ANNUAL REPORT
FOR THE MUNICIPALITY OF ARVIAT

YEAR BEING REPORTED: 2024

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water Licence No. **3AM-ARV2232** issued to the **Municipality of Arviat**.

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

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

Table 1: Summary of water obtained from three raw water cells combined and estimated sewage water discharge in m^3

Month Reported	Quantity of Water Obtained from all sources (m^3)	Quantity of Sewage Waste Discharged (m^3)
January	9,435.143	Same
February	8,674.108	Same
March	9,131.974	Same
April	8,899.446	Same
May	8,977.576	Same
June	9,942.466	Same
July	9,807.845	Same
August	9,857.249	Same
September	9,506.907	Same
October	10,020.07	Same
November	9,260.395	Same
December	9,437.576	Same
ANNUAL TOTAL	112,950.58	Same

Note: No meter exists to measure the sewage discharge volumes, therefore Sewage discharge volumes are considered equal to the water consumption volumes.

Table 2: Summary of water obtained from Wolf Creek to Raw Water Cells in m^3

Month Reported	Estimated Water Transferred from Wolf Creek to Raw Water Cells (m^3)
August	32,014.50
September	45,672.93
October	39,201.17
TOTAL	**116,888.60**

Pumping from Wolf Creek River began on August 18th and ended on October 17th, 2024. A total of 116,888.60 m^3 was pumped to raw water cells in 2024. Daily volumes are recorded in Appendix A.

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

- Segregation continues to be improved at the Solid Waste and Bulky Metals Site. Hazardous material/ Metals Waste Site sorted. Shredded materials are being trucked to Solid Waste Site where they are disposed and are used as fire barriers. Heavy equipment on Solid Waste Site organizing area. Battery storage is taking place.
- Water reservoir Cell #3 was drained (water pumped to adjacent Cell #1), cleaned and minor liner repairs were completed in 2024.

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

- No unauthorized discharges for the infrastructure under licence 3AM-aRV2232 occurred in 2024.
- List of spills reported to the NT-NU Spill Report Line as listed on the Hazardous Materials Spills Database for Arviat in 2024 available in Appendix B.

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

- None

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

- The initial solid waste site planning study was completed in 2020/21. The cost estimates have indicated that the current funding cannot support the construction of a new state-of-the-art 20-year landfill. The focus of the project will shift to making improvements to the current site. A second planning contract to assess and prioritize the improvements to the current site is expected to be complete in 2025.
- Design of the new sewage lagoon is on-going, but the consultant encountered geotechnical issues that has delayed the project. Archaeological survey planned for summer 2025 to obtain Culture & Heritage approval. Once design can move forward, an amendment application will be submitted to the NWB.

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

- None

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

- None

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

Water Licencing Sampling Points:

ARV- 2a: Effluent discharge from the Discharge Point of the Solid Waste Disposal Facility
ARV- 4: Effluent from the discharge point of the Sewage Disposal Facility (End of wetland)
ARV- 5: Discharge from the Bulky Metal Waste Area
ARV- 6: Discharge from the Hazardous Waste Storage Area

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- No 2024 CIRNAC Inspection.

Appendix A: Arviat Annual Reservoir Resupply from Wolf Creek

Appendix B: Hazardous Materials Spills Database for Arviat in 2024

Appendix C: CIRNAC Inspection Report – No 2024 Inspection

Appendix D: Monitoring Program Results
Certificate of Analysis – 17-July-2024
Certificate of Analysis – 01-August-2024
Certificate of Analysis – 19-September-2024

Appendix E: ARV-4 Effluent Quality Limits

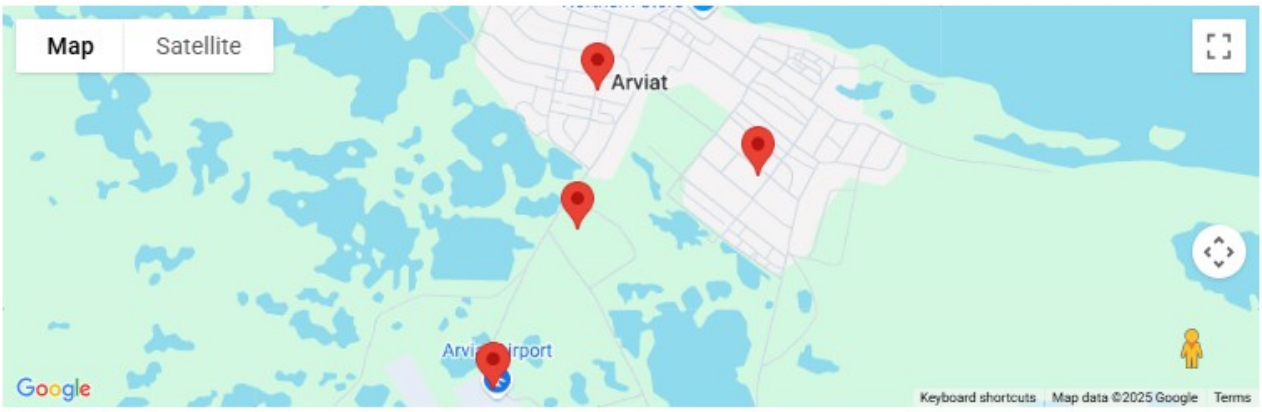
Appendix A: Arviat Annual Reservoir Resupply from Wolf Creek

Arviat Annual Reservoir Resupply from Wolf Creek

Date	Meter Read (m3)	Total Volume (m3/day)	Monthly Pumped Volume Total (m3)
August			
August 18, 2025	25,966.10	0.00	
August 19, 2025	25,966.10	2,310.10	
August 20, 2025	28,276.20	2,449.20	
August 21, 2025	30,725.40	2,400.80	
August 22, 2025	33,126.20	2,452.30	
August 23, 2025	35,578.50	2,264.30	
August 24, 2025	37,842.80	2,441.80	
August 25, 2025	40,284.60	2,528.00	
August 26, 2025	42,812.60	2,528.00	
August 27, 2025	45,340.60	2,528.00	
August 28, 2025	47,868.60	2,528.00	
August 29, 2025	50,396.60	2,528.00	
August 30, 2025	52,924.60	2,528.00	
August 31, 2025	55,452.60	2,528.00	32,014.50
September			
September 1, 2024	57,980.60	2,528.00	
September 2, 2024	60,508.60	2,475.20	
September 3, 2024	62,983.80	1,847.10	
September 4, 2024	64,830.90	1,915.30	
September 5, 2024	66,746.20	2,254.50	
September 6, 2024	69,000.70	1,964.40	
September 7, 2024	70,965.10	2,265.90	
September 8, 2024	73,231.00	1,807.50	
September 9, 2024	75,038.50	1,934.00	
September 10, 2024	76,972.50	1,956.40	
September 11, 2024	78,928.90	0.00	
September 12, 2024	78,928.90	2,764.40	
September 13, 2024	81,693.30	2,514.20	
September 14, 2024	84,207.50	2,344.90	
September 15, 2024	86,552.40	1,428.43	
September 16, 2024	87,980.83	1,428.43	
September 17, 2024	89,409.26	1,428.43	
September 18, 2024	90,837.69	1,428.43	
September 19, 2024	92,266.12	1,428.43	
September 20, 2024	93,694.55	1,428.43	
September 21, 2024	95,122.97	1,428.43	
September 22, 2024	96,551.40	0.00	
September 23, 2024	96,551.40	0.00	
September 24, 2024	96,551.40	0.00	

September 25, 2024	96,551.40	0.00	
September 26, 2024	96,551.40	0.00	
September 27, 2024	96,551.40	0.00	
September 28, 2024	96,551.40	2,003.00	
September 29, 2024	98,554.40	2,549.57	
September 30, 2024	101,103.97	2,549.57	45,672.93
October			
October 1, 2024	103,653.53	2,549.57	
October 2, 2024	106,203.10	2,549.57	
October 3, 2024	108,752.67	2,549.57	
October 4, 2024	111,302.24	2,549.57	
October 5, 2024	113,851.80	2,549.57	
October 6, 2024	116,401.37	2,549.57	
October 7, 2024	118,950.94	2,549.56	
October 8, 2024	121,500.50	3,151.00	
October 9, 2024	124,651.50	2,533.50	
October 10, 2024	127,185.00	2,269.20	
October 11, 2024	129,454.20	2,943.20	
October 12, 2024	132,397.40	1,649.60	
October 13, 2024	134,047.00	2,525.90	
October 14, 2024	136,572.90	2,116.30	
October 15, 2024	138,689.20	2,243.90	
October 16, 2024	140,933.10	1,921.60	
October 17, 2024	142,854.70	0.00	39,201.17
Total Annual Reservoir Resupply Volume (m3):			**116,888.60**

Appendix B: Hazardous Materials Spills Database for Arviat in 2024



Spill	Occurance Date	Spill Region	Location	Location Description	Product Spilled	Quantity	Measurement	Spill Cause	Lead Agency
spill-2024428	November 23, 2024	Kivalliq	Arviat	HSE 709 7th Avenue	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	66.80	Liters	Overflow Event	GN - Government of Nunavut
spill-2024161	May 13, 2024	Kivalliq	Arviat	607 11th Ave Arviat	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	5000.00	Liters		GN - Government of Nunavut
spill-2024146	May 9, 2024	Kivalliq	Arviat, Community, Nunavut	Arviat	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	30.00	Liters	Other	GN - Government of Nunavut
spill-2024036	January 30, 2024	Kivalliq	Arviat	Arviat Rankin GN offices	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	Unknown Quantity		Breakage	GN - Government of Nunavut

Appendix C: CIRNAC Inspection Report – No 2024 Inspection

Appendix D: 3AM-ARV2232 Arviat Monitoring Program Results 2024

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2417677**	Page	: 1 of 8
Client	: **Hamlet of Arviat**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Arviat SAO John Hussey	Account Manager	: Craig Riddell
Address	: PO Box 150 Arviat NU Canada X0C 0E0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 867 857 2841	Telephone	: +1 204 255 9720
Project	: ----	Date Samples Received	: 18-Jul-2024 11:52
PO	: ----	Date Analysis Commenced	: 18-Jul-2024
C-O-C number	: ----	Issue Date	: 27-Nov-2024 09:18
Sampler	: ----		
Site	: ----		
Quote number	: 2024 Analytical Testing		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Ana Srzic		Organics, Winnipeg, Manitoba
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Leila Conyard	Lab Assistant	Metals, Winnipeg, Manitoba
Livia Ciolan	Analyst	Organics, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Organics, Winnipeg, Manitoba
William Lake	Laboratory Supervisor	Microbiology, Winnipeg, Manitoba

No Breaches Found

General Comments

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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

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

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

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

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
pH units	pH units

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

Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	17-Jul-2024 11:00	17-Jul-2024 10:42	17-Jul-2024 11:10	17-Jul-2024 11:22	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2417677-001	WP2417677-002	WP2417677-003	WP2417677-004	--------	--------	--------
Physical Tests											
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WP	mg/L		644	252	102	52.9	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WP	mg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WP	mg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Conductivity	----	E100/WP	µS/cm		3670	1010	1170	1520	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		1010	94.4	179	544	----	----	----
pH	----	E108/WP	pH units		7.90	7.53	7.72	6.49	----	----	----
Solids, total suspended [TSS]	----	E160/WP	mg/L		10.9	104	4.5	123	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/WP	mg/L		15.4	22.1	0.0337	0.107	----	----	----
Chloride	16887-00-6	E235.Cl/WP	mg/L		531	159	287	420	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WP	mg/L		<0.400 DLM	<0.040 DLM	<0.040 DLM	<0.100 DLM	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WP	mg/L		<0.447	<0.0447	<0.0447	<0.112	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WP	mg/L		<0.200 DLM	<0.020 DLM	<0.020 DLM	<0.050 DLM	----	----	----
Phosphorus, total	7723-14-0	E372/WP	mg/L		0.369	7.95	0.051	0.080	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	mg/L		653	13.6	2.82	<1.50 DLM	----	----	----
Organic / Inorganic Carbon											
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		71.2	75.0	10.8	15.1	----	----	----
Microbiological Tests											
Coliforms, thermotolerant [fecal]	----	E010.FC-H/WP	MPN/100mL		30	2910	<10	<10	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/WP	mg/L		0.0342	0.154	0.0144	0.0765	----	----	----
Antimony, total	7440-36-0	E420/WP	mg/L		0.00764	0.00051	<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/WP	mg/L		0.00421	0.00652	0.00074	0.00063	----	----	----
Barium, total	7440-39-3	E420/WP	mg/L		0.0600	0.0233	0.0341	0.286	----	----	----
Beryllium, total	7440-41-7	E420/WP	mg/L		Not Detected	<0.000020	Not Detected	<0.000020	----	----	----
Bismuth, total	7440-69-9	E420/WP	mg/L		<0.000050	0.000330	<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/WP	mg/L		2.68	0.288	0.072	0.042	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	17-Jul-2024 11:00	17-Jul-2024 10:42	17-Jul-2024 11:10	17-Jul-2024 11:22	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2417677-001	WP2417677-002	WP2417677-003	WP2417677-004	--------	--------	--------
Total Metals											
Cadmium, total	7440-43-9	E420/WP	mg/L		0.000332	0.0000467	Not Detected	0.0000097	----	----	----
Calcium, total	7440-70-2	E420/WP	mg/L		290	16.7	31.8	122	----	----	----
Cesium, total	7440-46-2	E420/WP	mg/L		0.000035	0.000076	0.000016	0.000089	----	----	----
Chromium, total	7440-47-3	E420/WP	mg/L		0.00168	0.00120	<0.00050	0.00073	----	----	----
Cobalt, total	7440-48-4	E420/WP	mg/L		0.00217	0.00134	0.00037	0.00212	----	----	----
Copper, total	7440-50-8	E420/WP	mg/L		0.0857	0.0522	<0.00050	<0.00050	----	----	----
Iron, total	7439-89-6	E420/WP	mg/L		5.04	3.62	1.98	40.0	----	----	----
Lead, total	7439-92-1	E420/WP	mg/L		0.0125	0.00156	<0.000050	0.000152	----	----	----
Lithium, total	7439-93-2	E420/WP	mg/L		0.0707	0.0059	0.0104	0.0337	----	----	----
Magnesium, total	7439-95-4	E420/WP	mg/L		69.8	12.8	24.2	58.1	----	----	----
Manganese, total	7439-96-5	E420/WP	mg/L		1.56	0.261	0.384	4.85	----	----	----
Molybdenum, total	7439-98-7	E420/WP	mg/L		0.000729	0.000968	0.000194	0.000130	----	----	----
Nickel, total	7440-02-0	E420/WP	mg/L		0.0164	0.00582	<0.00050	0.00102	----	----	----
Phosphorus, total	7723-14-0	E420/WP	mg/L		0.439	8.85	<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/WP	mg/L		73.1	26.6	6.92	7.45	----	----	----
Rubidium, total	7440-17-7	E420/WP	mg/L		0.0578	0.0268	0.00593	0.0107	----	----	----
Selenium, total	7782-49-2	E420/WP	mg/L		0.000148	0.000267	Not Detected	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/WP	mg/L		3.63	2.96	1.31	3.80	----	----	----
Silver, total	7440-22-4	E420/WP	mg/L		0.000211	0.000101	Not Detected	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/WP	mg/L		374	115	140	51.8	----	----	----
Strontium, total	7440-24-6	E420/WP	mg/L		1.86	0.211	0.266	1.29	----	----	----
Sulfur, total	7704-34-9	E420/WP	mg/L		246	8.00	1.58	<0.50	----	----	----
Tellurium, total	13494-80-9	E420/WP	mg/L		0.00030	<0.00020	<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/WP	mg/L		<0.000010	0.000010	<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/WP	mg/L		<0.00010	<0.00010	<0.00010	0.00018	----	----	----
Tin, total	7440-31-5	E420/WP	mg/L		0.00030	0.00066	<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/WP	mg/L		0.00148	0.00684	0.00066	0.00758	----	----	----
Tungsten, total	7440-33-7	E420/WP	mg/L		0.00019	0.00015	<0.00010	Not Detected	----	----	----
Uranium, total	7440-61-1	E420/WP	mg/L		0.00104	0.000361	0.000100	0.000116	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	17-Jul-2024 11:00	17-Jul-2024 10:42	17-Jul-2024 11:10	17-Jul-2024 11:22	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2417677-001	WP2417677-002	WP2417677-003	WP2417677-004	--------	--------	--------
Total Metals											
Vanadium, total	7440-62-2	E420/WP	mg/L		0.00114	0.00448	<0.00050	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/WP	mg/L		0.375	0.0294	<0.0030	0.0034	----	----	----
Zirconium, total	7440-67-7	E420/WP	mg/L		0.00081	0.00062	<0.00020	0.00021	----	----	----
Dissolved Metals											
Mercury, dissolved	7439-97-6	E509/WP	mg/L		0.0000330	0.0000055	<0.0000050	<0.0000050	----	----	----
Dissolved mercury filtration location	----	EP509/WP	-		Field	Field	Field	Field	----	----	----
Aggregate Organics											
Biochemical oxygen demand [BOD]	----	E550/WP	mg/L		8.6	38.9	<2.0	2.7	----	----	----
Carbonaceous biochemical oxygen demand [CBOD]	----	E555/WP	mg/L		7.4	30.5	<2.0	<2.0	----	----	----
Oil & grease (gravimetric)	----	E567/WP	mg/L		<5.0	5.6	<5.0	<5.0	----	----	----
Phenols, total (4AAP)	----	E562/WT	mg/L		0.0032	0.0022	<0.0010	0.0021	----	----	----
Volatile Organic Compounds											
Benzene	71-43-2	E611A/WP	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
Ethylbenzene	100-41-4	E611A/WP	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
Toluene	108-88-3	E611A/WP	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
Xylene, m+p-	179601-23-1	E611A/WP	mg/L		<0.00040	<0.00040	<0.00040	<0.00040	----	----	----
Xylene, o-	95-47-6	E611A/WP	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----	----	----
Xylenes, total	1330-20-7	E611A/WP	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
BTEX, total	----	E611A/WP	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----	----	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WP	mg/L		<0.10	<0.10	<0.10	<0.10	----	----	----
F1-BTEX	----	EC580/WP	mg/L		<0.100	<0.100	<0.100	<0.100	----	----	----
F2 (C10-C16)	----	E601/WP	mg/L		0.15	0.13	<0.10	<0.10	----	----	----
F3 (C16-C34)	----	E601/WP	mg/L		0.45	2.05	<0.25	<0.25	----	----	----
F4 (C34-C50)	----	E601/WP	mg/L		<0.25	0.65	<0.25	<0.25	----	----	----
TEH (C10-C50)	n/a	E601/WP	mg/L		0.60	2.83	<0.40	<0.40	----	----	----
TEH (C16-C50)	----	E601/WP	mg/L		0.45	2.70	<0.40	<0.40	----	----	----
Hydrocarbons Surrogates											

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	17-Jul-2024 11:00	17-Jul-2024 10:42	17-Jul-2024 11:10	17-Jul-2024 11:22	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2417677-001	WP2417677-002	WP2417677-003	WP2417677-004	--------	--------	--------
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WP	%		93.2	101	95.3	94.3	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WP	%		81.4	87.2	84.0	81.7	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WP	%		73.2	78.4	74.2	70.1	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WP	%		97.3	96.1	95.5	96.1	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Acridine	260-94-6	E641A/WT	µg/L		<0.020 DLM	<0.080 DLM	<0.010	<0.010	----	----	----
Anthracene	120-12-7	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT	µg/L		<0.015	<0.015	<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L		<0.010	<0.020 DLM	<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	µg/L		<0.0050	0.0061	<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A/WT	µg/L		<0.020 DLM	<0.010	<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L		<0.010	<0.090 DLM	<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	µg/L		0.012	0.040	<0.010	0.038	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L		<0.015	0.062	<0.015	0.063	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	µg/L		<0.010	0.022	<0.010	0.025	----	----	----
Naphthalene	91-20-3	E641A/WT	µg/L		<0.050	<0.050	<0.050	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/WT	µg/L		<0.020	<0.020	<0.020	<0.020	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A/WT	µg/L		<0.100 DLM	<0.050	<0.050	<0.400 DLM	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	µg/L		<0.010	0.015	<0.010	<0.010	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	17-Jul-2024 11:00	17-Jul-2024 10:42	17-Jul-2024 11:10	17-Jul-2024 11:22	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2417677-001	WP2417677-002	WP2417677-003	WP2417677-004	--------	--------	--------
Polycyclic Aromatic Hydrocarbons											
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT	µg/L		<0.030	<0.096	<0.030	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	µg/L		<0.060	<0.060	<0.060	<0.060	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT	µg/L		<0.070	<0.112	<0.070	<0.070	----	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	µg/L		<0.067	<0.112	<0.065	<0.065	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT	%		98.3	109	102	96.4	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		107	107	103	101	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		111	111	112	107	----	----	----

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

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

Key:

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2422896**	Page	: 1 of 8
Client	: **Hamlet of Arviat**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Arviat SAO John Hussey	Account Manager	: Craig Riddell
Address	: PO Box 150 Arviat NU Canada X0C 0E0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 867 857 2841	Telephone	: +1 204 255 9720
Project	: ----	Date Samples Received	: 26-Sep-2024 11:10
PO	: ----	Date Analysis Commenced	: 26-Sep-2024
C-O-C number	: ----	Issue Date	: 27-Nov-2024 09:18
Sampler	: ----		
Site	: ----		
Quote number	: 2024 Analytical Testing		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Brooke Miller	Laboratory Analyst	Inorganics, Edmonton, Alberta
ChrysDanielle Mabalot		Inorganics, Winnipeg, Manitoba
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Leila Conyard	Lab Assistant	Metals, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Organics, Winnipeg, Manitoba
Oren Wurenqiqige	Analyst	Microbiology, Winnipeg, Manitoba
Ryan Velasco		Organics, Winnipeg, Manitoba
Stephanie Okoye		Organics, Winnipeg, Manitoba

No Breaches Found

General Comments

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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

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

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

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

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
pH units	pH units

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

Qualifiers

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
PEHR	Parameter exceeded recommended holding time on receipt: Proceeded with analysis as requested.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422896-001	WP2422896-002	WP2422896-003	WP2422896-004	--------	--------	--------
Physical Tests											
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WP	mg/L		797	204	88.7	99.4	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WP	mg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WP	mg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Conductivity	----	E100/WP	µS/cm		2650	1590	1000	794	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		935	153	193	226	----	----	----
pH	----	E108/WP	pH units		7.89	7.13	7.52	6.82	----	----	----
Solids, total suspended [TSS]	----	E160/WP	mg/L		16.9	570	3.3	42.9	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/WP	mg/L		13.3	13.8	0.0152	0.0330	----	----	----
Chloride	16887-00-6	E235.Cl/WP	mg/L		308	359	256	203	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WP	mg/L		<0.400 DLM	0.328	<0.040 DLM	<0.040 DLM	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WP	mg/L		<0.447	0.328	<0.0447	<0.0447	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WP	mg/L		<0.200 DLM	<0.050 DLM	<0.020 DLM	<0.020 DLM	----	----	----
Phosphorus, total	7723-14-0	E372/WP	mg/L		0.257	2.84	0.029	0.029	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	mg/L		400	54.5	8.58	1.02	----	----	----
Organic / Inorganic Carbon											
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		47.6	23.8	10.4	9.25	----	----	----
Microbiological Tests											
Coliforms, thermotolerant [fecal]	----	E010.FC-H/WP	MPN/100mL		<10 PEHR	110 PEHR	<10 PEHR	<10 PEHR	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/WP	mg/L		0.0128	0.370	0.0148	0.0179	----	----	----
Antimony, total	7440-36-0	E420/WP	mg/L		0.00436	0.00026	<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/WP	mg/L		0.00278	0.00606	0.00041	0.00045	----	----	----
Barium, total	7440-39-3	E420/WP	mg/L		0.0418	0.102	0.0418	0.146	----	----	----
Beryllium, total	7440-41-7	E420/WP	mg/L		0.000092	0.000024	Not Detected	<0.000020	----	----	----
Bismuth, total	7440-69-9	E420/WP	mg/L		<0.000050	0.000136	<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/WP	mg/L		2.18	0.249	0.055	0.037	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422896-001	WP2422896-002	WP2422896-003	WP2422896-004	--------	--------	--------
Total Metals											
Cadmium, total	7440-43-9	E420/WP	mg/L		0.0000944	0.000112	<0.0000050	0.0000063	----	----	----
Calcium, total	7440-70-2	E420/WP	mg/L		278	23.0	39.4	57.9	----	----	----
Cesium, total	7440-46-2	E420/WP	mg/L		0.000045	0.000042	0.000020	0.000015	----	----	----
Chromium, total	7440-47-3	E420/WP	mg/L		0.00086	0.00133	<0.00050	0.00079	----	----	----
Cobalt, total	7440-48-4	E420/WP	mg/L		0.00179	0.00141	<0.00010	0.00056	----	----	----
Copper, total	7440-50-8	E420/WP	mg/L		0.0169	0.0304	<0.00050	<0.00050	----	----	----
Iron, total	7439-89-6	E420/WP	mg/L		2.37	9.52	1.25	16.7	----	----	----
Lead, total	7439-92-1	E420/WP	mg/L		0.00134	0.00306	<0.000050	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/WP	mg/L		0.0600	0.0058	0.0113	0.0184	----	----	----
Magnesium, total	7439-95-4	E420/WP	mg/L		58.4	23.3	22.9	19.8	----	----	----
Manganese, total	7439-96-5	E420/WP	mg/L		1.23	0.318	0.0619	1.67	----	----	----
Molybdenum, total	7439-98-7	E420/WP	mg/L		0.000334	0.000689	0.000109	0.000109	----	----	----
Nickel, total	7440-02-0	E420/WP	mg/L		0.0107	0.00442	<0.00050	0.00061	----	----	----
Phosphorus, total	7723-14-0	E420/WP	mg/L		0.252	5.85	<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/WP	mg/L		64.4	20.1	8.85	5.99	----	----	----
Rubidium, total	7440-17-7	E420/WP	mg/L		0.0522	0.0149	0.00810	0.00769	----	----	----
Selenium, total	7782-49-2	E420/WP	mg/L		0.000237	0.000207	<0.000050	0.000174	----	----	----
Silicon, total	7440-21-3	E420/WP	mg/L		6.84	4.02	1.51	3.12	----	----	----
Silver, total	7440-22-4	E420/WP	mg/L		0.000033	0.000108	<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/WP	mg/L		238	217	131	54.5	----	----	----
Strontium, total	7440-24-6	E420/WP	mg/L		2.02	0.263	0.321	0.551	----	----	----
Sulfur, total	7704-34-9	E420/WP	mg/L		173	18.4	2.88	<0.50	----	----	----
Tellurium, total	13494-80-9	E420/WP	mg/L		0.00033	<0.00020	<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/WP	mg/L		0.000020	0.000044	<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/WP	mg/L		<0.00010	0.00017	<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/WP	mg/L		0.00016	0.00061	Not Detected	0.00035	----	----	----
Titanium, total	7440-32-6	E420/WP	mg/L		0.00077	0.0148	0.00083	0.00056	----	----	----
Tungsten, total	7440-33-7	E420/WP	mg/L		<0.00010	0.00022	<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/WP	mg/L		0.00155	0.000653	0.000070	0.000050	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time: 01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	----	----	----
				Sub-Matrix: Water	Water	Water	Water	----	----	----
				WP2422896-001	WP2422896-002	WP2422896-003	WP2422896-004	--------	--------	--------
Total Metals										
Vanadium, total	7440-62-2	E420/WP	mg/L	0.00083	0.00492	<0.00050	0.00068	----	----	----
Zinc, total	7440-66-6	E420/WP	mg/L	0.0296	0.0318	<0.0030	0.0688	----	----	----
Zirconium, total	7440-67-7	E420/WP	mg/L	0.00076	0.00106	<0.00020	0.00032	----	----	----
Dissolved Metals										
Mercury, dissolved	7439-97-6	E509/WP	mg/L	0.0000067	0.0000059	<0.0000050	<0.0000050	----	----	----
Dissolved mercury filtration location	----	EP509/WP	-	Field	Field	Field	Field	----	----	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	E550/WP	mg/L	24.7 BODQ	<50.0 BODQ	<2.0 BODQ	<2.0 BODQ	----	----	----
Carbonaceous biochemical oxygen demand [CBOD]	----	E555/WP	mg/L	6.0 BODQ	<50.0 BODQ	<2.0 BODQ	<2.0 BODQ	----	----	----
Oil & grease (gravimetric)	----	E567/WP	mg/L	<5.0	<5.0	<5.0	<5.0	----	----	----
Phenols, total (4AAP)	----	E562/EO	mg/L	0.0016	0.0020	<0.0010	<0.0010	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611A/WP	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
Ethylbenzene	100-41-4	E611A/WP	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
Toluene	108-88-3	E611A/WP	mg/L	<0.00050	0.00154	<0.00050	<0.00050	----	----	----
Xylene, m+p-	179601-23-1	E611A/WP	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	----	----	----
Xylene, o-	95-47-6	E611A/WP	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	----	----	----
Xylenes, total	1330-20-7	E611A/WP	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
BTEX, total	----	E611A/WP	mg/L	<0.0010	0.0015	<0.0010	<0.0010	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WP	mg/L	<0.10	<0.10	<0.10	<0.10	----	----	----
F1-BTEX	----	EC580/WP	mg/L	<0.100	<0.100	<0.100	<0.100	----	----	----
F2 (C10-C16)	----	E601/WP	mg/L	0.11	<0.10	<0.10	<0.10	----	----	----
F3 (C16-C34)	----	E601/WP	mg/L	<0.25	<0.25	<0.25	<0.25	----	----	----
F4 (C34-C50)	----	E601/WP	mg/L	<0.25	<0.25	<0.25	<0.25	----	----	----
TEH (C10-C50)	n/a	E601/WP	mg/L	<0.40	<0.40	<0.40	<0.40	----	----	----
TEH (C16-C50)	----	E601/WP	mg/L	<0.40	<0.40	<0.40	<0.40	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422896-001	WP2422896-002	WP2422896-003	WP2422896-004	--------	--------	--------
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WP	%		114	115	110	111	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WP	%		101	114	101	101	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WP	%		94.8	85.5	87.0	82.7	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WP	%		97.0	95.1	97.1	93.4	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Acridine	260-94-6	E641A/WT	µg/L		<0.010	0.019	<0.010	<0.010	----	----	----
Anthracene	120-12-7	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT	µg/L		<0.015	<0.015	<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	µg/L		<0.020 DLM	0.022	<0.010	0.037	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L		<0.022	0.039	<0.015	0.064	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	µg/L		<0.010	0.017	<0.010	0.027	----	----	----
Naphthalene	91-20-3	E641A/WT	µg/L		<0.050	<0.050	<0.050	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/WT	µg/L		<0.020	<0.020	<0.020	<0.020	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A/WT	µg/L		<0.100 DLM	<0.050	<0.050	<0.100 DLM	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	01-Aug-2024 16:21	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422896-001	WP2422896-002	WP2422896-003	WP2422896-004	--------	--------	--------
Polycyclic Aromatic Hydrocarbons											
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT	µg/L		<0.030	<0.030	<0.030	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	µg/L		<0.060	<0.060	<0.060	<0.060	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT	µg/L		<0.070	<0.070	<0.070	<0.070	----	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	µg/L		<0.065	<0.065	<0.065	<0.065	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT	%		111	106	117	105	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		98.6	99.7	100	91.7	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		113	112	116	104	----	----	----

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

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

Key:

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2422906**	Page	: 1 of 9
Client	: **Hamlet of Arviat**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Arviat SAO John Hussey	Account Manager	: Craig Riddell
Address	: PO Box 150 Arviat NU Canada X0C 0E0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 867 857 2841	Telephone	: +1 204 255 9720
Project	: ----	Date Samples Received	: 26-Sep-2024 16:39
PO	: ----	Date Analysis Commenced	: 26-Sep-2024
C-O-C number	: ----	Issue Date	: 27-Nov-2024 09:18
Sampler	: ----		
Site	: ----		
Quote number	: 2024 Analytical Testing		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Brooke Miller	Laboratory Analyst	Inorganics, Edmonton, Alberta
ChrysDanielle Mabalot		Inorganics, Winnipeg, Manitoba
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Leila Conyard	Lab Assistant	Metals, Winnipeg, Manitoba
Michelle Michalchuk	Analyst	Organics, Winnipeg, Manitoba
Oleksandr Busel		Inorganics, Winnipeg, Manitoba
Oleksandr Busel		Metals, Winnipeg, Manitoba
Oren Wurenqiqige	Analyst	Microbiology, Winnipeg, Manitoba
Ryan Velasco		Organics, Winnipeg, Manitoba
Stephanie Okoye		Organics, Winnipeg, Manitoba

No Breaches Found

General Comments

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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

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

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

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

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
pH units	pH units

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

Qualifiers

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
PEHR	Parameter exceeded recommended holding time on receipt: Proceeded with analysis as requested.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	19-Sep-2024 13:35	19-Sep-2024 13:16	19-Sep-2024 13:18	19-Sep-2024 14:05	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422906-001	WP2422906-002	WP2422906-003	WP2422906-004	--------	--------	--------
Physical Tests											
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WP	mg/L		787	201	73.8	102	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WP	mg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WP	mg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Conductivity	----	E100/WP	µS/cm		2650	1580	1030	884	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		890	146	156	244	----	----	----
pH	----	E108/WP	pH units		7.95	7.49	7.34	6.77	----	----	----
Solids, total suspended [TSS]	----	E160/WP	mg/L		18.5	9.9	<3.0	51.1	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/WP	mg/L		16.8	15.5	0.0183	0.0584	----	----	----
Chloride	16887-00-6	E235.Cl/WP	mg/L		304	352	269	215	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WP	mg/L		<0.400 DLM	0.555	<0.040 DLM	<0.040 DLM	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WP	mg/L		<0.447	0.613	<0.0447	<0.0447	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WP	mg/L		<0.200 DLM	0.058	<0.020 DLM	<0.020 DLM	----	----	----
Phosphorus, total	7723-14-0	E372/WP	mg/L		0.259	2.40	<0.020	0.036	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	mg/L		398	45.1	4.53	1.27	----	----	----
Organic / Inorganic Carbon											
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		47.9	23.6	8.64	9.63	----	----	----
Microbiological Tests											
Coliforms, thermotolerant [fecal]	----	E010.FC-H/WP	MPN/10 0mL		<10 PEHR	40 PEHR	<10 PEHR	<10 PEHR	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/WP	mg/L		0.0145	0.0564	0.0479	0.0139	----	----	----
Antimony, total	7440-36-0	E420/WP	mg/L		0.00454	0.00017	<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/WP	mg/L		0.00255	0.00404	0.00038	0.00046	----	----	----
Barium, total	7440-39-3	E420/WP	mg/L		0.0432	0.0129	0.0406	0.130	----	----	----
Beryllium, total	7440-41-7	E420/WP	mg/L		<0.000020	<0.000020	Not Detected	<0.000020	----	----	----
Bismuth, total	7440-69-9	E420/WP	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/WP	mg/L		2.02	0.268	0.058	0.050	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	19-Sep-2024 13:35	19-Sep-2024 13:16	19-Sep-2024 13:18	19-Sep-2024 14:05	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422906-001	WP2422906-002	WP2422906-003	WP2422906-004	--------	--------	--------
Total Metals											
Cadmium, total	7440-43-9	E420/WP	mg/L		0.0000835	0.0000158	<0.0000050	0.0000067	----	----	----
Calcium, total	7440-70-2	E420/WP	mg/L		268	21.7	31.4	59.0	----	----	----
Cesium, total	7440-46-2	E420/WP	mg/L		0.000023	0.000013	0.000026	0.000014	----	----	----
Chromium, total	7440-47-3	E420/WP	mg/L		0.00066	<0.00050	<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/WP	mg/L		0.00168	0.00088	0.00011	0.00060	----	----	----
Copper, total	7440-50-8	E420/WP	mg/L		0.0157	0.00509	<0.00050	<0.00050	----	----	----
Iron, total	7439-89-6	E420/WP	mg/L		2.10	1.51	1.48	14.8	----	----	----
Lead, total	7439-92-1	E420/WP	mg/L		0.00139	0.000254	0.000054	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/WP	mg/L		0.0545	0.0059	0.0098	0.0243	----	----	----
Magnesium, total	7439-95-4	E420/WP	mg/L		53.7	22.4	18.8	23.5	----	----	----
Manganese, total	7439-96-5	E420/WP	mg/L		1.08	0.236	0.0433	1.62	----	----	----
Molybdenum, total	7439-98-7	E420/WP	mg/L		0.000319	0.000512	0.000062	0.000060	----	----	----
Nickel, total	7440-02-0	E420/WP	mg/L		0.00999	0.00304	<0.00050	0.00067	----	----	----
Phosphorus, total	7723-14-0	E420/WP	mg/L		0.244	2.69	<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/WP	mg/L		57.7	19.3	7.23	6.59	----	----	----
Rubidium, total	7440-17-7	E420/WP	mg/L		0.0484	0.0142	0.00713	0.00799	----	----	----
Selenium, total	7782-49-2	E420/WP	mg/L		0.000211	0.000176	Not Detected	0.000066	----	----	----
Silicon, total	7440-21-3	E420/WP	mg/L		6.09	3.75	1.71	3.27	----	----	----
Silver, total	7440-22-4	E420/WP	mg/L		0.000031	0.000032	<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/WP	mg/L		216	212	123	64.4	----	----	----
Strontium, total	7440-24-6	E420/WP	mg/L		1.98	0.205	0.267	0.549	----	----	----
Sulfur, total	7704-34-9	E420/WP	mg/L		148	16.8	1.82	1.14	----	----	----
Tellurium, total	13494-80-9	E420/WP	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/WP	mg/L		0.000012	<0.000010	<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/WP	mg/L		Not Detected	<0.00010	<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/WP	mg/L		0.00046	0.00014	Not Detected	0.00012	----	----	----
Titanium, total	7440-32-6	E420/WP	mg/L		0.00082	0.00268	0.00286	0.00055	----	----	----
Tungsten, total	7440-33-7	E420/WP	mg/L		<0.00010	0.00017	<0.00010	Not Detected	----	----	----
Uranium, total	7440-61-1	E420/WP	mg/L		0.00153	0.000246	0.000023	0.000060	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	19-Sep-2024 13:35	19-Sep-2024 13:16	19-Sep-2024 13:18	19-Sep-2024 14:05	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422906-001	WP2422906-002	WP2422906-003	WP2422906-004	--------	--------	--------
Total Metals											
Vanadium, total	7440-62-2	E420/WP	mg/L		0.00067	0.00220	<0.00050	0.00052	----	----	----
Zinc, total	7440-66-6	E420/WP	mg/L		0.0308	<0.0030	0.0060	0.0200	----	----	----
Zirconium, total	7440-67-7	E420/WP	mg/L		0.00068	0.00066	<0.00020	0.00021	----	----	----
Dissolved Metals											
Mercury, dissolved	7439-97-6	E509/WP	mg/L		0.0000065	<0.0000050	<0.0000050	<0.0000050	----	----	----
Dissolved mercury filtration location	----	EP509/WP	-		Field	Field	Field	Field	----	----	----
Aggregate Organics											
Biochemical oxygen demand [BOD]	----	E550/WP	mg/L		8.7 BODQ	<50.0 BODQ	<2.0 BODQ	<2.0 BODQ	----	----	----
Carbonaceous biochemical oxygen demand [CBOD]	----	E555/WP	mg/L		5.2 BODQ	<50.0 BODQ	<2.0 BODQ	<2.0 BODQ	----	----	----
Oil & grease (gravimetric)	----	E567/WP	mg/L		<5.0	<5.0	<5.0	<5.0	----	----	----
Phenols, total (4AAP)	----	E562/EO	mg/L		0.0012	0.0021	<0.0010	<0.0010	----	----	----
Volatile Organic Compounds											
Benzene	71-43-2	E611A/WP	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
Ethylbenzene	100-41-4	E611A/WP	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
Toluene	108-88-3	E611A/WP	mg/L		<0.00050	0.00229	<0.00050	<0.00050	----	----	----
Xylene, m+p-	179601-23-1	E611A/WP	mg/L		<0.00040	<0.00040	<0.00040	<0.00040	----	----	----
Xylene, o-	95-47-6	E611A/WP	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----	----	----
Xylenes, total	1330-20-7	E611A/WP	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----	----	----
BTEX, total	----	E611A/WP	mg/L		<0.0010	0.0023	<0.0010	<0.0010	----	----	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WP	mg/L		<0.10	<0.10	<0.10	<0.10	----	----	----
F1-BTEX	----	EC580/WP	mg/L		<0.100	<0.100	<0.100	<0.100	----	----	----
F2 (C10-C16)	----	E601/WP	mg/L		0.14	<0.10	<0.10	<0.10	----	----	----
F3 (C16-C34)	----	E601/WP	mg/L		<0.25	<0.25	<0.25	<0.25	----	----	----
F4 (C34-C50)	----	E601/WP	mg/L		<0.25	<0.25	<0.25	<0.25	----	----	----
TEH (C10-C50)	n/a	E601/WP	mg/L		<0.40	<0.40	<0.40	<0.40	----	----	----
TEH (C16-C50)	----	E601/WP	mg/L		<0.40	<0.40	<0.40	<0.40	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	19-Sep-2024 13:35	19-Sep-2024 13:16	19-Sep-2024 13:18	19-Sep-2024 14:05	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422906-001	WP2422906-002	WP2422906-003	WP2422906-004	--------	--------	--------
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WP	%		112	111	110	109	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WP	%		85.6	95.0	100	116	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WP	%		86.6	87.8	84.4	87.7	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WP	%		93.4	96.6	89.9	87.3	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Acridine	260-94-6	E641A/WT	µg/L		<0.010	0.016	<0.010	<0.010	----	----	----
Anthracene	120-12-7	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT	µg/L		<0.015	<0.015	<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	µg/L		<0.010	0.021	<0.010	0.021	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L		<0.015	0.037	<0.015	0.038	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	µg/L		<0.010	0.016	<0.010	0.017	----	----	----
Naphthalene	91-20-3	E641A/WT	µg/L		<0.050	<0.050	<0.050	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/WT	µg/L		<0.020	<0.020	<0.020	<0.020	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A/WT	µg/L		<0.095 DLM	<0.050	<0.050	<0.055 DLM	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	ARV-2	ARV-4	ARV-5	ARV-6	----	----	----
				Sampling date/time	19-Sep-2024 13:35	19-Sep-2024 13:16	19-Sep-2024 13:18	19-Sep-2024 14:05	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2422906-001	WP2422906-002	WP2422906-003	WP2422906-004	--------	--------	--------
Polycyclic Aromatic Hydrocarbons											
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT	µg/L		<0.030	<0.030	<0.030	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	µg/L		<0.060	<0.060	<0.060	<0.060	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT	µg/L		<0.070	<0.070	<0.070	<0.070	----	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	µg/L		<0.065	<0.065	<0.065	<0.065	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT	%		108	105	110	105	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		95.8	97.9	98.8	94.0	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		111	112	115	108	----	----	----

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

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

Key:

Appendix E: ARV-4 Effluent Quality Limits

ARV-4 Effluent Quality Limits as per Part E, Item 2

Parameter	Maximum Concentration of any Grab Sample	ARV-4		
		17-Jul-24	01-Aug-2024	19-Sept-24
CBOD	100 mg/L	30.5 mg/L	<50.0 mg/L	<50.0 mg/L
Total Suspended Solids	120 mg/L	104 mg/L	570 mg/L	9.9 mg/L
Fecal Coliforms	1 x 10^4 CFU/100mL	2910 MPN/100mL	110 MPN/100mL	40 MPN/100mL
Oil & Grease	No visible sheen	5.6	<5.0 mg/L	<5.0 mg/L
pH	Between 6 and 9	7.53	7.13	7.34

August 1st, 2024 sampling event had TSS at ARV-4 that exceeded maximum concentration of 120 mg/L, while other key wastewater parameters (CBOD and Fecal Coliforms) were well under effluent quality limits. TSS during other sampling events were under the effluent quality limit. It is likely elevated TSS was due to disturbance within the sewage wetlands area (ie. loose organics due to heavy rainfall event) rather than an indication of under-treated sewage.