrams per litre; mg-N/L = mill

APPENDIX C

Laboratory Certificate of Analysis



Acute Toxicity Test Results

Sample collected June 3, 2024

Final Report

July 5, 2024

Submitted to: **ALS Environmental**
Yellowknife, NT

SAMPLE INFORMATION

Sample ID/ Internal ID	Dates					Receipt temperature
	Collected	Received	Rainbow trout test initiation	Daphnia <i>magna</i> test initiation		
YL2400571-001 SNP 5-6 / 2324-2287	2024-06-03 at 1200h	2024-06-05 at 1420h	2024-06-06 at 1405h	2024-06-06 at 1300h		5.9°C

TEST TYPES

- Rainbow trout 96-h single concentration screening test
- *Daphnia magna* 48-h single concentration screening test

RESULTS

Toxicity test results

Sample ID	Percent survival in 100% (v/v) sample	
	Rainbow trout	<i>Daphnia magna</i>
YL2400571-001 SNP 5-6	100	100
<hr/>		
Sample ID	<i>Daphnia magna</i> Percent Immobility in 100% (v/v)	
YL2400571-001 SNP 5-6	0	

QA/QC

QA/QC summary	Rainbow trout	<i>Daphnia magna</i>
Reference toxicant LC50 (95% CL)	3.3 (2.8-3.8) g/L KCl ¹	6.2 (5.9-6.5) g/L NaCl ²
Reference toxicant historical mean (2 SD Range)	3.8 (3.0-5.0) g/L KCl	6.2 (5.6 -6.8) g/L NaCl
Reference toxicant CV	8.5%	3.4%
Organism health history	Acceptable	Acceptable
Protocol deviations	None	None
Water quality range deviations	None	None
Control performance	Acceptable	Acceptable
Test performance	Valid	Valid

¹ Test date 2024-05-23; ² Test date 2024-06-05

LC = Lethal Concentration, CL = Confidence Limit, SD = Standard Deviation, CV = Coefficient of Variation

Jessica Knoch

Report By:
Jessica Knoch, BSc
Laboratory Assistant

D Meyer

Reviewed By:
Daisy Meyer, BSc
Project Coordinator

This report has been prepared by Nautilus Environmental Company Inc. based on data and/or samples provided by our client and the results of this study are for their sole benefit. Any reliance on the data by a third party is at the sole and exclusive risk of that party. The results presented here relate only to the samples tested.

APPENDIX A – Summary of test conditions

Table 1. Summary of test conditions: 96-h rainbow trout (*Oncorhynchus mykiss*) survival test.

Test species	<i>Oncorhynchus mykiss</i>
Organism source	Fish hatchery
Organism age	Juvenile
Test type	Static
Test duration	96 hours
Test vessel	5-gallon glass aquariums
Test volume	10 - 20 L, depending on size of fish
Test solution depth	Minimum 15 cm
Test concentrations	100% (undiluted) sample plus laboratory control
Test replicates	1 per treatment
Number of organisms	10 per replicate
Control/dilution water	De-chlorinated City of Calgary tap water
Test solution renewal	None
Test temperature	15 ± 1°C
Feeding	None
Light intensity	100 to 500 lux
Photoperiod	16 hours light/8 hours dark
Aeration	6.5 ±1 mL/min/L
Test Measurements	pH, conductivity, dissolved oxygen, and temperature were measured at test initiation and test completion; salinity measured at test initiation; evaluated for survival daily
Test protocol	Environment Canada (2000), EPS 1/RM/13, with 2007, 2016, & 2023 amendments
Statistical software	None
Test endpoints	Percent survival
Test acceptability criteria for controls	Survival ≥ 90%
Reference toxicant	Potassium chloride (KCl)

Table 2. Summary of test conditions: 48-h *Daphnia magna* survival test.

Test species	<i>Daphnia magna</i>
Organism source	In-house culture
Organism age	<24 hours
Test type	Static
Test duration	48 hours
Test vessel	375 mL glass vessels
Test volume	150 mL
Test concentrations	100% (undiluted) sample plus laboratory control
Test replicates	3 per treatment
Number of organisms	10 per replicate
Control/dilution water	De-chlorinated City of Calgary tap water amended with 4 mg/L KCl and with B12 (2 µg/L) and Na ₂ SeO ₄ (2 µg Se/L)
Test solution renewal	None
Test temperature	20 ± 2°C
Feeding	None
Light intensity	400 to 800 lux
Photoperiod	16 hours light/8 hours dark
Aeration	None
Test measurements	pH, conductivity, dissolved oxygen, and temperature measured at test initiation and completion; salinity and hardness measured at test initiation in undiluted sample; evaluated daily for survival
Environment Canada (2000), EPS 1/RM/14 with February 2016 amendments	
Test protocol	
Statistical software	None
Test endpoints	Mean percent survival
Test acceptability criteria for controls	Survival ≥ 90%
Reference toxicant	Sodium chloride (NaCl)

APPENDIX B – Toxicity test data



Trout Bench Sheet

Method TRS

Client ALS106

Reference 2324-2287

Chamber 3

Test Log

Day	Date	Time	Initial	Chem. Cart	Double Counted	Daily Data Review	Sample Information		
							Initial pH:	Initial EC ($\mu\text{S}/\text{cm}$):	Salinity (ppt):
0	2024/06/06	1405 *	AC/KN	+	KN	AM	7.6	322	1
1	2024/06/07	0755 MS	-	-	KO	AM			
2	2024/06/08	0755 PK	-	-	AM	MS			
3	2024/06/09	0800 KN	-	-	MS				
4	2024/06/10	13 15 16 17 18 19 20	I	-	YC				

Note: * time when the test was loaded with fish

Sample Pre-Aeration

Aeration rate adjusted to 6.5 +/- 1 mL/min/L: yes/no

Preeration time

0 hours 0.5 hours 1 hour 1.5 hours 2 hours

DO(mg/L) of 100%

8.2 8.3

Temp (°C) of 100%

16

DO in mg/L (70% - 100% saturation)**

6.2 mg/L - 8.9 mg/L at 14°C

6.1 mg/L - 8.8 mg/L at 15°C

6.0 mg/L - 8.6 mg/L at 16°C

**corrected for altitude

Test Chemistry and Biology

Conc. 100

pH (units) (range: 5.5-8.5)

Day 0	7.0					
Day 4	7.3					

EC ($\mu\text{S}/\text{cm}$)

Day 0	335					
Day 4	784					

DO (mg/L) (70-100% saturation at test temp.)

Day 0	8.3					
Day 4	6.6					

Temperature (°C) (range: 14-16°C)

Day 0	16					
Day 4	15					

Number Alive (In brackets number stressed)

Day 0	10					
Day 1	10					
Day 2	10					
Day 3	10					
Day 4	10					

Unless otherwise noted, behavior is considered to be normal

Test Volume 18

Control Reference Number: 20240606CTLA

Comments :Reviewed By: SNDate Reviewed: 2024-06-17



Control Trout Bench Sheet

Client NE

Control Reference Number 20240606CTLA

Chamber 3

Test Log

Day	Date	Time	Initial	Chem. Cart	Double Counted	Daily Data Review
0	2024/06/06	1330 *	AC/KN	7	KN	AM
1	2024/06/07	0950	MS	-	-	KO
2	2024/06/08	0750	PK	-	-	AM
3	2024/06/09	0800	KN	-	-	MS
4	2024/06/10	1310	45AD/1A0	1	-	KC

Note: *; time when the test was loaded with fish

Sample Reference Number(s):
2324-2278-01
2324-2278-02
2324-2287
2324-2293
2324-2294

Control Pre-AerationAeration rate adjusted to 6.5 +/- 1 mL/min/L yes/no

Test Chemistry and Biology			
Conc.	CTL		
pH (units) (range: 5.5-8.5)			
Day 0	7.8		
Day 4	7.9		
EC (µS/cm)			
Day 0	426		
Day 4	358		
DO (mg/L) (70-100% saturation at test temp.)			
Day 0	8.8		
Day 4	6.6		
DO in mg/L (70% - 100% saturation)**			
6.2 mg/L - 8.9 mg/L at 14°C 6.1 mg/L - 8.8 mg/L at 15°C 6.0 mg/L - 8.6 mg/L at 16°C			
Temperature (°C) (range: 14-16°C)			
Day 0	15		
Day 4	16		
**corrected for altitude			
Number Alive (In brackets number stressed)			
Day 0	10		
Day 1	10		
Day 2	10		
Day 3	10		
Day 4	10		

Validity Criteria: must be ≤ 10% mortality and/or stressed behavior in the control
Unless otherwise noted, behavior is considered to be normal

Test Organism Information	
Batch	20240306TR
Source	Trout Lodge
Tank #	5
Held at 15± 2°C for ≥ 14 days (must be ≥ 14 days)	Y
Percent stock mortality (7 days prior to test, must be <2%)	0.28
Test Volume (L)	16

Acceptable Test Volume Ranges (10% of the control)	
14 L control allows for 13 L - 15 L test(s)	
16 L control allows for 14 L - 18 L test(s)	
18 L control allows for 16 L - 20 L test(s)	

Control Organism Data			
Control Fish	Length (cm)	Weight (g)	
1	3.9	0.5	Loading Density (g/L):
2	4.5	0.7	(must be ≤ 0.5 g/L)
3	3.9	0.5	Mean Length (cm):
4	3.5	0.4	Length Range (cm):
5	3.7	0.4	3.7-4.3
6	3.4	0.5	Mean Weight (g):
7	4.3	0.6	(Must be ≥ 0.3g)
8	3.9	0.6	Weight Range (g):
9	4.1	0.6	0.4-0.7
10	3.9	0.4	

Comments/Protocol Deviations :
none

Reviewed By: JLDate Reviewed: 2024-06-10

Method DAS20Client ALS 106Reference 2324-2287**Test Log**

Day	Date	Time	Technician	Chem. Cart	Daily Data Review	Sample Information	
						Initial pH:	7.6
0	2024/06/06	1300	EP/LS	2	DM	Initial EC (µS/cm):	222
1	2024/06/07	0835	AP	-	KO	Salinity (ppt):	1
2	2024/06/08	01230	KN	2	AM		

Lab Code	CTLA	CTLB	CTLC	100A	100B	100C		

day

pH (units) (range: 6.0-8.5)

0	7.9	7.9	7.9	7.9	7.6	7.5		
2	8.1	8.1	8.1	7.8	7.7	7.6		

The pH of the sample was not adjusted prior to test setting, unless noted in the comments below

EC (µS/cm)

0	410	423	423	332	326	326		
2	420	427	427	335	331	331		

DO (mg/L) (40-100% saturation at test temp.)

0	7.9	7.9	7.9	7.9	7.9	7.9		
2	7.9	7.9	7.9	7.9	7.9	7.9		

Temperature (°C) (range: 18-22 °C)

0	20	20	20	20	20	20		
2	20	20	20	20	20	20		

Number Alive
(I, immobile)

0	10	10	10	10	10	10		
1	10	10	10	10	10	10		
2	10	10	10	10	10	10		

Validity Criteria: must be ≤ 10% mortality and/or abnormal behavior in the control

Notes: Immobile; daphnid can't swim after 60 sec. even if antenna still move

Unless otherwise noted, behaviour is considered to be normal

CultureYoung jar Wed D4

Jar(s) mortality 7 days prior to test (must be ≤25%)

0%**QA (previous month)**Days to first brood (≤12 days) 831**Control Validity Criteria**

Average number of young produced (≥15 young)

Mean % mortality at 48 hours - 0%
(must be ≤10%)Were test treatments randomized on test tray? Yes / No**Sample**DO (mg/L) of sample prior to aeration: 7.1Temperature (°C) of sample prior to aeration: 20°CDO % of sample prior to aeration: 90%Is aeration required (<40% or >100%)? Yes or NoDuration of aeration (37.5 +/- 12.5 mL/min/L) : -Filtered with 110um screen prior to testing Yes or NoHardness (mg CaCO₃/L) of 100% : 113Is hardness adjustment required (<25 mg CaCO₃/L)? Yes or NoHardness of sample after adjustment (must be between 25 - 30 mg CaCO₃/L) -Alkalinity of 100% sample (mg CaCO₃/L): -**Dilution Water**Pail label / preparation date P2:06/03**DO Levels (40-100% saturation) - corrected for altitude -**Hardness of dilution water (mg/L) 1673.3 to 8.2 mg/L at 18°C 3.1 to 7.7 mg/L at 21°C
3.2 to 8.1 mg/L at 19°C 3.0 to 7.6 mg/L at 22°C
3.2 to 7.9 mg/L at 20°C**Comments/Observations:**Reviewed By: JPDate Reviewed: 2024-06-17

APPENDIX C – Chain-of-custody form

**Chain of Custody**

ALS Environmental - Yellowknife
314 Old Airport Road, Unit 116
Yellowknife NT Canada X1A
3T3

185344



Destination Lab:	Nautilus Environmental (Calgary)	
Address:	10828 27 Street SE Calgary AB Canada T2Z 3V9	
Work Order Number:	YL2400571	
Original Receipt Date/Time	Instructions Received	
04/06/2024 09:57		

Relinquished By
Date/Time
Received By
Date/Time
Receipt Temp

Return as Indicated: Results: ALSYK.ClientServices@alsglobal.com	Invoice: ALSYK.ClientServices@alsglobal.com	Electronic Data: ALSYK.ClientServices@alsglobal.com
Attention: Oliver Gregg		

ALS Sample ID	Client ID	Matrix	Container Type	Test Codes	Method Description	Due Date	Sampling Date and Time	Remarks
YL2400571-001	SNP 5-6	Water	LDPE carboy	TRT-SCR-96	Survival/Screening Rainbow Trout (96 hours)	26-06-2024	03/06/2024 12:00	
YL2400571-001	SNP 5-6	Water	LDPE carboy	DAP-SCR-48	Survival/Screening Daphnia Magna 48 hours	26-06-2024	03/06/2024 12:00	

2324-2287
2024/06/04 16:14:26
Buffalo Air.
JC
2x10L carboys
N6/N6L
Global Cont.
5.9°C

END OF REPORT

CERTIFICATE OF ANALYSIS

Work Order	: YL2400572	Page	: 1 of 14
Amendment	: 1		
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Saad Pasha	Account Manager	: Oliver Gregg
Address	: 2800, 700 - 2nd Street SW Calgary AB Canada T2P 2W2	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 403.512.6580	Telephone	: 1 867 445 7143
Project	: CA0034908.5454-1000.1002	Date Samples Received	: 04-Jun-2024 09:57
PO	: 2024CA215454/1000.1001	Date Analysis Commenced	: 06-Jun-2024
C-O-C number	: ----	Issue Date	: 24-Jun-2024 10:26
Sampler	: Emily Finstad		
Site	:		
Quote number	: YL24-GOLD100-002		
No. of samples received	: 11		
No. of samples analysed	: 11		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Laboratory Department
Angelo Salandanano	Lab Assistant	Metals, Burnaby, British Columbia
Brianna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia



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
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
ng/L	nanograms per litre
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.

Workorder Comments

YL2400572 #1,2,10,11 (E508-L): Samples received in 40mL glass vials, which are not proofed for low level Hg. Travel blank and Field blank using these vials are clean at 0.5 ng/L LOR, which supports this LOR, however we cannot be certain the hits in samples 1 & 2 are from the vials themselves, or the samples.

Qualifiers

Qualifier	Description
DLM	<i>Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).</i>
RRR	<i>Refer to report comments for issues regarding this analysis.</i>



Analytical Results

Client sample ID				SNP 5-4	SNP 5-5	SNP 5-6	SNP 5-8	SNP 5-9	
Client sampling date / time				03-Jun-2024 13:40	03-Jun-2024 13:40	03-Jun-2024 12:00	03-Jun-2024 11:15	03-Jun-2024 11:15	
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-001	YL2400572-002	YL2400572-003	YL2400572-004	YL2400572-005
Physical Tests									
Conductivity	----	E100/VA	2.0	µS/cm	127	128	294	115	505
Hardness (as CaCO ₃), dissolved	----	EC100/VA	0.50	mg/L	58.6	56.9	129	48.6	220
pH	----	E108/VA	0.10	pH units	7.90	7.90	7.47	7.38	7.86
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L	87.6	87.7	175	68.4	303
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L	7.9	7.2	5.9	2.8	4.7
Alkalinity, total (as CaCO ₃)	----	E290/VA	2.0	mg/L	43.2	44.4	23.8	23.5	59.3
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0332	0.0317	0.0084	0.0065	0.0232
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	0.79	0.77	1.53	1.35	3.92
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.076	0.082	0.162	0.053	0.170
Nitrate (as N)	14797-55-8	E235.NO3-L/V A	0.0050	mg/L	<0.0050	<0.0050	<0.0050	0.0158	<0.0050
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0209	0.0186	0.0389	0.0235	0.0178
Sulfate (as SO ₄)	14808-79-8	E235.SO4/VA	0.30	mg/L	14.1	14.0	102	26.2	168
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	21.5	21.6	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0908	0.0949	0.132	0.349	0.0612
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00074
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00026	0.00027	0.00081	0.00065	0.00070
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00889	0.00916	0.0140	0.0156	0.0440
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	0.000020	0.000022
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.010	0.011	0.030	<0.010	0.031
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	<0.0000050	0.0000151	0.0000312	0.0000132
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	16.1	16.0	31.8	13.6	63.5
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000026	0.000028	0.000757	0.000139	0.000262



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SNP 5-4	SNP 5-5	SNP 5-6	SNP 5-8	SNP 5-9
					Client sampling date / time	03-Jun-2024 13:40	03-Jun-2024 13:40	03-Jun-2024 12:00	03-Jun-2024 11:15	03-Jun-2024 11:15
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-001	YL2400572-002	YL2400572-003	YL2400572-004	YL2400572-005	
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	0.00056	<0.00050	0.00094	<0.00050	
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00014	0.00016	0.00066	0.00112	0.00208	
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00080	0.00084	0.00350	0.00670	0.00480	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.114	0.093	1.26	0.560	1.78	
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	<0.000050	0.000374	0.000247	0.000249	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0024	0.0024	0.0120	0.0032	0.0118	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	4.31	4.27	11.6	3.67	17.3	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.0694	0.0793	0.0581	0.0576	0.314	
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L	1.92 ^{RRR}	2.07 ^{RRR}	----	----	----	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.000095	0.000112	<0.000050	0.000462	0.000084	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00163	0.00191	0.0243	0.00955	0.0256	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.39	1.38	2.71	1.61	3.11	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00238	0.00240	0.00671	0.00387	0.00688	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	0.000069	0.000066	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	0.21	0.23	2.57	2.27	3.35	
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	0.000046	<0.000010	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	2.54	2.63	3.08	1.45	5.36	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0409	0.0405	0.0942	0.0332	0.171	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	5.10	5.27	36.7	9.26	60.3	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00030 ^{DLM}	<0.00010	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00058	0.00079	0.00062	0.00364	<0.00060 ^{DLM}	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00047	<0.00010	
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.000145	0.000148	0.000106	0.000693	0.000139	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	<0.0030	<0.0030	0.0071	0.0055	0.0041	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00040 ^{DLM}	<0.00040 ^{DLM}	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SNP 5-4	SNP 5-5	SNP 5-6	SNP 5-8	SNP 5-9
					Client sampling date / time	03-Jun-2024 13:40	03-Jun-2024 13:40	03-Jun-2024 12:00	03-Jun-2024 11:15	03-Jun-2024 11:15
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-001	YL2400572-002	YL2400572-003	YL2400572-004	YL2400572-005	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0536	0.0486	0.0627	0.212	0.0273	
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00051	
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00028	0.00026	0.00056	0.00059	0.00060	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00796	0.00807	0.0128	0.0152	0.0412	
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	<0.010	<0.010	0.029	<0.010	0.030	
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	<0.0000050	0.0000162	0.0000283	0.0000092	
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	16.6	15.7	32.2	13.2	59.7	
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000025	0.000026	0.000773	0.000134	0.000275	
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00068	<0.00050	
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	<0.00010	0.00076	0.00074	0.00037	
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00064	0.00059	0.00247	0.00625	0.00342	
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.018	<0.010	0.513	0.132	0.475	
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	<0.000050	<0.000050	0.000103	0.000080	0.000073	
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0022	0.0022	0.0116	0.0031	0.0116	
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	4.16	4.30	11.8	3.81	17.2	
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.00683	0.00055	0.0724	0.0373	0.121	
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.000100	0.000089	<0.000050	0.000468	0.000106	
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	0.00127	0.00121	0.0228	0.00899	0.0242	
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	1.38	1.42	2.64	1.67	3.22	
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00226	0.00235	0.00645	0.00390	0.00717	
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	<0.000050	<0.000050	0.000054	0.000066	0.000050	
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	0.158	0.174	2.51	2.22	3.37	
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	0.000021	<0.000010	
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	2.54	2.65	3.14	1.56	5.54	
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0397	0.0424	0.0939	0.0342	0.179	
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	4.76	5.26	35.9	8.97	59.4	
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	



Analytical Results

Client sample ID					SNP 5-4	SNP 5-5	SNP 5-6	SNP 5-8	SNP 5-9
Client sampling date / time					03-Jun-2024 13:40	03-Jun-2024 13:40	03-Jun-2024 12:00	03-Jun-2024 11:15	03-Jun-2024 11:15
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-001	YL2400572-002	YL2400572-003	YL2400572-004	YL2400572-005
					Result	Result	Result	Result	Result
Dissolved Metals									
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00017	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	0.00124	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00037	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000131	0.000123	0.000080	0.000556	0.000120
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0010	<0.0010	0.0063	0.0041	0.0020
Zirconium, dissolved	7440-67-7	E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved metals filtration location	----	EP421/VA	-	-	Field	Laboratory	Field	Laboratory	Laboratory

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.



Analytical Results

Client sample ID					SNP 5-11	SNP 5-12	SNP 5-13	SNP 5-6-D	SNP 5-8-FB
Client sampling date / time					03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 12:00	03-Jun-2024 13:40
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-006	YL2400572-007	YL2400572-008	YL2400572-009	YL2400572-010
					Result	Result	Result	Result	Result
Physical Tests									
Conductivity	---	E100/VA	2.0	µS/cm	374	304	302	298	<2.0
Hardness (as CaCO ₃), dissolved	---	EC100/VA	0.50	mg/L	166	130	132	127	<0.50
pH	---	E108/VA	0.10	pH units	7.48	7.30	7.35	7.64	5.35
Solids, total dissolved [TDS], calculated	---	EC103/VA	1.0	mg/L	221	178	177	174	<1.0
Solids, total suspended [TSS]	---	E160-L/VA	1.0	mg/L	4.0	4.4	4.5	4.9	<1.0
Alkalinity, total (as CaCO ₃)	---	E290/VA	2.0	mg/L	22.5	14.9	15.8	24.2	<2.0
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0274	0.0118	0.0103	0.0102	<0.0050
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	1.86	1.45	1.44	1.51	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.212	0.211	0.195	0.160	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	14797-65-0	E235.NO2-L/V	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0121	0.0149	0.0147	0.0183	<0.0020
Sulfate (as SO ₄)	14808-79-8	E235.SO4/VA	0.30	mg/L	133	108	106	101	<0.30
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	---	E358-L/VA	0.50	mg/L	---	---	---	---	<0.50
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.121	0.191	0.188	0.103	<0.0030
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00011	<0.00010	0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00068	0.00068	0.00068	0.00068	<0.00010
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0161	0.0151	0.0149	0.0136	<0.00010
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L	0.000031	0.000039	0.000030	<0.000020	<0.000020
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.037	0.032	0.031	0.030	<0.010
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000406	0.0000310	0.0000360	0.0000176	<0.0000050
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	42.0	32.9	32.2	32.9	<0.050
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000510	0.000647	0.000653	0.000755	<0.000010



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SNP 5-11	SNP 5-12	SNP 5-13	SNP 5-6-D	SNP 5-8-FB
Analyte	CAS Number	Method/Lab	LOR	Unit	Client sampling date / time	03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 12:00	03-Jun-2024 13:40
					YL2400572-006	YL2400572-007	YL2400572-008	YL2400572-009	YL2400572-010	Result
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00979	0.00580	0.00532	0.00067	<0.00010	
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00382	0.00399	0.00402	0.00321	<0.00050	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	1.59	1.50	1.45	1.02	<0.010	
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000323	0.000279	0.000287	0.000291	<0.000050	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0168	0.0139	0.0132	0.0116	<0.0010	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	14.2	11.2	11.1	11.5	<0.0050	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.650	0.427	0.389	0.0600	<0.00010	
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L	----	----	----	----	----	<0.50 ^{RRR}
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.000052	<0.000050	0.000063	<0.000050	<0.000050	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.0710	0.0527	0.0521	0.0239	<0.00050	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	3.13	2.62	2.61	2.67	<0.050	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00761	0.00637	0.00631	0.00674	<0.00020	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000088	0.000078	0.000069	<0.000050	<0.000050	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	2.77	2.88	2.89	2.44	<0.10	
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	3.51	2.86	2.86	3.09	<0.050	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.126	0.0961	0.0945	0.0942	<0.00020	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	48.9	38.2	38.4	36.1	<0.50	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00058	0.00046	0.00072	0.00040	<0.00030	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.000148	0.000148	0.000146	0.000094	<0.000010	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0148	0.0130	0.0136	0.0065	<0.0030	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SNP 5-11	SNP 5-12	SNP 5-13	SNP 5-6-D	SNP 5-8-FB
					Client sampling date / time	03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 12:00	03-Jun-2024 13:40
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-006	YL2400572-007	YL2400572-008	YL2400572-009	YL2400572-010	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0414	0.0781	0.0742	0.0599	<0.0010	
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00047	0.00049	0.00050	0.00055	<0.00010	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.0170	0.0157	0.0153	0.0127	<0.00010	
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	0.033	0.030	0.030	0.029	<0.010	
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	0.0000381	0.0000346	0.0000338	0.0000145	<0.0000050	
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	42.4	32.8	33.2	31.9	<0.050	
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000556	0.000705	0.000718	0.000768	<0.000010	
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	0.00858	0.00532	0.00478	0.00063	<0.00010	
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00300	0.00321	0.00354	0.00251	<0.00020	
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.402	0.482	0.478	0.499	<0.010	
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	0.000076	0.000085	0.000085	0.000106	<0.000050	
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0154	0.0134	0.0135	0.0116	<0.0010	
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	14.6	11.8	12.0	11.5	<0.0050	
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.608	0.419	0.387	0.0680	<0.00010	
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.000050	<0.000050	0.000112	<0.000050	<0.000050	
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	0.0686	0.0511	0.0514	0.0221	<0.00050	
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	3.35	2.81	2.85	2.60	<0.050	
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00784	0.00690	0.00691	0.00639	<0.00020	
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	0.000063	0.000060	0.000061	<0.000050	<0.000050	
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	2.73	2.86	2.86	2.50	<0.050	
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	3.48	3.07	3.06	3.05	<0.050	
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.132	0.101	0.105	0.0936	<0.00020	
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	47.2	37.2	36.4	35.3	<0.50	
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	



Analytical Results

Client sample ID					SNP 5-11	SNP 5-12	SNP 5-13	SNP 5-6-D	SNP 5-8-FB
Client sampling date / time					03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 11:15	03-Jun-2024 12:00	03-Jun-2024 13:40
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-006	YL2400572-007	YL2400572-008	YL2400572-009	YL2400572-010
Dissolved Metals									
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000081	0.000092	0.000090	0.000077	<0.000010
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0116	0.0107	0.0097	0.0050	<0.0010
Zirconium, dissolved	7440-67-7	E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved metals filtration location	----	EP421/VA	-	-	Laboratory	Laboratory	Laboratory	Field	Field

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.



Analytical Results

Client sample ID					TB	---	---	---	---
Client sampling date / time					03-Jun-2024 13:40	---	---	---	---
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-011	-----	-----	-----	-----
					Result	---	---	---	---
Physical Tests									
Conductivity	---	E100/VA	2.0	µS/cm	<2.0	---	---	---	---
Hardness (as CaCO ₃), dissolved	---	EC100/VA	0.50	mg/L	<0.50	---	---	---	---
pH	---	E108/VA	0.10	pH units	5.50	---	---	---	---
Solids, total dissolved [TDS], calculated	---	EC103/VA	1.0	mg/L	<1.0	---	---	---	---
Solids, total suspended [TSS]	---	E160-L/VA	1.0	mg/L	<1.0	---	---	---	---
Alkalinity, total (as CaCO ₃)	---	E290/VA	2.0	mg/L	<2.0	---	---	---	---
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	---	---	---	---
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	---	---	---	---
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	<0.50	---	---	---	---
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	---	---	---	---
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	<0.0050	---	---	---	---
Nitrite (as N)	14797-65-0	E235.NO2-L/V	0.0010	mg/L	<0.0010	---	---	---	---
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	<0.0020	---	---	---	---
Sulfate (as SO ₄)	14808-79-8	E235.SO4/VA	0.30	mg/L	<0.30	---	---	---	---
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	---	E358-L/VA	0.50	mg/L	<0.50	---	---	---	---
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	<0.0030	---	---	---	---
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L	<0.000020	---	---	---	---
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	---	---	---	---
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	---	---	---	---
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	---	---	---	---
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	<0.050	---	---	---	---
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	---	---	---	---



Analytical Results

					Client sample ID	TB	---	---	---	---
					Client sampling date / time	03-Jun-2024 13:40	---	---	---	---
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-011	Result	---	---	---	---
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	---	---	---	---	---
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	<0.00050	---	---	---	---	---
Iron, total	7439-89-6	E420/VA	0.010	mg/L	<0.010	---	---	---	---	---
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	---	---	---	---	---
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	<0.0010	---	---	---	---	---
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	<0.0050	---	---	---	---	---
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L	<0.50 ^{RRR}	---	---	---	---	---
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	<0.000050	---	---	---	---	---
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	---	---	---	---	---
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	---	---	---	---	---
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	<0.050	---	---	---	---	---
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	<0.00020	---	---	---	---	---
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	---	---	---	---	---
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	<0.10	---	---	---	---	---
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	---	---	---	---	---
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	<0.050	---	---	---	---	---
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	<0.00020	---	---	---	---	---
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	<0.50	---	---	---	---	---
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	---	---	---	---	---
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	---	---	---	---	---
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	---	---	---	---	---
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	<0.000010	---	---	---	---	---
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	---	---	---	---	---
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	<0.0030	---	---	---	---	---
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	---	---	---	---	---



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	TB	---	---	---	---
Analyte	CAS Number	Method/Lab	LOR	Unit	Client sampling date / time	03-Jun-2024 13:40	---	---	---	---
					YL2400572-011	Result	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	<0.0010	---	---	---	---	---
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	---	---	---	---	---
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	---	---	---	---	---
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	<0.010	---	---	---	---	---
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	---	---	---	---	---
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	<0.050	---	---	---	---	---
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	<0.000010	---	---	---	---	---
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	---	---	---	---	---
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	<0.00020	---	---	---	---	---
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	<0.010	---	---	---	---	---
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	<0.000050	---	---	---	---	---
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	<0.0010	---	---	---	---	---
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	<0.0050	---	---	---	---	---
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---	---
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	<0.000050	---	---	---	---	---
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	---	---	---	---	---
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	---	---	---	---	---
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	<0.050	---	---	---	---	---
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	<0.00020	---	---	---	---	---
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	<0.000050	---	---	---	---	---
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	<0.050	---	---	---	---	---
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	---	---	---	---	---
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	<0.050	---	---	---	---	---
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	<0.00020	---	---	---	---	---
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	<0.50	---	---	---	---	---
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	---	---	---	---	---



Analytical Results

Client sample ID					TB	---	---	---	---
Client sampling date / time					03-Jun-2024 13:40	---	---	---	---
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2400572-011	-----	-----	-----	-----
Dissolved Metals									
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	---	---	---	---
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	---	---	---	---
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	<0.00010	---	---	---	---
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	<0.000010	---	---	---	---
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	---	---	---	---
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	<0.0010	---	---	---	---
Zirconium, dissolved	7440-67-7	E421/VA	0.00030	mg/L	<0.00030	---	---	---	---
Dissolved metals filtration location	----	EP421/VA	-	-	Field	---	---	---	---

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.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2400572	Page	: 1 of 27
Amendment	: 1		
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Saad Pasha	Account Manager	: Oliver Gregg
Address	: 2800, 700 - 2nd Street SW Calgary AB Canada T2P 2W2	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 403.512.6580	Telephone	: 1 867 445 7143
Project	: CA0034908.5454-1000.1002	Date Samples Received	: 04-Jun-2024 09:57
PO	: 2024CA215454/1000.1001	Issue Date	: 24-Jun-2024 10:21
C-O-C number	: ----		
Sampler	: Emily Finstad		
Site	:		
Quote number	: YL24-GOLD100-002		
No. of samples received	: 11		
No. of samples analysed	: 11		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.



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								
Physical Tests	QC-MRG2-1480527 001	---	Alkalinity, total (as CaCO ₃)	----	E290	2.0 mg/L ^B	1.5 mg/L	Blank result exceeds permitted value

Result Qualifiers

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



Analysis Holding Time Compliance

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

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

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

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

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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-11	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-12	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-13	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-4	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-5	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-6	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-6-D	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓



Matrix: Water Evaluation: ✘ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-8	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-8-FB	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SNP 5-9	E298	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (lab preserved) TB	E298	03-Jun-2024	07-Jun-2024	3 days	3 days	✓	08-Jun-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-4	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-5	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-6	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-6-D	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-8-FB	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-11	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-12	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-13	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-8	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SNP 5-9	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE TB	E235.Br-L	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-4	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-5	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-6	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓



Matrix: Water Evaluation: ✘ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-6-D	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-8-FB	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-11	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-12	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-13	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-8	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SNP 5-9	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE TB	E235.Cl	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-4	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓



Matrix: Water Evaluation: ✘ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-5	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-6	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-6-D	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-8-FB	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-11	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-12	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-13	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-8	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SNP 5-9	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis		
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual
Anions and Nutrients : Fluoride in Water by IC									
HDPE TB	E235.F	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-11	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-12	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-13	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-4	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-5	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-6	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-6-D	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days
Anions and Nutrients : Nitrate in Water by IC (Low Level)									
HDPE SNP 5-8	E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days



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

Analyte Group : Analytical Method	Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
					Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)											
HDPE SNP 5-8-FB		E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)											
HDPE SNP 5-9		E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)											
HDPE TB		E235.NO3-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	07-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SNP 5-11		E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SNP 5-12		E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SNP 5-13		E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SNP 5-4		E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SNP 5-5		E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SNP 5-6		E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SNP 5-6-D	E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SNP 5-8	E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SNP 5-8-FB	E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SNP 5-9	E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	06-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE TB	E235.NO2-L	03-Jun-2024	06-Jun-2024	3 days	3 days	✓	07-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-4	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-5	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-6	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-6-D	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓



Matrix: Water Evaluation: ✘ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-8-FB	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-11	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-12	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-13	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-8	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SNP 5-9	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	06-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE TB	E235.SO4	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-11	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-12	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓



Matrix: Water Evaluation: ✘ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-13	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-4	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-5	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-6	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-8	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-8-FB	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SNP 5-9	E372-U	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (lab preserved) TB	E372-U	03-Jun-2024	07-Jun-2024	3 days	3 days	✓	08-Jun-2024	28 days	2 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-4	E421	03-Jun-2024	09-Jun-2024	180 days	6 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-6	E421	03-Jun-2024	09-Jun-2024	180 days	6 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-6-D	E421	03-Jun-2024	09-Jun-2024	180 days	6 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-8-FB	E421	03-Jun-2024	09-Jun-2024	180 days	6 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) TB	E421	03-Jun-2024	09-Jun-2024	180 days	6 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-11	E421	03-Jun-2024	10-Jun-2024	180 days	7 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-12	E421	03-Jun-2024	10-Jun-2024	180 days	7 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-13	E421	03-Jun-2024	10-Jun-2024	180 days	7 days	✓	11-Jun-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SNP 5-5	E421	03-Jun-2024	10-Jun-2024	180 days	7 days	✓	11-Jun-2024	180 days	8 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis		
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS									
HDPE - dissolved (lab preserved) SNP 5-8	E421	03-Jun-2024	10-Jun-2024	180 days	7 days	✓	11-Jun-2024	180 days	8 days ✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS									
HDPE - dissolved (lab preserved) SNP 5-9	E421	03-Jun-2024	10-Jun-2024	180 days	7 days	✓	11-Jun-2024	180 days	8 days ✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)									
Amber glass dissolved (sulfuric acid) SNP 5-4	E358-L	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days ✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)									
Amber glass dissolved (sulfuric acid) SNP 5-5	E358-L	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days ✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)									
Amber glass dissolved (sulfuric acid) SNP 5-8-FB	E358-L	03-Jun-2024	11-Jun-2024	28 days	8 days	✓	11-Jun-2024	28 days	8 days ✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)									
Amber glass dissolved (lab preserved) TB	E358-L	03-Jun-2024	07-Jun-2024	3 days	3 days	✓	07-Jun-2024	28 days	0 days ✓
Physical Tests : Alkalinity Species by Titration									
HDPE SNP 5-11	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days ✓
Physical Tests : Alkalinity Species by Titration									
HDPE SNP 5-12	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days ✓
Physical Tests : Alkalinity Species by Titration									
HDPE SNP 5-13	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days ✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation			Eval	Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual		Analysis Date	Holding Times Rec	Holding Times Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE SNP 5-4	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SNP 5-5	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SNP 5-6	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SNP 5-6-D	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SNP 5-8	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SNP 5-8-FB	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SNP 5-9	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	07-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE TB	E290	03-Jun-2024	06-Jun-2024	14 days	3 days	✓	10-Jun-2024	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE SNP 5-11	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days	✓



Matrix: Water Evaluation: ✘ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation			Eval	Analysis		
			Preparation Date	Holding Times	Rec		Analysis Date	Holding Times	Eval
Container / Client Sample ID(s)			Rec	Actual		Rec	Actual		
Physical Tests : Conductivity in Water									
HDPE SNP 5-12	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-13	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-4	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-5	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-6	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-6-D	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-8	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-8-FB	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓
Physical Tests : Conductivity in Water									
HDPE SNP 5-9	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	07-Jun-2024	28 days	4 days ✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation			Eval	Analysis		
			Preparation Date	Holding Times	Rec		Analysis Date	Holding Times	Eval
Container / Client Sample ID(s)			Rec	Actual		Rec	Actual		
Physical Tests : Conductivity in Water									
HDPE TB	E100	03-Jun-2024	06-Jun-2024	28 days	3 days	✓	10-Jun-2024	28 days	7 days
Physical Tests : pH by Meter									
HDPE SNP 5-4	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	78 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	94 hrs
Physical Tests : pH by Meter									
HDPE SNP 5-5	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	78 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	94 hrs
Physical Tests : pH by Meter									
HDPE SNP 5-8-FB	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	78 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	94 hrs
Physical Tests : pH by Meter									
HDPE SNP 5-6	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	79 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	96 hrs
Physical Tests : pH by Meter									
HDPE SNP 5-6-D	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	79 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	96 hrs
Physical Tests : pH by Meter									
HDPE SNP 5-11	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	80 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	97 hrs
Physical Tests : pH by Meter									
HDPE SNP 5-12	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	80 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	97 hrs
Physical Tests : pH by Meter									
HDPE SNP 5-13	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	80 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	97 hrs



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

Analyte Group : Analytical Method	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 : pH by Meter										
HDPE SNP 5-8	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	80 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	97 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE SNP 5-9	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	80 hrs	✗ EHTR-FM	07-Jun-2024	0.25 hrs	97 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE TB	E108	03-Jun-2024	06-Jun-2024	0.25 hrs	81 hrs	✗ EHTR-FM	10-Jun-2024	0.25 hrs	176 hrs	✗ EHTR-FM
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-11	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-12	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-13	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-4	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-5	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-6	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓



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

Analyte Group : Analytical Method	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 : TSS by Gravimetry (Low Level)										
HDPE SNP 5-6-D	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-8	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-8-FB	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE SNP 5-9	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE TB	E160-L	03-Jun-2024	---	---	---		10-Jun-2024	7 days	7 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Glass vial total (hydrochloric acid) SNP 5-4	E508-L	03-Jun-2024	11-Jun-2024	0 hrs	190 hrs	✗ UCP	11-Jun-2024	0 hrs	190 hrs	✗ UCP
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Glass vial total (hydrochloric acid) SNP 5-5	E508-L	03-Jun-2024	11-Jun-2024	0 hrs	190 hrs	✗ UCP	11-Jun-2024	0 hrs	190 hrs	✗ UCP
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Glass vial total (hydrochloric acid) SNP 5-8-FB	E508-L	03-Jun-2024	11-Jun-2024	0 hrs	190 hrs	✗ UCP	11-Jun-2024	0 hrs	190 hrs	✗ UCP
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Glass vial - total (lab preserved) TB	E508-L	03-Jun-2024	11-Jun-2024	0 hrs	190 hrs	✗ UCP	11-Jun-2024	0 hrs	190 hrs	✗ UCP



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times	Eval	Analysis Date	Holding Times	Eval		
Container / Client Sample ID(s)	Rec	Actual	Rec	Actual		Rec	Actual	Eval		
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-11	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-12	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-13	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-4	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-5	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-6	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-6-D	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-8	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-8-FB	E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days	✓



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

Analyte Group : Analytical Method	Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis		
				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times	
					Rec	Actual			Rec	Actual
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SNP 5-9		E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) TB		E420	03-Jun-2024	07-Jun-2024	180 days	4 days	✓	09-Jun-2024	180 days	6 days

Legend & Qualifier Definitions

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

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	Analytical Methods	Method	QC Lot #	Count		Frequency (%)	
				QC	Regular	Actual	Expected
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration		E290	1480385	2	40	5.0	5.0
Ammonia by Fluorescence		E298	1480663	2	12	16.6	5.0
Bromide in Water by IC (Low Level)		E235.Br-L	1480389	2	23	8.7	5.0
Chloride in Water by IC		E235.Cl	1480388	2	40	5.0	5.0
Conductivity in Water		E100	1480386	2	40	5.0	5.0
Dissolved Metals in Water by CRC ICPMS		E421	1481562	2	29	6.9	5.0
Dissolved Organic Carbon by Combustion (Low Level)		E358-L	1480661	2	5	40.0	5.0
Fluoride in Water by IC		E235.F	1480387	2	40	5.0	5.0
Nitrate in Water by IC (Low Level)		E235.NO3-L	1480390	2	40	5.0	5.0
Nitrite in Water by IC (Low Level)		E235.NO2-L	1480391	2	40	5.0	5.0
pH by Meter		E108	1480384	2	40	5.0	5.0
Sulfate in Water by IC		E235.SO4	1480392	2	40	5.0	5.0
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)		E508-L	1487332	0	4	0.0	5.0
Total Metals in Water by CRC ICPMS		E420	1480771	1	20	5.0	5.0
Total Phosphorus by Colourimetry (0.002 mg/L)		E372-U	1480662	2	12	16.6	5.0
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration		E290	1480385	2	40	5.0	5.0
Ammonia by Fluorescence		E298	1480663	2	12	16.6	5.0
Bromide in Water by IC (Low Level)		E235.Br-L	1480389	2	23	8.7	5.0
Chloride in Water by IC		E235.Cl	1480388	2	40	5.0	5.0
Conductivity in Water		E100	1480386	2	40	5.0	5.0
Dissolved Metals in Water by CRC ICPMS		E421	1481562	2	29	6.9	5.0
Dissolved Organic Carbon by Combustion (Low Level)		E358-L	1480661	2	5	40.0	5.0
Fluoride in Water by IC		E235.F	1480387	2	40	5.0	5.0
Nitrate in Water by IC (Low Level)		E235.NO3-L	1480390	2	40	5.0	5.0
Nitrite in Water by IC (Low Level)		E235.NO2-L	1480391	2	40	5.0	5.0
pH by Meter		E108	1480384	2	40	5.0	5.0
Sulfate in Water by IC		E235.SO4	1480392	2	40	5.0	5.0
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)		E508-L	1487332	1	4	25.0	5.0
Total Metals in Water by CRC ICPMS		E420	1480771	1	20	5.0	5.0
Total Phosphorus by Colourimetry (0.002 mg/L)		E372-U	1480662	2	12	16.6	5.0
TSS by Gravimetry (Low Level)		E160-L	1485354	1	20	5.0	5.0
Method Blanks (MB)							
Alkalinity Species by Titration		E290	1480385	2	40	5.0	5.0
Ammonia by Fluorescence		E298	1480663	2	12	16.6	5.0



Matrix: Water Evaluation: ✗ = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type	Analytical Methods	Method	QC Lot #	Count		Frequency (%)	
				QC	Regular	Actual	Expected
Method Blanks (MB) - Continued							
Bromide in Water by IC (Low Level)		E235.Br-L	1480389	2	23	8.7	5.0
Chloride in Water by IC		E235.Cl	1480388	2	40	5.0	5.0
Conductivity in Water		E100	1480386	2	40	5.0	5.0
Dissolved Metals in Water by CRC ICPMS		E421	1481562	3	29	10.3	5.0
Dissolved Organic Carbon by Combustion (Low Level)		E358-L	1480661	2	5	40.0	5.0
Fluoride in Water by IC		E235.F	1480387	2	40	5.0	5.0
Nitrate in Water by IC (Low Level)		E235.NO3-L	1480390	2	40	5.0	5.0
Nitrite in Water by IC (Low Level)		E235.NO2-L	1480391	2	40	5.0	5.0
Sulfate in Water by IC		E235.SO4	1480392	2	40	5.0	5.0
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)		E508-L	1487332	1	4	25.0	5.0
Total Metals in Water by CRC ICPMS		E420	1480771	1	20	5.0	5.0
Total Phosphorus by Colourimetry (0.002 mg/L)		E372-U	1480662	2	12	16.6	5.0
TSS by Gravimetry (Low Level)		E160-L	1485354	1	20	5.0	5.0
Matrix Spikes (MS)							
Ammonia by Fluorescence		E298	1480663	1	12	8.3	5.0
Bromide in Water by IC (Low Level)		E235.Br-L	1480389	2	23	8.7	5.0
Chloride in Water by IC		E235.Cl	1480388	2	40	5.0	5.0
Dissolved Metals in Water by CRC ICPMS		E421	1481562	2	29	6.9	5.0
Dissolved Organic Carbon by Combustion (Low Level)		E358-L	1480661	1	5	20.0	5.0
Fluoride in Water by IC		E235.F	1480387	2	40	5.0	5.0
Nitrate in Water by IC (Low Level)		E235.NO3-L	1480390	2	40	5.0	5.0
Nitrite in Water by IC (Low Level)		E235.NO2-L	1480391	2	40	5.0	5.0
Sulfate in Water by IC		E235.SO4	1480392	2	40	5.0	5.0
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)		E508-L	1487332	0	4	0.0	5.0
Total Metals in Water by CRC ICPMS		E420	1480771	1	20	5.0	5.0
Total Phosphorus by Colourimetry (0.002 mg/L)		E372-U	1480662	1	12	8.3	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
Conductivity in Water	E100 ALS Environmental - Vancouver	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 - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L ALS Environmental - Vancouver	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 $104 \pm 1^\circ\text{C}$, 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.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	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 - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	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
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	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 by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and 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 DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	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 - Vancouver	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.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, 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 CVAFS (Low Level, LOR = 0.5 ppt)	E508-L ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAFS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃ , dissolved" is calculated from the sum of dissolved 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.
TDS in Water (Calculation)	EC103 ALS Environmental - Vancouver	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Preparation Methods				
	Method / Lab	Matrix	Method Reference	Method Descriptions



Preparation Methods		Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia		EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Dissolved Organic Carbon for Combustion		EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water		EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration		EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.

QUALITY CONTROL REPORT

Work Order	: YL2400572	Page	: 1 of 23
Amendment	: 1		
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Saad Pasha	Account Manager	: Oliver Gregg
Address	: 2800, 700 - 2nd Street SW Calgary AB Canada T2P 2W2	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 403.512.6580	Telephone	: 1 867 445 7143
Project	: CA0034908.5454-1000.1002	Date Samples Received	: 04-Jun-2024 09:57
PO	: 2024CA215454/1000.1001	Date Analysis Commenced	: 06-Jun-2024
C-O-C number	: ----	Issue Date	: 24-Jun-2024 10:16
Sampler	: Emily Finstad		
Site	:		
Quote number	: YL24-GOLD100-002		
No. of samples received	: 11		
No. of samples analysed	: 11		

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
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Brianna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia



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: 1480384)											
VA24B3059-003	Anonymous	pH	---	E108	0.10	pH units	7.82	7.85	0.383%	4%	---
Physical Tests (QC Lot: 1480385)											
VA24B3059-003	Anonymous	Alkalinity, total (as CaCO ₃)	---	E290	1.0	mg/L	36.3	34.6	4.80%	20%	---
Physical Tests (QC Lot: 1480386)											
VA24B3059-003	Anonymous	Conductivity	---	E100	2.0	μS/cm	71.1	69.0	3.00%	10%	---
Physical Tests (QC Lot: 1480526)											
VA24B3010-003	Anonymous	pH	---	E108	0.10	pH units	8.42	8.43	0.119%	4%	---
Physical Tests (QC Lot: 1480527)											
VA24B3010-003	Anonymous	Alkalinity, total (as CaCO ₃)	---	E290	1.0	mg/L	185	186	0.754%	20%	---
Physical Tests (QC Lot: 1480528)											
VA24B3010-003	Anonymous	Conductivity	---	E100	2.0	μS/cm	750	745	0.669%	10%	---
Anions and Nutrients (QC Lot: 1480387)											
VA24B3059-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.027	<0.020	0.007	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480388)											
VA24B3059-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480389)											
VA24B3059-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480390)											
VA24B3059-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0215	0.0216	0.00008	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480391)											
VA24B3059-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480392)											
VA24B3059-001	Anonymous	Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	6.46	6.42	0.558%	20%	---
Anions and Nutrients (QC Lot: 1480529)											
VA24B3010-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.064	0.064	0.0002	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480530)											
VA24B3010-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	0.73	0.72	0.007	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480531)											
VA24B3010-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 1480532)											



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	
Anions and Nutrients (QC Lot: 1480532) - continued												
VA24B3010-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	---	
Anions and Nutrients (QC Lot: 1480533)												
VA24B3010-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	33.0	32.9	0.276%	20%	---	
Anions and Nutrients (QC Lot: 1480534)												
VA24B3114-001	Anonymous	Bromide	24959-67-9	E235.Br-L	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	---	
Anions and Nutrients (QC Lot: 1480662)												
YL2400572-011	TB	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	---	
Anions and Nutrients (QC Lot: 1480663)												
YL2400572-011	TB	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	---	
Anions and Nutrients (QC Lot: 1486558)												
VA24B3358-012	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0046	0.0044	0.0002	Diff <2x LOR	---	
Anions and Nutrients (QC Lot: 1486559)												
VA24B3358-012	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	---	
Organic / Inorganic Carbon (QC Lot: 1480661)												
YL2400572-011	TB	Carbon, dissolved organic [DOC]	---	E358-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	---	
Organic / Inorganic Carbon (QC Lot: 1486557)												
YL2400572-001	SNP 5-4	Carbon, dissolved organic [DOC]	---	E358-L	0.50	mg/L	21.5	20.3	5.90%	20%	---	
Total Metals (QC Lot: 1480771)												
VA24B2961-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	2.41	2.41	0.210%	20%	---	
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00389	0.00390	0.170%	20%	---	
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.0149	0.0150	0.548%	20%	---	
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0146	0.0147	1.07%	20%	---	
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	0.000202	0.000198	1.65%	20%	---	
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	0.000098	0.000100	0.000002	Diff <2x LOR	---	
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	---	
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.000575	0.000557	3.12%	20%	---	
		Calcium, total	7440-70-2	E420	0.050	mg/L	8.54	8.62	0.882%	20%	---	
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.00505	0.00505	0.0299%	20%	---	
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00171	0.00182	0.00011	Diff <2x LOR	---	
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00141	0.00140	0.275%	20%	---	
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00464	0.00459	0.00004	Diff <2x LOR	---	
		Iron, total	7439-89-6	E420	0.010	mg/L	1.59	1.61	1.25%	20%	---	
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.00232	0.00237	2.10%	20%	---	
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0035	0.0035	0.00002	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: 1480771) - continued											
VA24B2961-001	Anonymous	Magnesium, total	7439-95-4	E420	0.100	mg/L	0.500	0.504	0.0045	Diff <2x LOR	---
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.314	0.316	0.576%	20%	---
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000244	0.000248	0.000003	Diff <2x LOR	---
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00302	0.00307	0.00005	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	0.100	mg/L	2.66	2.67	0.327%	20%	---
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.0148	0.0151	2.31%	20%	---
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	---
		Silicon, total	7440-21-3	E420	0.10	mg/L	4.92	4.90	0.361%	20%	---
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.000032	0.000030	0.000002	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.050	mg/L	0.176	0.176	0.00009	Diff <2x LOR	---
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0132	0.0132	0.242%	20%	---
		Sulfur, total	7704-34-9	E420	0.50	mg/L	3.93	4.01	0.09	Diff <2x LOR	---
		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	0.000242	0.000251	3.28%	20%	---
		Thorium, total	7440-29-1	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	---
		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	0.0314	0.0318	1.33%	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	0.000094	0.000098	0.000005	Diff <2x LOR	---
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00317	0.00317	0.000003	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0984	0.0981	0.333%	20%	---
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
Dissolved Metals (QC Lot: 1481562)											
YL2400574-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	---
		Antimony, dissolved	7440-36-0	E421	0.00020	mg/L	0.00708	0.00704	0.487%	20%	---
		Arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	0.00621	0.00615	0.956%	20%	---
		Barium, dissolved	7440-39-3	E421	0.00020	mg/L	0.0264	0.0266	0.901%	20%	---
		Beryllium, dissolved	7440-41-7	E421	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	---
		Bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---
		Boron, dissolved	7440-42-8	E421	0.020	mg/L	0.278	0.280	0.733%	20%	---
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	0.00122	0.00119	2.05%	20%	---
		Calcium, dissolved	7440-70-2	E421	0.100	mg/L	615	608	1.05%	20%	---
		Cesium, dissolved	7440-46-2	E421	0.000020	mg/L	0.000275	0.000260	5.39%	20%	---



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	
Dissolved Metals (QC Lot: 1481562) - continued												
YL2400574-001	Anonymous	Chromium, dissolved	7440-47-3	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---	
		Cobalt, dissolved	7440-48-4	E421	0.00020	mg/L	0.0266	0.0264	0.646%	20%	---	
		Copper, dissolved	7440-50-8	E421	0.00040	mg/L	0.00734	0.00722	1.67%	20%	---	
		Iron, dissolved	7439-89-6	E421	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	---	
		Lead, dissolved	7439-92-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---	
		Lithium, dissolved	7439-93-2	E421	0.0020	mg/L	0.0414	0.0412	0.531%	20%	---	
		Magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	125	121	3.02%	20%	---	
		Manganese, dissolved	7439-96-5	E421	0.00020	mg/L	0.442	0.435	1.62%	20%	---	
		Molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	0.00263	0.00262	0.482%	20%	---	
		Nickel, dissolved	7440-02-0	E421	0.00100	mg/L	0.0439	0.0437	0.476%	20%	---	
		Phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	---	
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	10.8	10.7	0.885%	20%	---	
		Rubidium, dissolved	7440-17-7	E421	0.00040	mg/L	0.0122	0.0120	2.17%	20%	---	
		Selenium, dissolved	7782-49-2	E421	0.000100	mg/L	0.000225	0.000217	0.000008	Diff <2x LOR	---	
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	1.07	1.04	2.67%	20%	---	
		Silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---	
		Sodium, dissolved	7440-23-5	E421	0.100	mg/L	309	306	1.13%	20%	---	
		Strontium, dissolved	7440-24-6	E421	0.00040	mg/L	6.58	6.50	1.18%	20%	---	
		Sulfur, dissolved	7704-34-9	E421	1.00	mg/L	308	307	0.349%	20%	---	
		Tellurium, dissolved	13494-80-9	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	---	
		Thallium, dissolved	7440-28-0	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---	
		Thorium, dissolved	7440-29-1	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---	
		Tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---	
		Titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	---	
		Tungsten, dissolved	7440-33-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---	
		Uranium, dissolved	7440-61-1	E421	0.000020	mg/L	0.00288	0.00283	1.82%	20%	---	
		Vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---	
		Zinc, dissolved	7440-66-6	E421	0.0020	mg/L	0.124	0.122	1.28%	20%	---	
		Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	---	
Dissolved Metals (QC Lot: 1483032)												
VA24B3253-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	1.61	1.57	2.42%	20%	---	
		Antimony, dissolved	7440-36-0	E421	0.00020	mg/L	0.00511	0.00518	1.23%	20%	---	
		Arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	0.00534	0.00541	1.47%	20%	---	
		Barium, dissolved	7440-39-3	E421	0.00020	mg/L	0.0649	0.0647	0.342%	20%	---	



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	
Dissolved Metals (QC Lot: 1483032) - continued												
VA24B3253-001	Anonymous	Beryllium, dissolved	7440-41-7	E421	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	---	
		Bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---	
		Boron, dissolved	7440-42-8	E421	0.020	mg/L	0.110	0.112	0.002	Diff <2x LOR	---	
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	<0.0000100	<0.0000100	0	Diff <2x LOR	---	
		Calcium, dissolved	7440-70-2	E421	0.100	mg/L	375	374	0.265%	20%	---	
		Cesium, dissolved	7440-46-2	E421	0.000020	mg/L	0.00242	0.00235	3.02%	20%	---	
		Chromium, dissolved	7440-47-3	E421	0.00100	mg/L	0.0102	0.0103	0.388%	20%	---	
		Cobalt, dissolved	7440-48-4	E421	0.00020	mg/L	0.00143	0.00142	0.000008	Diff <2x LOR	---	
		Copper, dissolved	7440-50-8	E421	0.00040	mg/L	0.00883	0.00864	2.19%	20%	---	
		Iron, dissolved	7439-89-6	E421	0.020	mg/L	0.025	0.024	0.0007	Diff <2x LOR	---	
		Lead, dissolved	7439-92-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---	
		Lithium, dissolved	7439-93-2	E421	0.0020	mg/L	0.0049	0.0049	0.00001	Diff <2x LOR	---	
		Magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	4.23	4.04	4.45%	20%	---	
		Manganese, dissolved	7439-96-5	E421	0.00020	mg/L	0.00961	0.00946	1.57%	20%	---	
		Molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	0.0333	0.0332	0.202%	20%	---	
		Nickel, dissolved	7440-02-0	E421	0.00100	mg/L	0.00100	0.00112	0.00012	Diff <2x LOR	---	
		Phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	---	
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	43.4	42.2	2.70%	20%	---	
		Rubidium, dissolved	7440-17-7	E421	0.00040	mg/L	0.0695	0.0679	2.26%	20%	---	
		Selenium, dissolved	7782-49-2	E421	0.000100	mg/L	0.00296	0.00308	3.83%	20%	---	
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	1.36	1.35	1.26%	20%	---	
		Silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---	
		Sodium, dissolved	7440-23-5	E421	0.100	mg/L	258	250	3.06%	20%	---	
		Strontium, dissolved	7440-24-6	E421	0.00040	mg/L	3.49	3.51	0.538%	20%	---	
		Sulfur, dissolved	7704-34-9	E421	1.00	mg/L	450	446	0.882%	20%	---	
		Tellurium, dissolved	13494-80-9	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	---	
		Thallium, dissolved	7440-28-0	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---	
		Thorium, dissolved	7440-29-1	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---	
		Tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---	
		Titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	---	
		Tungsten, dissolved	7440-33-7	E421	0.00020	mg/L	0.00386	0.00385	0.474%	20%	---	
		Uranium, dissolved	7440-61-1	E421	0.000020	mg/L	0.000043	0.000046	0.000002	Diff <2x LOR	---	
		Vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	0.0172	0.0171	0.536%	20%	---	
		Zinc, dissolved	7440-66-6	E421	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	---	

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Work Order : YL2400572 Amendment 1
Client : WSP Canada Inc.
Project : CA0034908.5454-1000.1002



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	
Dissolved Metals (QC Lot: 1483032) - continued												
VA24B3253-001	Anonymous	Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.00040	<0.00040	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: 1480385)						
Alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	<1.0	---
Physical Tests (QCLot: 1480386)						
Conductivity	---	E100	1	µS/cm	<1.0	---
Physical Tests (QCLot: 1480527)						
Alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	# 2.0	B
Physical Tests (QCLot: 1480528)						
Conductivity	---	E100	1	µS/cm	<1.0	---
Physical Tests (QCLot: 1485354)						
Solids, total suspended [TSS]	---	E160-L	1	mg/L	<1.0	---
Anions and Nutrients (QCLot: 1480387)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
Anions and Nutrients (QCLot: 1480388)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
Anions and Nutrients (QCLot: 1480389)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	---
Anions and Nutrients (QCLot: 1480390)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	---
Anions and Nutrients (QCLot: 1480391)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	---
Anions and Nutrients (QCLot: 1480392)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
Anions and Nutrients (QCLot: 1480529)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
Anions and Nutrients (QCLot: 1480530)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
Anions and Nutrients (QCLot: 1480531)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	---
Anions and Nutrients (QCLot: 1480532)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	---
Anions and Nutrients (QCLot: 1480533)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
Anions and Nutrients (QCLot: 1480534)						



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1480534) - continued						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	---
Anions and Nutrients (QCLot: 1480662)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	---
Anions and Nutrients (QCLot: 1480663)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	---
Anions and Nutrients (QCLot: 1486558)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	---
Anions and Nutrients (QCLot: 1486559)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	---
Organic / Inorganic Carbon (QCLot: 1480661)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	---
Organic / Inorganic Carbon (QCLot: 1486557)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	---
Total Metals (QCLot: 1480771)						
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	---
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	---



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1480771) - continued						
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	<0.000010	---
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: 1487332)						
Mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	---
Dissolved Metals (QCLot: 1481562)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	---
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	---
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	---
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	---
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	---
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	---
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	---
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	---
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	---
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	---
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	---
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	---
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	MBRR
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	---



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QC Lot: 1481562) - continued						
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	---
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	---
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	---
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	---
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	---
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	---
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	---
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	---
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	---
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	---
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	---
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	---
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	---
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	---
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	---
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	---
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	---
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	---
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	---
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	---
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	---
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	---
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	---
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	---
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	---
Dissolved Metals (QC Lot: 1483032)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	---
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	---
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	---
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	---
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	---
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	---
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	---
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	---
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	---



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1483032) - continued						
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	---
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	---
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	---
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	---
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	---
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	---
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	---
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	---
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	---
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	---
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	---
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	---
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	---
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	---
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	---
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	---
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	---
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	---
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	---
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	---
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	---
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	---
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	---
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	---
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	---
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	---
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	---
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	---
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	---
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	---



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Work Order : YL2400572 Amendment 1
Client : WSP Canada Inc.
Project : CA0034908.5454-1000.1002

Qualifiers

Qualifier	Description
B	<i>Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.</i>
MBRR	<i>Initial MB for this submission had positive results for flagged analyte (data not shown). Low level samples were repeated with new QC (2nd MB results shown). High level results (>5x initial MB level) and non-detect results were reported and are defensible</i>



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

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
Physical Tests (QC Lot: 1480384)									
pH	---	E108	---	pH units	7 pH units	101	98.0	102	---
Physical Tests (QC Lot: 1480385)									
Alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	500 mg/L	106	85.0	115	---
Physical Tests (QC Lot: 1480386)									
Conductivity	---	E100	1	µS/cm	147 µS/cm	104	90.0	110	---
Physical Tests (QC Lot: 1480526)									
pH	---	E108	---	pH units	7 pH units	100	98.0	102	---
Physical Tests (QC Lot: 1480527)									
Alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	500 mg/L	106	85.0	115	---
Physical Tests (QC Lot: 1480528)									
Conductivity	---	E100	1	µS/cm	147 µS/cm	101	90.0	110	---
Physical Tests (QC Lot: 1485354)									
Solids, total suspended [TSS]	---	E160-L	1	mg/L	150 mg/L	96.0	85.0	115	---
Anions and Nutrients (QC Lot: 1480387)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.2	90.0	110	---
Anions and Nutrients (QC Lot: 1480388)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	97.4	90.0	110	---
Anions and Nutrients (QC Lot: 1480389)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	99.1	85.0	115	---
Anions and Nutrients (QC Lot: 1480390)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	98.0	90.0	110	---
Anions and Nutrients (QC Lot: 1480391)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	96.0	90.0	110	---
Anions and Nutrients (QC Lot: 1480392)									
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	97.2	90.0	110	---
Anions and Nutrients (QC Lot: 1480529)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.9	90.0	110	---
Anions and Nutrients (QC Lot: 1480530)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	98.0	90.0	110	---
Anions and Nutrients (QC Lot: 1480531)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	97.9	90.0	110	---



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QC Lot: 1480532)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.5	90.0	110	---
Anions and Nutrients (QC Lot: 1480533)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.5	90.0	110	---
Anions and Nutrients (QC Lot: 1480534)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	97.2	85.0	115	---
Anions and Nutrients (QC Lot: 1480662)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	92.4	80.0	120	---
Anions and Nutrients (QC Lot: 1480663)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	---
Anions and Nutrients (QC Lot: 1486558)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	97.0	80.0	120	---
Anions and Nutrients (QC Lot: 1486559)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.0	85.0	115	---
Organic / Inorganic Carbon (QC Lot: 1480661)									
Carbon, dissolved organic [DOC]	---	E358-L	0.5	mg/L	8.57 mg/L	92.6	80.0	120	---
Organic / Inorganic Carbon (QC Lot: 1486557)									
Carbon, dissolved organic [DOC]	---	E358-L	0.5	mg/L	8.57 mg/L	102	80.0	120	---
Total Metals (QC Lot: 1480771)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	99.7	80.0	120	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	---
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	101	80.0	120	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	101	80.0	120	---
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	98.6	80.0	120	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	---
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	98.2	80.0	120	---
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.0	80.0	120	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	---
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.8	80.0	120	---
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	94.5	80.0	120	---
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	---
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	80.0	120	---



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Target Concentration	Laboratory Control Sample (LCS) Report			
						Spike	Recovery (%)	Recovery Limits (%)	
Total Metals (QCLot: 1480771) - continued									
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	100	80.0	120	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.2	80.0	120	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	98.3	80.0	120	---
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.2	80.0	120	---
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	94.7	80.0	120	---
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	93.4	80.0	120	---
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	109	80.0	120	---
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	91.4	80.0	120	---
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	104	80.0	120	---
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	96.3	80.0	120	---
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	93.4	80.0	120	---
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	99.9	80.0	120	---
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	104	80.0	120	---
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	99.2	80.0	120	---
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	104	80.0	120	---
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.9	80.0	120	---
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	---
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	103	80.0	120	---
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.7	80.0	120	---
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	102	80.0	120	---
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.0	80.0	120	---
Total Metals (QCLot: 1487332)									
Mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	92.0	80.0	120	---
Dissolved Metals (QCLot: 1481562)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	97.8	80.0	120	---
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	100	80.0	120	---
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	---
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	97.8	80.0	120	---
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.0	80.0	120	---
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	93.5	80.0	120	---
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	98.5	80.0	120	---
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.7	80.0	120	---
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	99.1	80.0	120	---



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Target Concentration	Laboratory Control Sample (LCS) Report			
						Spike	Recovery (%)	Recovery Limits (%)	
Dissolved Metals (QCLot: 1481562) - continued									
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	96.7	80.0	120	---
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	---
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.3	80.0	120	---
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	95.5	80.0	120	---
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	93.3	80.0	120	---
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.4	80.0	120	---
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	98.7	80.0	120	---
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	---
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	---
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.2	80.0	120	---
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.1	80.0	120	---
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	103	80.0	120	---
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.3	80.0	120	---
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	93.9	80.0	120	---
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	95.7	80.0	120	---
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	102	80.0	120	---
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	89.0	80.0	120	---
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	107	80.0	120	---
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	95.3	80.0	120	---
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	95.6	80.0	120	---
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	94.4	80.0	120	---
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	93.9	80.0	120	---
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	91.6	80.0	120	---
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.8	80.0	120	---
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	97.0	80.0	120	---
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	92.3	80.0	120	---
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	95.4	80.0	120	---
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	---
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	101	80.0	120	---
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	92.9	80.0	120	---
Dissolved Metals (QCLot: 1483032)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	101	80.0	120	---
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	105	80.0	120	---
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	109	80.0	120	---
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	---
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.3	80.0	120	---



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report					
					Spike	Recovery (%)	Recovery Limits (%)			
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier	
Dissolved Metals (QC Lot: 1483032) - continued										
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.7	80.0	120	---	
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	100	80.0	120	---	
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	101	80.0	120	---	
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	102	80.0	120	---	
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	101	80.0	120	---	
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	---	
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.9	80.0	120	---	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.8	80.0	120	---	
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	100	80.0	120	---	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.0	80.0	120	---	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	99.7	80.0	120	---	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	---	
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	---	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	105	80.0	120	---	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	---	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	106	80.0	120	---	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	---	
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	---	
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	102	80.0	120	---	
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120	---	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	94.8	80.0	120	---	
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	107	80.0	120	---	
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	---	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	101	80.0	120	---	
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	---	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	100	80.0	120	---	
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	98.1	80.0	120	---	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	102	80.0	120	---	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.0	80.0	120	---	
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	98.0	80.0	120	---	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.0	80.0	120	---	
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	---	
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	105	80.0	120	---	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	100	80.0	120	---	



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										
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Anions and Nutrients (QCLot: 1480387)										
VA24B3059-002	Anonymous	Fluoride	16984-48-8	E235.F	0.990 mg/L	1 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 1480388)										
VA24B3059-002	Anonymous	Chloride	16887-00-6	E235.Cl	97.3 mg/L	100 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 1480389)										
VA24B3059-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.513 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1480390)										
VA24B3059-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.44 mg/L	2.5 mg/L	97.5	75.0	125	----
Anions and Nutrients (QCLot: 1480391)										
VA24B3059-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.490 mg/L	0.5 mg/L	97.9	75.0	125	----
Anions and Nutrients (QCLot: 1480392)										
VA24B3059-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	96.3 mg/L	100 mg/L	96.3	75.0	125	----
Anions and Nutrients (QCLot: 1480529)										
VA24B3010-002	Anonymous	Fluoride	16984-48-8	E235.F	4.89 mg/L	5 mg/L	97.8	75.0	125	----
Anions and Nutrients (QCLot: 1480530)										
VA24B3010-002	Anonymous	Chloride	16887-00-6	E235.Cl	481 mg/L	500 mg/L	96.3	75.0	125	----
Anions and Nutrients (QCLot: 1480531)										
VA24B3010-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.0 mg/L	12.5 mg/L	96.2	75.0	125	----
Anions and Nutrients (QCLot: 1480532)										
VA24B3010-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.43 mg/L	2.5 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 1480533)										
VA24B3010-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	479 mg/L	500 mg/L	95.8	75.0	125	----
Anions and Nutrients (QCLot: 1480534)										
VA24B3114-002	Anonymous	Bromide	24959-67-9	E235.Br-L	24.2 mg/L	25 mg/L	96.8	75.0	125	----
Anions and Nutrients (QCLot: 1486558)										
YL2400572-001	SNP 5-4	Phosphorus, total	7723-14-0	E372-U	0.0480 mg/L	0.05 mg/L	95.9	70.0	130	----
Anions and Nutrients (QCLot: 1486559)										
YL2400572-001	SNP 5-4	Ammonia, total (as N)	7664-41-7	E298	0.0948 mg/L	0.1 mg/L	94.8	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1486557)										
YL2400572-002	SNP 5-5	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----



Sub-Matrix: Water

					Matrix Spike (MS) Report					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target		Low	High	
Total Metals (QC Lot: 1480771)										
VA24B2961-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	---	ND	70.0	130	---
		Antimony, total	7440-36-0	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	---
		Arsenic, total	7440-38-2	E420	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	---
		Barium, total	7440-39-3	E420	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	---
		Beryllium, total	7440-41-7	E420	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	---
		Bismuth, total	7440-69-9	E420	0.00983 mg/L	0.01 mg/L	98.3	70.0	130	---
		Boron, total	7440-42-8	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	---
		Cadmium, total	7440-43-9	E420	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	---
		Calcium, total	7440-70-2	E420	ND mg/L	---	ND	70.0	130	---
		Cesium, total	7440-46-2	E420	0.00945 mg/L	0.01 mg/L	94.5	70.0	130	---
		Chromium, total	7440-47-3	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	---
		Cobalt, total	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	---
		Copper, total	7440-50-8	E420	0.0188 mg/L	0.02 mg/L	93.9	70.0	130	---
		Iron, total	7439-89-6	E420	1.86 mg/L	2 mg/L	93.2	70.0	130	---
		Lead, total	7439-92-1	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	---
		Lithium, total	7439-93-2	E420	0.0944 mg/L	0.1 mg/L	94.4	70.0	130	---
		Magnesium, total	7439-95-4	E420	0.925 mg/L	1 mg/L	92.5	70.0	130	---
		Manganese, total	7439-96-5	E420	ND mg/L	---	ND	70.0	130	---
		Molybdenum, total	7439-98-7	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	---
		Nickel, total	7440-02-0	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	---
		Phosphorus, total	7723-14-0	E420	9.46 mg/L	10 mg/L	94.6	70.0	130	---
		Potassium, total	7440-09-7	E420	3.76 mg/L	4 mg/L	94.1	70.0	130	---
		Rubidium, total	7440-17-7	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	---
		Selenium, total	7782-49-2	E420	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	---
		Silicon, total	7440-21-3	E420	9.98 mg/L	10 mg/L	99.8	70.0	130	---
		Silver, total	7440-22-4	E420	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	---
		Sodium, total	7440-23-5	E420	2.00 mg/L	2 mg/L	99.9	70.0	130	---
		Strontium, total	7440-24-6	E420	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	---
		Sulfur, total	7704-34-9	E420	18.6 mg/L	20 mg/L	93.2	70.0	130	---
		Tellurium, total	13494-80-9	E420	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	---
		Thallium, total	7440-28-0	E420	0.00386 mg/L	0.004 mg/L	96.6	70.0	130	---
		Thorium, total	7440-29-1	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	---
		Tin, total	7440-31-5	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0402 mg/L	0.04 mg/L	101	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	---
		Uranium, total	7440-61-1	E420	0.00392 mg/L	0.004 mg/L	98.1	70.0	130	---
		Vanadium, total	7440-62-2	E420	0.0952 mg/L	0.1 mg/L	95.2	70.0	130	---
		Zinc, total	7440-66-6	E420	0.388 mg/L	0.4 mg/L	96.9	70.0	130	---
		Zirconium, total	7440-67-7	E420	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	---
Dissolved Metals (QC Lot: 1481562)										
YL2400574-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.371 mg/L	0.4 mg/L	92.6	70.0	130	---
		Antimony, dissolved	7440-36-0	E421	0.0361 mg/L	0.04 mg/L	90.2	70.0	130	---
		Arsenic, dissolved	7440-38-2	E421	0.0389 mg/L	0.04 mg/L	97.4	70.0	130	---
		Barium, dissolved	7440-39-3	E421	0.0337 mg/L	0.04 mg/L	84.3	70.0	130	---



Sub-Matrix: Water

					Matrix Spike (MS) Report					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target		Low	High	
Dissolved Metals (QCLot: 1481562) - continued										
YL2400574-002	Anonymous	Beryllium, dissolved	7440-41-7	E421	0.0740 mg/L	0.08 mg/L	92.6	70.0	130	---
		Bismuth, dissolved	7440-69-9	E421	0.0157 mg/L	0.02 mg/L	78.4	70.0	130	---
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	---
		Cadmium, dissolved	7440-43-9	E421	0.00694 mg/L	0.008 mg/L	86.7	70.0	130	---
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	---
		Cesium, dissolved	7440-46-2	E421	0.0186 mg/L	0.02 mg/L	93.0	70.0	130	---
		Chromium, dissolved	7440-47-3	E421	0.0725 mg/L	0.08 mg/L	90.6	70.0	130	---
		Cobalt, dissolved	7440-48-4	E421	0.0336 mg/L	0.04 mg/L	84.1	70.0	130	---
		Copper, dissolved	7440-50-8	E421	0.0312 mg/L	0.04 mg/L	77.9	70.0	130	---
		Iron, dissolved	7439-89-6	E421	3.47 mg/L	4 mg/L	86.7	70.0	130	---
		Lead, dissolved	7439-92-1	E421	0.0324 mg/L	0.04 mg/L	80.9	70.0	130	---
		Lithium, dissolved	7439-93-2	E421	0.181 mg/L	0.2 mg/L	90.3	70.0	130	---
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	---
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	---
		Molybdenum, dissolved	7439-98-7	E421	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	---
		Nickel, dissolved	7440-02-0	E421	0.0641 mg/L	0.08 mg/L	80.1	70.0	130	---
		Phosphorus, dissolved	7723-14-0	E421	19.5 mg/L	20 mg/L	97.6	70.0	130	---
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	---
		Rubidium, dissolved	7440-17-7	E421	0.0354 mg/L	0.04 mg/L	88.6	70.0	130	---
		Selenium, dissolved	7782-49-2	E421	0.0728 mg/L	0.08 mg/L	90.9	70.0	130	---
		Silicon, dissolved	7440-21-3	E421	18.6 mg/L	20 mg/L	93.0	70.0	130	---
		Silver, dissolved	7440-22-4	E421	0.00686 mg/L	0.008 mg/L	85.8	70.0	130	---
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	---
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	---
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	---
		Tellurium, dissolved	13494-80-9	E421	0.0723 mg/L	0.08 mg/L	90.4	70.0	130	---
		Thallium, dissolved	7440-28-0	E421	0.00630 mg/L	0.008 mg/L	78.8	70.0	130	---
		Thorium, dissolved	7440-29-1	E421	0.0345 mg/L	0.04 mg/L	86.2	70.0	130	---
		Tin, dissolved	7440-31-5	E421	0.0363 mg/L	0.04 mg/L	90.8	70.0	130	---
		Titanium, dissolved	7440-32-6	E421	0.0773 mg/L	0.08 mg/L	96.6	70.0	130	---
		Tungsten, dissolved	7440-33-7	E421	0.0345 mg/L	0.04 mg/L	86.3	70.0	130	---
		Uranium, dissolved	7440-61-1	E421	0.00714 mg/L	0.008 mg/L	89.2	70.0	130	---
		Vanadium, dissolved	7440-62-2	E421	0.188 mg/L	0.2 mg/L	93.8	70.0	130	---
		Zinc, dissolved	7440-66-6	E421	0.669 mg/L	0.8 mg/L	83.7	70.0	130	---
		Zirconium, dissolved	7440-67-7	E421	0.0761 mg/L	0.08 mg/L	95.1	70.0	130	---
Dissolved Metals (QCLot: 1483032)										
VA24B3256-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.185 mg/L	0.2 mg/L	92.7	70.0	130	---
		Antimony, dissolved	7440-36-0	E421	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	---
		Arsenic, dissolved	7440-38-2	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	---
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	---
		Beryllium, dissolved	7440-41-7	E421	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	---
		Bismuth, dissolved	7440-69-9	E421	0.00866 mg/L	0.01 mg/L	86.6	70.0	130	---
		Boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	96.1	70.0	130	---
		Cadmium, dissolved	7440-43-9	E421	0.00392 mg/L	0.004 mg/L	97.9	70.0	130	---



Sub-Matrix: Water

					Matrix Spike (MS) Report					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target		Low	High	
Dissolved Metals (QCLot: 1483032) - continued										
VA24B3256-001	Anonymous	Calcium, dissolved	7440-70-2	E421	ND mg/L	---	ND	70.0	130	---
		Cesium, dissolved	7440-46-2	E421	0.00966 mg/L	0.01 mg/L	96.6	70.0	130	---
		Chromium, dissolved	7440-47-3	E421	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	---
		Cobalt, dissolved	7440-48-4	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	---
		Copper, dissolved	7440-50-8	E421	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	---
		Iron, dissolved	7439-89-6	E421	1.88 mg/L	2 mg/L	94.0	70.0	130	---
		Lead, dissolved	7439-92-1	E421	0.0182 mg/L	0.02 mg/L	91.1	70.0	130	---
		Lithium, dissolved	7439-93-2	E421	0.0931 mg/L	0.1 mg/L	93.1	70.0	130	---
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	---	ND	70.0	130	---
		Manganese, dissolved	7439-96-5	E421	0.0180 mg/L	0.02 mg/L	89.8	70.0	130	---
		Molybdenum, dissolved	7439-98-7	E421	0.0201 mg/L	0.02 mg/L	101	70.0	130	---
		Nickel, dissolved	7440-02-0	E421	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	---
		Phosphorus, dissolved	7723-14-0	E421	9.82 mg/L	10 mg/L	98.2	70.0	130	---
		Potassium, dissolved	7440-09-7	E421	ND mg/L	---	ND	70.0	130	---
		Rubidium, dissolved	7440-17-7	E421	0.0184 mg/L	0.02 mg/L	92.1	70.0	130	---
		Selenium, dissolved	7782-49-2	E421	0.0402 mg/L	0.04 mg/L	100	70.0	130	---
		Silicon, dissolved	7440-21-3	E421	9.18 mg/L	10 mg/L	91.8	70.0	130	---
		Silver, dissolved	7440-22-4	E421	0.00374 mg/L	0.004 mg/L	93.5	70.0	130	---
		Sodium, dissolved	7440-23-5	E421	ND mg/L	---	ND	70.0	130	---
		Strontium, dissolved	7440-24-6	E421	ND mg/L	---	ND	70.0	130	---
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	---	ND	70.0	130	---
		Tellurium, dissolved	13494-80-9	E421	0.0413 mg/L	0.04 mg/L	103	70.0	130	---
		Thallium, dissolved	7440-28-0	E421	0.00356 mg/L	0.004 mg/L	89.0	70.0	130	---
		Thorium, dissolved	7440-29-1	E421	0.0160 mg/L	0.02 mg/L	79.9	70.0	130	---
		Tin, dissolved	7440-31-5	E421	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	---
		Titanium, dissolved	7440-32-6	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	---
		Tungsten, dissolved	7440-33-7	E421	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	---
		Uranium, dissolved	7440-61-1	E421	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	---
		Vanadium, dissolved	7440-62-2	E421	0.0970 mg/L	0.1 mg/L	97.0	70.0	130	---
		Zinc, dissolved	7440-66-6	E421	0.396 mg/L	0.4 mg/L	99.0	70.0	130	---
		Zirconium, dissolved	7440-67-7	E421	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	---

APPENDIX D

Quality Assurance and Quality Control

QUALITY ASSURANCE/QUALITY CONTROL

1.0 INTRODUCTION

Key findings of the quality assurance and quality control (QA/QC) review for water quality are summarized below. For water quality, the field QC program included collecting one duplicate sample, one field blank, and one travel blank. The assessment of QC sample results was completed using analytical data provided by ALS Canada Ltd. (ALS). For toxicity, QA/QC was completed for the sample collected at SNP 5-6 using the test report provided by Nautilus Environmental Inc. (Nautilus).

2.0 WATER QUALITY

2.1 Parameter List

All parameters required by the Type A Water Licence W2021L2-0004 (WLWB 2023) were analyzed, as requested.

2.2 Detection Limits

Standard ALS detection limits (DLs) were used when analyzing samples collected during the June 2024 field program.

2.3 Hold Times

Hold times between sample collection and analysis for each parameter are specified by ALS and should be met to obtain reliable data. For this program, the 15-minute hold time for pH (APHA 2012) was not met because the samples cannot be processed by ALS Canada Ltd. (ALS) within this time limit. The hold time for total mercury was not met because the containers provided by ALS for sample collection were not cleaned by the laboratory to the required level to provide reliable detection limits for low-level mercury). As a result of this error, a maximum hold time of zero was applied instead of the standard 190 hours. ALS analyzed this parameter 8 days after sample collection at SNP 5-4, SNP 5-5, the field blank, and the travel blank. The hold times were met for all other parameters.

2.4 Units

All reported units were correct, and no issues were identified during the review of electronic data against the final certificate of analysis provided by ALS.

2.5 Qualifiers

The ALS internal data quality report indicated that the DL was adjusted due to sample matrix effects for total thorium and total zirconium in the sample collected at SNP 5-8 and for total titanium and total zirconium in the sample collected at SNP 5-9.

2.6 Total versus Dissolved Metal Concentrations

Dissolved metal concentrations in water samples were compared to corresponding total metal concentrations. Dissolved and total concentrations were considered notable if the dissolved concentration was more than 20% higher than the total concentration. Dissolved concentrations were within 20% of total concentrations for samples collected in June 2024.

2.7 Duplicate Sample Results

A duplicate water sample was collected from SNP 5-6 on 3 June 2024 to assess variability during sample collection, handling, and analysis.

The relative percent difference (RPD) was used to determine the variability between the primary and duplicate sample and was calculated using the following formula:

$$RPD = ABS \left(\frac{(field\ sample\ concentration - duplicate\ sample\ concentration)}{average\ concentration} \right) \times 100$$

where ABS = absolute value.

Values reported below the DLs were included in the calculations at half the applicable DL. The RPD was not calculated in cases where the concentration in both samples was less than five times the DL (i.e., within the range of analytical uncertainty).

The variability in parameter concentrations between primary and duplicate samples was considered notable if:

- the parameter concentration in at least one sample was greater than five times the DL
- the RPD was greater than 20%

These criteria are consistent with those used by ALS for internal QC procedures (Dang 2015, pers. comm.) and account for potential analytical uncertainty when concentrations approach DLs (Weiner 2000). Variability between the field and duplicate samples was rated as follows:

- **low** if less than 10% of the parameters included in the duplicate analysis were notably different from one another
- **moderate** if 10 to 30% of the parameters included in the duplicate analysis were notably different from one another
- **high** if more than 30% of the parameters included in the duplicate or split sample analysis were notably different from one another

The results of the comparison between the SNP 5-6 primary and duplicate samples are summarized in Table D-1. The pH measurements and concentrations of total phosphorus, total aluminum, total iron, total lead, total titanium, and dissolved zinc in the duplicate samples collected at SNP 5-6 had an RPD greater than 20%. Data re-checks were requested from the laboratory and total phosphorus results were updated while all the other results were confirmed. Variability in metal concentrations between the sample and its duplicate may be due to low water levels at the site during collection. Overall, the variability between the primary and duplicate sample was rated as low; less than 10% of parameters included in the analysis were notably different from one another.

Table D-1: Duplicate Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	SNP 5-6		Relative Percent Difference
			Sample	Duplicate	
Conventional Parameters					
pH ^(a)	unitless	0.1	7.5	7.6	39%
Specific conductivity	µS/cm	2	294	298	1%
Hardness, as CaCO ₃	mg/L	0.5	129	127	2%
Total suspended solids	mg/L	2	5.9	4.9	2%
Total dissolved solids (calculated)	mg/L	1	175	174	1%
Major Ions					
Calcium	mg/L	0.05	32	31	1%
Chloride	mg/L	0.5	1.5	1.5	-
Fluoride	mg/L	0.02	0.16	0.16	1%
Magnesium	mg/L	0.005	12	12	3%
Potassium	mg/L	0.05	2.6	2.6	2%
Sodium	mg/L	0.05	3.1	3.1	3%
Sulphate	mg/L	0.3	102	101	1%
Nutrients					
Nitrate	mg-N/L	0.005	<0.005	<0.005	-
Nitrite	mg-N/L	0.001	<0.001	<0.001	-
Total ammonia	mg-N/L	0.005	0.0084	0.010	-
Total phosphorus (colourimetric)	mg-P/L	0.002	0.039	0.018	72%
Dissolved phosphorus	mg-P/L	0.05	<0.05	<0.05	-
Total Metals					
Aluminum	mg/L	0.003	0.13	0.10	25%
Antimony	mg/L	0.0001	<0.0001	<0.0001	-
Arsenic	mg/L	0.0001	0.00081	0.00068	17%
Barium	mg/L	0.0001	0.014	0.014	3%
Beryllium	mg/L	0.00002	<0.00002	<0.00002	-
Bismuth	mg/L	0.00005	<0.00005	<0.00005	-
Boron	mg/L	0.01	0.030	0.030	-
Cadmium	mg/L	0.000005	0.000015	0.000018	-
Calcium	mg/L	0.05	32	33	3%
Cesium	mg/L	0.00001	0.00076	0.00076	0%
Chromium	mg/L	0.0005	<0.0005	<0.0005	-
Cobalt	mg/L	0.0001	0.00066	0.00067	2%
Copper	mg/L	0.0005	0.0035	0.0032	9%
Iron	mg/L	0.01	1.3	1.0	21%
Lead	mg/L	0.00005	0.00037	0.00029	25%
Lithium	mg/L	0.001	0.012	0.012	3%
Magnesium	mg/L	0.005	12	12	1%
Manganese	mg/L	0.0001	0.058	0.060	3%

Table D-1: Duplicate Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	SNP 5-6		Relative Percent Difference
			Sample	Duplicate	
Mercury	mg/L	0.0000005	-	-	-
Molybdenum	mg/L	0.00005	<0.00005	<0.00005	-
Nickel	mg/L	0.0005	0.024	0.024	2%
Potassium	mg/L	0.05	2.7	2.7	1%
Rubidium	mg/L	0.0002	0.0067	0.0067	0%
Selenium	mg/L	0.00005	<0.00005	<0.00005	-
Silicon	mg/L	0.1	2.6	2.4	5%
Silver	mg/L	0.00001	<0.00001	<0.00001	-
Sodium	mg/L	0.05	3.1	3.1	0%
Strontium	mg/L	0.0002	0.094	0.094	0%
Sulphur	mg/L	0.5	37	36	2%
Tellurium	mg/L	0.0002	<0.0002	<0.0002	-
Thallium	mg/L	0.00001	<0.00001	<0.00001	-
Thorium	mg/L	0.0001	<0.0001	<0.0001	-
Tin	mg/L	0.0001	<0.0001	<0.0001	-
Titanium	mg/L	0.0003	0.00062	0.00040	43%
Tungsten	mg/L	0.0001	<0.0001	<0.0001	-
Uranium	mg/L	0.00001	0.00011	0.000094	12%
Vanadium	mg/L	0.0005	<0.0005	<0.0005	-
Zinc	mg/L	0.003	0.0071	0.0065	-
Zirconium	mg/L	0.0002	<0.0002	<0.0002	-
Dissolved Metals					
Aluminum	mg/L	0.001	0.063	0.060	5%
Antimony	mg/L	0.0001	<0.0001	<0.0001	-
Arsenic	mg/L	0.0001	0.00056	0.00055	2%
Barium	mg/L	0.0001	0.013	0.013	1%
Beryllium	mg/L	0.00002	<0.00002	<0.00002	-
Bismuth	mg/L	0.00005	<0.00005	<0.00005	-
Boron	mg/L	0.01	0.029	0.029	-
Cadmium	mg/L	0.000005	0.000016	0.000014	-
Cesium	mg/L	0.00001	0.00077	0.00077	1%
Chromium	mg/L	0.0005	<0.0005	<0.0005	-
Cobalt	mg/L	0.0001	0.00076	0.00063	19%
Copper	mg/L	0.0002	0.0025	0.0025	2%
Iron	mg/L	0.01	0.51	0.50	3%
Lead	mg/L	0.00005	0.00010	0.00011	-
Lithium	mg/L	0.001	0.012	0.012	0%
Manganese	mg/L	0.0001	0.072	0.068	6%
Molybdenum	mg/L	0.00005	<0.00005	<0.00005	-

Table D-1: Duplicate Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	SNP 5-6		Relative Percent Difference
			Sample	Duplicate	
Nickel	mg/L	0.0005	0.023	0.022	3%
Rubidium	mg/L	0.0002	0.0065	0.0064	1%
Selenium	mg/L	0.00005	0.000054	<0.00005	-
Silicon	mg/L	0.05	2.5	2.5	0%
Silver	mg/L	0.00001	<0.00001	<0.00001	-
Strontium	mg/L	0.0002	0.094	0.094	0%
Sulphur	mg/L	0.5	36	35	2%
Tellurium	mg/L	0.0002	<0.0002	<0.0002	-
Thallium	mg/L	0.00001	<0.00001	<0.00001	-
Thorium	mg/L	0.0001	<0.0001	<0.0001	-
Tin	mg/L	0.0001	<0.0001	<0.0001	-
Titanium	mg/L	0.0003	<0.0003	<0.0003	-
Tungsten	mg/L	0.0001	<0.0001	<0.0001	-
Uranium	mg/L	0.00001	0.000080	0.000077	4%
Vanadium	mg/L	0.0005	<0.0005	<0.0005	-
Zinc	mg/L	0.001	0.0063	0.0050	23%
Zirconium	mg/L	0.0003	<0.0003	<0.0003	-

Notes:

Bolded values indicate relative percent difference is greater than 20%.

The relative percent difference is calculated for duplicate samples using the following formula: RPD = (absolute value (difference in concentration between field sample and duplicate sample) / average concentration) x 100%.

a) pH values were converted to hydrogen ion concentrations prior to calculating the relative percent difference.

SNP = Surveillance Network Program; < = less than; CaCO₃ = calcium carbonate; mg/L = milligrams per litre; µS/cm = microsiemens per centimetre; % = percent; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorous per litre; - = the relative percent difference was not calculated because the concentration in both samples was less than five times the detection limit.

2.8 Field Blank Results

A field blank was collected at SNP 5-8 during the 3 June 2024 sampling event, with results summarized in Table D-2. Concentrations of all parameters were less than applicable DLs in the field blank, indicating low potential for contamination during sampling.

Table D-2: Field Blank Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	Field Blank (SNP 5-8)
Conventional Parameters			
pH	unitless	0.1	5.4
Specific conductivity	µS/cm	2	<2
Hardness, as CaCO ₃	mg/L	0.5	<0.5
Total alkalinity, as CaCO ₃	mg/L	2	<2
Total dissolved solids (calculated)	mg/L	1	<1
Total suspended solids	mg/L	1	<1
Dissolved organic carbon	mg/L	0.5	<0.5
Major Ions			
Calcium	mg/L	0.05	<0.05
Chloride	mg/L	0.5	<0.5
Fluoride	mg/L	0.02	<0.02
Magnesium	mg/L	0.005	<0.005
Potassium	mg/L	0.05	<0.05
Sodium	mg/L	0.05	<0.05
Sulphate	mg/L	0.3	<0.3
Nutrients			
Nitrate as N	mg-N/L	0.005	<0.005
Nitrite as N	mg-N/L	0.001	<0.001
Total ammonia	mg-N/L	0.005	<0.005
Total phosphorus (colourimetric)	mg-P/L	0.002	<0.002
Dissolved phosphorus	mg-P/L	0.05	<0.05
Total Metals			
Aluminum	mg/L	0.003	<0.003
Antimony	mg/L	0.0001	<0.0001
Arsenic	mg/L	0.0001	<0.0001
Barium	mg/L	0.0001	<0.0001
Beryllium	mg/L	0.00002	<0.00002
Bismuth	mg/L	0.00005	<0.00005
Boron	mg/L	0.01	<0.01
Cadmium	mg/L	0.000005	<0.000005
Calcium	mg/L	0.05	<0.05
Cesium	mg/L	0.00001	<0.00001
Chromium	mg/L	0.0005	<0.0005
Cobalt	mg/L	0.0001	<0.0001

Table D-2: Field Blank Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	Field Blank (SNP 5-8)
Copper	mg/L	0.0005	<0.0005
Iron	mg/L	0.01	<0.01
Lead	mg/L	0.00005	<0.00005
Lithium	mg/L	0.001	<0.001
Magnesium	mg/L	0.005	<0.005
Manganese	mg/L	0.0001	<0.0001
Mercury	mg/L	0.0000005	<0.0000005
Molybdenum	mg/L	0.00005	<0.00005
Nickel	mg/L	0.0005	<0.0005
Potassium	mg/L	0.05	<0.05
Rubidium	mg/L	0.0002	<0.0002
Selenium	mg/L	0.00005	<0.00005
Silicon	mg/L	0.1	<0.1
Silver	mg/L	0.00001	<0.00001
Sodium	mg/L	0.05	<0.05
Strontium	mg/L	0.0002	<0.0002
Sulphur	mg/L	0.5	<0.5
Tellurium	mg/L	0.0002	<0.0002
Thallium	mg/L	0.00001	<0.00001
Thorium	mg/L	0.0001	<0.0001
Tin	mg/L	0.0001	<0.0001
Titanium	mg/L	0.0003	<0.0003
Tungsten	mg/L	0.0001	<0.0001
Uranium	mg/L	0.00001	<0.00001
Vanadium	mg/L	0.0005	<0.0005
Zinc	mg/L	0.003	<0.003
Zirconium	mg/L	0.0002	<0.0002
Dissolved Metals			
Aluminum	mg/L	0.001	<0.001
Antimony	mg/L	0.0001	<0.0001
Arsenic	mg/L	0.0001	<0.0001
Barium	mg/L	0.0001	<0.0001
Beryllium	mg/L	0.00002	<0.00002
Bismuth	mg/L	0.00005	<0.00005
Boron	mg/L	0.01	<0.01
Cadmium	mg/L	0.000005	<0.000005
Cesium	mg/L	0.00001	<0.00001
Chromium	mg/L	0.0005	<0.0005
Cobalt	mg/L	0.0001	<0.0001
Copper	mg/L	0.0002	<0.0002

Table D-2: Field Blank Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	Field Blank (SNP 5-8)
Iron	mg/L	0.01	<0.01
Lead	mg/L	0.00005	<0.00005
Lithium	mg/L	0.001	<0.001
Manganese	mg/L	0.0001	<0.0001
Molybdenum	mg/L	0.00005	<0.00005
Nickel	mg/L	0.0005	<0.0005
Rubidium	mg/L	0.0002	<0.0002
Selenium	mg/L	0.00005	<0.00005
Silicon	mg/L	0.05	<0.05
Silver	mg/L	0.00001	<0.00001
Strontium	mg/L	0.0002	<0.0002
Sulphur	mg/L	0.5	<0.5
Tellurium	mg/L	0.0002	<0.0002
Thallium	mg/L	0.00001	<0.00001
Thorium	mg/L	0.0001	<0.0001
Tin	mg/L	0.0001	<0.0001
Titanium	mg/L	0.0003	<0.0003
Tungsten	mg/L	0.0001	<0.0001
Uranium	mg/L	0.00001	<0.00001
Vanadium	mg/L	0.0005	<0.0005
Zinc	mg/L	0.001	<0.001
Zirconium	mg/L	0.0003	<0.0003

Notes:

< = less than; mg/L = milligrams per litre; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorous per litre.

2.9 Travel Blank

A travel blank was prepared by the analytical laboratory and accompanied the field team during travel to/from the site and sampling activities. Results for the travel blank sample are summarized in Table D-3. Parameter concentrations were less than five times the applicable DLs, indicating low potential for contamination during sample handling, transport, and storage.

Table D-3: Travel Blank Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	Travel Blank
Conventional Parameters			
pH	unitless	0.1	5.5
Specific conductivity	µS/cm	2	<2
Hardness, as CaCO ₃	mg/L	0.5	<0.5
Total alkalinity, as CaCO ₃	mg/L	2	<2
Total dissolved solids (calculated)	mg/L	1	<1
Total suspended solids	mg/L	1	<1
Dissolved organic carbon	mg/L	0.5	<0.5
Major Ions			
Calcium	mg/L	0.05	<0.05
Chloride	mg/L	0.5	<0.5
Fluoride	mg/L	0.02	<0.02
Magnesium	mg/L	0.005	<0.005
Potassium	mg/L	0.05	<0.05
Sodium	mg/L	0.05	<0.05
Sulphate	mg/L	0.3	<0.3
Nutrients			
Nitrate	mg-N/L	0.005	<0.005
Nitrite	mg-N/L	0.001	<0.001
Total ammonia	mg-N/L	0.005	<0.005
Total phosphorus (colourimetric)	mg-P/L	0.002	<0.002
Dissolved phosphorus	mg-P/L	0.05	<0.05
Total Metals			
Aluminum	mg/L	0.003	<0.003
Antimony	mg/L	0.0001	<0.0001
Arsenic	mg/L	0.0001	<0.0001
Barium	mg/L	0.0001	<0.0001
Beryllium	mg/L	0.00002	<0.00002
Bismuth	mg/L	0.00005	<0.00005
Boron	mg/L	0.01	<0.01
Cadmium	mg/L	0.000005	<0.000005
Calcium	mg/L	0.05	<0.05
Cesium	mg/L	0.00001	<0.00001
Chromium	mg/L	0.0005	<0.0005

Table D-3: Travel Blank Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	Travel Blank
Cobalt	mg/L	0.0001	<0.0001
Copper	mg/L	0.0005	<0.0005
Iron	mg/L	0.01	<0.01
Lead	mg/L	0.00005	<0.00005
Lithium	mg/L	0.001	<0.001
Magnesium	mg/L	0.005	<0.005
Manganese	mg/L	0.0001	<0.0001
Mercury	mg/L	0.0000005	<0.0000005
Molybdenum	mg/L	0.00005	<0.00005
Nickel	mg/L	0.0005	<0.0005
Potassium	mg/L	0.05	<0.05
Rubidium	mg/L	0.0002	<0.0002
Selenium	mg/L	0.00005	<0.00005
Silicon	mg/L	0.1	<0.1
Silver	mg/L	0.00001	<0.00001
Sodium	mg/L	0.05	<0.05
Strontium	mg/L	0.0002	<0.0002
Sulphur	mg/L	0.5	<0.5
Tellurium	mg/L	0.0002	<0.0002
Thallium	mg/L	0.00001	<0.00001
Thorium	mg/L	0.0001	<0.0001
Tin	mg/L	0.0001	<0.0001
Titanium	mg/L	0.0003	<0.0003
Tungsten	mg/L	0.0001	<0.0001
Uranium	mg/L	0.00001	<0.00001
Vanadium	mg/L	0.0005	<0.0005
Zinc	mg/L	0.003	<0.003
Zirconium	mg/L	0.0002	<0.0002
Dissolved Metals			
Aluminum	mg/L	0.001	<0.001
Antimony	mg/L	0.0001	<0.0001
Arsenic	mg/L	0.0001	<0.0001
Barium	mg/L	0.0001	<0.0001
Beryllium	mg/L	0.00002	<0.00002
Bismuth	mg/L	0.00005	<0.00005
Boron	mg/L	0.01	<0.01
Cadmium	mg/L	0.000005	<0.000005
Cesium	mg/L	0.00001	<0.00001
Chromium	mg/L	0.0005	<0.0005
Cobalt	mg/L	0.0001	<0.0001

Table D-3: Travel Blank Results for the Surveillance Network Program at Damoti Lake, 3 June 2024

Parameter	Unit	Detection Limit	Travel Blank
Copper	mg/L	0.0002	<0.0002
Iron	mg/L	0.01	<0.01
Lead	mg/L	0.00005	<0.00005
Lithium	mg/L	0.001	<0.001
Manganese	mg/L	0.0001	<0.0001
Molybdenum	mg/L	0.00005	<0.00005
Nickel	mg/L	0.0005	<0.0005
Rubidium	mg/L	0.0002	<0.0002
Selenium	mg/L	0.00005	<0.00005
Silicon	mg/L	0.05	<0.05
Silver	mg/L	0.00001	<0.00001
Strontium	mg/L	0.0002	<0.0002
Sulphur	mg/L	0.5	<0.5
Tellurium	mg/L	0.0002	<0.0002
Thallium	mg/L	0.00001	<0.00001
Thorium	mg/L	0.0001	<0.0001
Tin	mg/L	0.0001	<0.0001
Titanium	mg/L	0.0003	<0.0003
Tungsten	mg/L	0.0001	<0.0001
Uranium	mg/L	0.00001	<0.00001
Vanadium	mg/L	0.0005	<0.0005
Zinc	mg/L	0.001	<0.001
Zirconium	mg/L	0.0003	<0.0003

Notes:

< = less than; mg/L = milligrams per litre; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorous per litre.

3.0 TOXICITY

The QA/QC results for the acute toxicity testing at SNP 5-6 are as follows:

- Samples were received in good condition.
- Tests were initiated within the recommended holding time, i.e., five days from sample collection for acute tests.
- The acute toxicity samples were within the recommended temperature range of $4^\circ\text{C} \pm 3^\circ\text{C}$ upon receipt at Nautilus Environmental (5.9°C).
- Health culture criteria were met for all test species.
- Water quality data were within acceptable ranges per standard protocols for each test species.
- Test acceptability for laboratory control performance was met in all tests (Table D-4).

- Results of the Rainbow Trout and *Daphnia magna* reference toxicant tests were within acceptable ranges per the standard protocol.

Table D-4: Test Validity and Quality Assurance Results for SNP 5-6 Acute Toxicity Tests in Laboratory Control Water, June 2024

Test Species	Acceptable Control Criteria	SNP 5-6
		03 June 2024
<i>Oncorhynchus mykiss</i> (Rainbow Trout)		
Mean Control Mortality and Abnormal Behaviour	≤10%	0%
<i>Daphnia magna</i> (water flea)		
Mean Control Mortality and Immobility	≤10%	0%

4.0 SUMMARY

The QA/QC assessment of the data collected during the 3 June 2024 sampling event indicated limited potential for contamination during sampling, handling, or transport. Duplicate sample results indicate that intrastation variability was low (i.e., sampling precision was high). No deviations in the acute toxicity tests for SNP 5-6 were identified. Overall, the data are considered adequate to address the objectives of the program.

5.0 REFERENCES

- APHA (American Public Health Association). 2012. Standard Methods for the Examination of Water and Wastewater. 22nd Edition, with updates to 2015. Washington, D.C.
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