APPENDIX E – MONITORING WELL LOGS AND SLUG TESTS

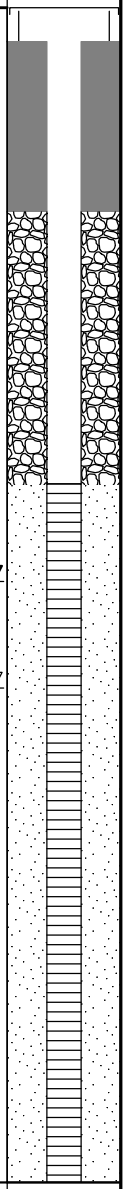
DESIGNPOINT
engineering • surveying • solutions

MONITOR WELL RECORD

MW-1

CLIENT **Build Nova Scotia** PROJECT No.: **24-750**
LOCATION **Thorburn, NS** DATUM: **Geodetic (CGDV2013)**
DATES: BORING **2025-05-01** WATER LEVEL **2025-05-14** BH SIZE: **0.08**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES REC. SOIL (mm) REC. ROCK (%)	SAMPLES N VALUE RQD %	OTHER TESTS	ODOURS	VOCs (ppm)	WATER LEVEL
		(SM) Topsoil, silty sand and gravel with organics									
		(SM) Fill: Silty sand, sandy silt, traces of coal, orange staining, no odor, loose to compact, moist		SS	1	0	4	--	--	--	
1				SS	2	0	12	--	--	--	
				SS	3	0	67	--	--	--	
		(ML) Till: Sandy silt, some rounded gravel, yellowish/brown, dense to compact, dry ro wet		AU	4	--	--	--	--	--	
2				SS	5	0	50	--	--	--	
				AU	6	--	--	--	--	--	
				SS	7	1	27	--	--	--	
3											
				AU	8	--	--	--	--	--	
4											
				SS	9	0	29	--	--	--	
5											



NOTES: Water level at time of drilling 3 mbtoc, WL measured in well 2.5 mbtoc

App'd: Charlotte Clark

MONITOR WELL RECORD WELL LOGS.GPJ DESIGN POINT ENVIRONMENTAL.GDT 28/5/25

DESIGNPOINT
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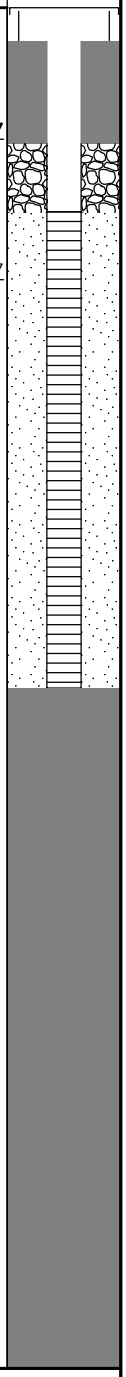
MONITOR WELL RECORD

MW-2

CLIENT **Build Nova Scotia** PROJECT No.: **24-750**
LOCATION **Thorburn, NS** DATUM: **Geodetic (CGDV2013)**
DATES: BORING **2025-05-01** WATER LEVEL **2025-05-14** BH SIZE: **0.08**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES REC. SOIL (mm) REC. ROCK (%)	SAMPLES N VALUE RQD %	OTHER TESTS	ODOURS	VOCs (ppm)	WATER LEVEL
		Topsoil, silty sand and gravel with organics									
		Fill: Silty sand, sandy silt, traces of coal, orange staining, no odor, loose to compact, moist to wet. Void at 0.6 to 1 m depth.		SS	1	0	5	--	--	--	
1				SS	2	0	0	--	--	--	
				SS	3	0	4	--	--	--	
2				SS	4	0	27	--	--	--	
				SS	5	0	27	--	--	--	
3		Till: Sandy silt, some rounded gravel, yellowish/brown, dense to compact, dry		SS	7	0	50	--	--	--	
				SS	8	0	81	--	--	--	
4				AU	9	--	--	--	--	--	
5				SS	10	0	--	--	--	--	



NOTES: Water level at time of drilling 1.2 mbtoc, WL measured in well 0.6 mbtoc

App'd: Charlotte Clark

MONITOR WELL RECORD WELL LOGS.GPJ DESIGN POINT ENVIRONMENTAL.GDT 28/5/25

DESIGNPOINT
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MONITOR WELL RECORD

MW-3

CLIENT **Build Nova Scotia** PROJECT No.: **24-750**
LOCATION **Thorburn, NS** DATUM: **Geodetic (CGDV2013)**
DATES: BORING **2025-05-01** WATER LEVEL **2025-05-14** BH SIZE: **0.08**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES REC. SOIL (mm) REC. ROCK (%)	SAMPLES N VALUE RQD %	OTHER TESTS	ODOURS	VOCs (ppm)	WATER LEVEL
0		Topsoil, silty sand and gravel with organics									
		Fill: Silty sand, sandy silt, traces of coal, orange staining, no odor, loose to compact, moist to wet,		SS	1	0	3	--	--	--	
1				SS	2	1	11	--	--	--	
				AU	3	--	--	--	--	--	
				SS	4	1	16	--	--	--	
2				SS	5	1	43	--	--	--	▼
				SS	6	--	43	--	--	--	
3				AU		--	--	--	--	--	▽
				SS	7	0	25	--	--	--	
4				AU		--	--	--	--	--	
5											

NOTES: Water level at time of drilling 3.5 mbtoc, WL measured in well 2.0 mbtoc

App'd: Charlotte Clark

MONITOR WELL RECORD WELL LOGS.GPJ DESIGN POINT ENVIRONMENTAL.GDT 28/5/25

Thorburn Mine Phase 2 ESA
24-750
BNS
Thorburn, NS
MW-1

RISING HEAD SLUG TEST HVORSLEV SOLUTION

K = ((r^2)/(2*L*Tlag)) * (ln(L/R))	MW-1
Northing, m	5047607.391
Easting, m	24417526.18
PVC Elevation, masl	69.99
Static, WL, m	2.53
Static WL Elevation, masl	67.46
Piezometer radius, r, m	0.025
Bailer Volume 1L, V, m3	0.001
Borehole radius, R, m	0.076
Screen length, L, m	1.500
Hydraulic Gradient	0.020
Soil/Rock Porosity	0.300
Initial drawdown, m	0.5
ds at Tlag, at 63% recovery = 37% ini. drawdown, m	0.311
Tlag, sec	4324
Hydraulic Conductivity K, m/day	**0.012816**
Darcy flux, m/day	**0.000256**
Linear GW velocity, m/day	**0.000854**

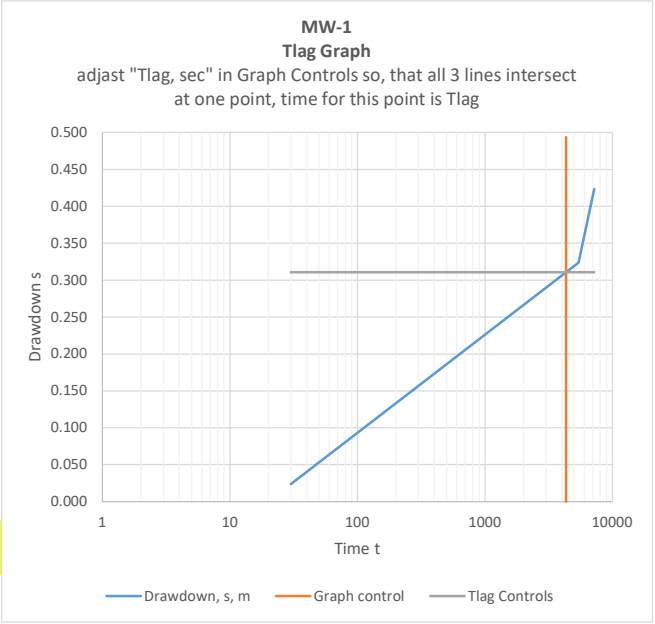
LEGEND
Insert Data
Collect Tlag from Well Tape, Graph or Table
Results

Graph Controls	
s, m	Tlag, sec
0	4324
0.5	4324
Tlag Controls	
s, m	t, sec
0.311	30
0.311	7200

Adjast slider to intersect all 3 lines at one point

MW-1 DATA

time, t, sec	water level, WL, mbgs	Drawdown, s, m
0	3.02	Static plus Initial Drawdown
time, t, sec	water level, WL, mbgs	Drawdown, s, m
30	3.000	0.024
5400	2.700	0.324
7200	2.600	0.424
		3.024



Thorburn Mine Phase 2 ESA
24-750
BNS
Thorburn, NS
MW-2

RISING HEAD SLUG TEST HVORSLEV SOLUTION

K = ((r^2)/(2*L*Tlag)) * (ln(L/R))	MW-2
Northing, m	5047562.518
Easting, m	24417535.33
PVC Elevation, masl	69.812
Static, WL, m	0.58
Static WL Elevation, masl	69.71
Piezometer radius, r, m	0.025
Bailer Volume 1L, V, m3	0.001
Borehole radius, R, m	0.076
Screen length, L, m	1.500
Hydraulic Gradient	0.037
Soil/Rock Porosity	0.300
Initial drawdown, m	0.5
ds at Tlag, at 63% recovery = 37% ini. drawdown, m	0.311
Tlag, sec	114
Hydraulic Conductivity K, m/day	**0.486**
Darcy flux, m/day	**0.018**
Linear GW velocity, m/day	**0.060**

LEGEND
Insert Data
Collect Tlag from Well Tape, Graph or Table
Results

Graph Controls	
s, m	Tlag, sec
0	114
0.5	114
Tlag Controls	
s, m	t, sec
0.311	30
0.311	240

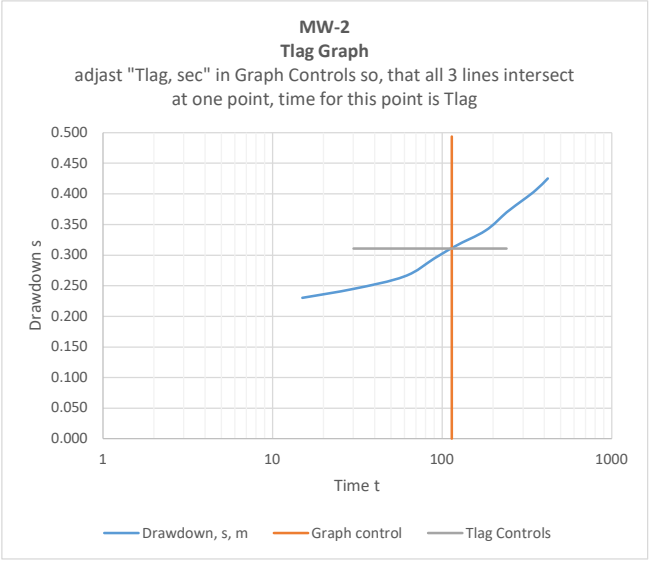
Adjast slider to intersect all 3 lines at one point

First Time Reading

Last Time Reading

MW-2

time, t, sec	water level, WL, mbgs	Drawdown, s, m
0	1.08	Static plus Initial Drawdown
time, t, sec	water level, WL, mbgs	Drawdown, s, m
15	0.85	0.230
30	0.835	0.245
60	0.815	0.265
90	0.785	0.295
120	0.765	0.315
180	0.740	0.340
240	0.710	0.370
300	0.69	0.390000
360	0.67	0.407000
420	0.66	0.425000



Thorburn Mine Phase 2 ESA
24-750
BNS
Thorburn, NS
MW-3

RISING HEAD SLUG TEST HVORSLEV SOLUTION

K = ((r^2)/(2*L*Tlag)) * (ln(L/R))	0
Northing, m	5047667.069
Easting, m	24417582.15
PVC Elevation, masl	68.927
Static, WL, m	2.00
Static WL Elevation, masl	66.93
Piezometer radius, r, m	0.025
Bailer Volume 1L, V, m3	0.001
Borehole radius, R, m	0.076
Screen length, L, m	1.500
Hydraulic Gradient	0.005
Soil/Rock Porosity	0.300
Initial drawdown, m	0.5
ds at Tlag, at 63% recovery = 37% ini. drawdown, m	0.311
Tlag, sec	16000
Hydraulic Conductivity K, m/day	**0.00346**
Darcy flux, m/day	**0.00002**
Linear GW velocity, m/day	**0.00006**

LEGEND
Insert Data
Collect Tlag from Well Tape, Graph or Table
Results

Graph Controls	
s, m	Tlag, sec
0	16000
0.5	16000

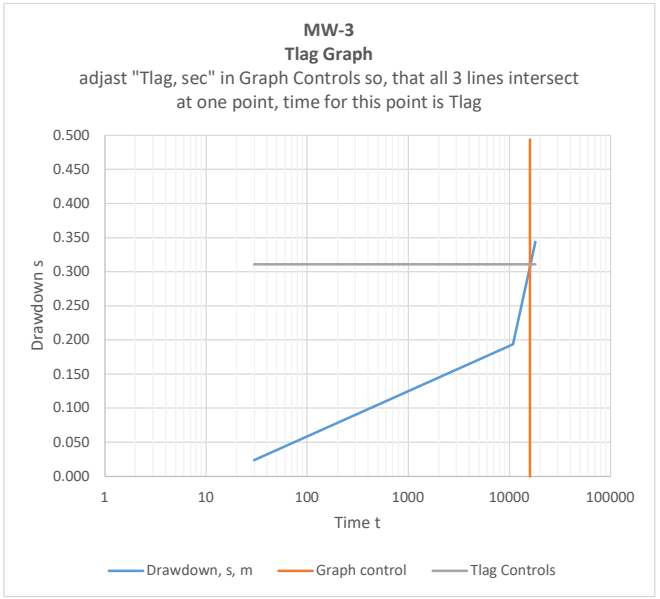
Adjast slider to intersect all 3 lines at one point

Tlag Controls	
s, m	t, sec
0.311	30
0.311	18000

First Time Reading
Last Time Reading

0

time, t, sec	water level, WL, mbgs	Drawdown, s, m
0	2.49	Static plus Initial Drawdown
time, t, sec	water level, WL, mbgs	Drawdown, s, m
30	2.470	0.024
10800	2.300	0.194
18000	2.150	0.344



APPENDIX F – ANALYTICAL TABLES

Project 24-750: Thorburn Mine Phase II ESA
Table 1 Coordinates and Water Levels

#	Station	Easting, m	Northing, m	Ground Elevation, masl	TOC Elevation,masl	14/05/2025	
						Water Level, mbtoc	Water Elevation, masl
1	MW-1	24417526.18	5047607.391	70.035	69.992	2.53	67.462
2	MW-2	24417535.33	5047562.518	69.812	69.712	0.58	69.132
3	MW-3	24417582.15	5047667.069	68.936	68.927	2.00	66.927
4	SS4	24417553.4	5047615.394	70.486	--	--	--
5	SS5	24417598.59	5047665.132	68.492	--	--	--
6	SS-6	24417587.42	5047647.03	69.2	--	--	--
7	SS-7	24417546.56	5047599.129	69.68	--	--	--
8	SDW/SD	24417578.61	5047631.388	70.486	--	--	--

Note: mbtoc - metres below top of casing, masl - metres above sea level
NAD83 CGVD 2013

Project 24-750: Thorburn Mine Phase II ESA
Table 2: Metal and Moisture Concentrations in Soil

Client Sample ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	Atlantic Region Background[2]	MW1 - SS1	MW2 - SS1	MW3 - SS1	SS-4	SS5	SS-5 dup	SS6	SS7	Duplication RPD
Date Sampled					02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	
Time Sampled					8:30	10:00	11:45	10:15	10:30	10:31	10:45	13:00	
Lab ID					HA2501286-010	HA2501286-007	HA2501286-005	HA2501286-002	HA2501286-006	HA2501286-003	HA2501286-008	HA2501286-009	
Analyte					Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	
Moisture	0.25	%	--	--	41.1	31.4	27.6	14.4	32	27	29.8	34.3	
Aluminum	50	mg/kg	15400	14606	9570	12500	15400	14800	13000	14900	11700	9690	-14
Antimony	0.1	mg/kg	7.5	0.77	3.22	1.26	3.51	0.58	16.1	23.4	4.58	1.22	-37
Arsenic	0.1	mg/kg	10	4.27	21.7	24.8	35.6	7.74	54.9	32.6	31.3	33.4	51
Barium	0.5	mg/kg	350	41.4	289	624	513	199	357	269	476	196	28
Beryllium	0.1	mg/kg	1	0.36	0.61	0.76	0.86	1	1.31	1.4	0.98	0.72	-7
Bismuth	0.2	mg/kg	--	--	<0.20	0.24	<0.20	0.26	0.4	0.36	0.29	0.23	11
Boron	5	mg/kg	4300	--	<5.0	<5.0	5.6	<5.0	<5.0	<5.0	<5.0	<5.0	--
Cadmium	0.02	mg/kg	1	0.33	0.999	0.295	0.99	0.172	0.63	0.35	0.562	0.57	57
Calcium	50	mg/kg	--	--	4720	4780	11700	4380	5110	5790	6990	5860	-12
Chromium	0.5	mg/kg	220	20.7	14.2	18.6	16.4	21.9	17.3	17.6	22.4	11.7	-2
Cobalt	0.1	mg/kg	22	6.41	8.28	12.8	11	15.2	14.4	13.4	12.9	8.15	7
Copper	0.5	mg/kg	250	10.4	34.1	36.7	40.3	29.8	78	63.1	59.2	37.5	21
Iron	50	mg/kg	11000	22961	21100	22500	16300	33100	33500	28900	31000	12800	15
Lead	0.5	mg/kg	120	13.7	75.6	56.4	151	20.3	341	127	170	102	91
Lithium	2	mg/kg	--	--	20.4	27.7	23.2	38.7	26.2	29.2	25.1	17.2	-11
Magnesium	20	mg/kg	--	--	1250	2480	1230	5030	1890	2440	2800	1360	-25
Manganese	1	mg/kg	360	709	423	453	750	970	724	418	842	377	54
Molybdenum	0.1	mg/kg	15	0.59	2.02	1.92	2.98	0.42	2.17	1.71	1.98	1.74	24
Nickel	0.5	mg/kg	70	15.6	18	31.1	25.1	29.3	36.6	33.4	29.4	19.2	9
Phosphorus	50	mg/kg	--	--	703	292	311	407	212	230	407	192	-8
Potassium	100	mg/kg	--	--	1140	1130	1020	2090	1660	1690	1140	950	-2
Selenium	0.2	mg/kg	1	0.45	0.67	0.46	0.41	0.2	0.88	0.72	0.68	0.48	20
Silver	0.1	mg/kg	77	0.5	<0.10	<0.10	0.12	<0.10	0.18	0.15	0.13	0.13	18
Sodium	50	mg/kg	--	--	154	248	515	92	307	323	164	252	-5
Thallium	0.05	mg/kg	1	0.16	0.152	0.142	0.14	0.214	0.627	0.356	0.188	0.169	55
Tin	2	mg/kg	9400	0.91	3.9	3.9	3.6	<2.0	60.4	100	10.7	2.2	-49
Titanium	1	mg/kg	--	--	72.1	110	231	78.1	50.3	47.3	160	201	6
Tungsten	0.5	mg/kg	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.56	<0.50	--
Uranium	0.05	mg/kg	23	0.59	0.53	0.777	0.662	0.629	0.826	0.824	0.744	0.582	0
Vanadium	0.2	mg/kg	39	31	22.3	22.9	26.8	24.2	23.5	23.6	30.3	25.1	0
Zinc	2	mg/kg	200	45	247	162	491	139	297	205	301	290	37
Zirconium	1	mg/kg	--	--	1.8	2.5	3.6	7.4	3.8	6.1	1.6	2.6	-46

Notes:
1.Nova Scotia Environment and Climate Change (NSECC) NSECC Tier I Environmental Quality Standards (EQS) for Potable Groundwater site (Residential/Parkland land use) , Table 1A, Revised October 2022
2. Dillon Consulting Limited (Dillon). (2011). Review of Environment Canada's Background Soil Database (2004-2009), Table 5
RPD = Relative Percent Differences
mg/kg = miligrams per kilogram
--' non applicable criteria

Bold	Exceeds Regional Background
	Exceeds NSECC Tier 1 EQS
	RPD value greater than 60% acceptable range for soil.

Project 24-750: Thorburn Phase II ESA
Table 3: Petroleum Hydrocarbon Concentrations in Soil

Client Sample ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	MW1 - SS1	MW2 - SS1	MW3 - SS1	SS-4	SS-5	SS-5 dup	SS-6	SS-7
Date Sampled				02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025
Time Sampled				8:30	10:00	11:45	10:15	10:30	10:31	10:45	13:00
ALS Sample ID				HA2501286-010	HA2501286-007	HA2501286-005	HA2501286-002	HA2501286-006	HA2501286-003	HA2501286-008	HA2501286-009
Analyte				Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid
Benzene	0.005	mg/kg	0.021	3.78	1.26	4.22	0.0383	1.18	0.648	1.78	3.7
Toluene	0.05	mg/kg	0.35	16.4	6.34	16.8	0.134	6.6	2.79	9	15.3
Ethylbenzene	0.015	mg/kg	0.043	1.18	0.363	0.809	<0.015	0.454	0.172	0.549	0.679
Xylenes, total	0.05	mg/kg	0.73	18.4	7.84	15.9	0.09	7.34	2.78	10.3	13.6
Gas (C6-C10)	5	mg/kg	75	130	38.7	88.7	5.8	43.4	44.3	54.7	71.8
Fuel (C10-C16)	5	mg/kg	320	97.5	35.2	58.1	5.8	45.4	44.3	29.9	43.8
Fuel (C16-C21)	6	mg/kg		106	28.6	49.5	7.9	41.6	39.1	52.3	51.4
Lube (C21-C32)	20	mg/kg	1800	224	58.3	116	11.1	93.8	86.5	480	555
Lube (C32-C54)	20	mg/kg	--	158	30	77	<20	45	39	686	584
mTPH (Tier I)	10	mg/kg	***	518	145	274	25	209	181	595	689
hydrocarbon resemblance		none	--	LOF	LOF	LOF	PLOF	LOF	LOF	LOF	LOF

Notes:
*** -compare to applicable mTPH
PLOF- Potential Lube Oil Fraction
LOF - lube oil fraction
1. Nova Scotia Environment and Climate Change (NSECC) NSECC Tier I Environmental Quality Standards (EQS) for Potable Groundwater site (Residential/Parkland land use) , Table 1A, Revised October 2022
mg/kg = miligrams per kilogram
--' non applicable criteria
Exceeds Nova Scotia Tier 1 EQS

Project 24-750: Thorbun Mine Phase II ESA
Table 4: Polyciclic Aromatic Hydrocarbon Concentrations in Soil

Client Sample ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	Atlantic Region Background [2]	MW1 - SS1	MW2 - SS1	MW3 - SS1	SS-4	SS-5	SS-5 dup	SS-6	SS-7
Date Sampled					02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025	02-May-2025
Time Sampled					8:30	10:00	11:45	10:15	10:30	10:31	10:45	13:00
ALS Sample ID					HA2501286-010	HA2501286-007	HA2501286-005	HA2501286-002	HA2501286-006	HA2501286-003	HA2501286-008	HA2501286-009
Analyte					Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid
Acenaphthene	0.005	mg/kg	3,900	--	<0.0560	<0.0160	<0.0355	<0.0050	<0.0165	<0.0100	<0.0465	<0.0165
Acenaphthylene	0.005	mg/kg	4.5	0.02	0.104	0.0195	0.0754	<0.0050	0.0308	0.0146	0.421	0.0262
Acridine	0.01	mg/kg	--	--	<0.090	<0.027	<0.048	<0.010	<0.030	<0.017	<0.097	<0.055
Anthracene	0.004	mg/kg	24,000	0.02	0.226	0.0277	0.104	<0.0040	0.0431	0.0195	0.341	0.045
Benzo(a)anthracene	0.01	mg/kg	12	0.04	0.531	0.084	0.33	<0.010	0.113	0.051	1.16	0.093
Benzo(a)pyrene	0.01	mg/kg	14	0.03	0.26	0.036	0.243	<0.010	0.072	0.031	1.13	0.048
Benzo(b+j)fluoranthene	0.01	mg/kg	--	--	0.404	0.073	0.383	0.021	0.135	0.063	1.6	0.085
Benzo(b+j+k)fluoranthene	0.015	mg/kg	1.2	--	0.541	0.093	0.523	0.021	0.178	0.082	2.18	0.104
Benzo(g,h,i)perylene	0.01	mg/kg	250	0.02	<0.204	<0.042	0.124	<0.010	<0.109	0.03	<1.09	<0.258
Benzo(k)fluoranthene	0.01	mg/kg	--	0.03	0.137	0.02	0.14	<0.010	0.043	0.019	0.578	0.019
Chrysene	0.01	mg/kg	78	0.04	0.557	0.112	0.406	0.016	0.16	0.079	1.28	0.138
Dibenz(a,h)anthracene	0.005	mg/kg	8.8	0.01	0.0492	0.0084	0.0431	<0.0050	0.0162	0.0091	0.187	0.0148
Fluoranthene	0.01	mg/kg	3500	0.06	0.844	0.098	0.668	<0.010	0.198	0.079	2.12	0.126
Fluorene	0.01	mg/kg	2700	0.02	<0.077	<0.011	<0.030	<0.010	<0.021	<0.010	<0.088	<0.014
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	98	0.02	0.106	0.016	0.139	<0.010	0.043	0.021	0.67	0.028
Methylnaphthalene, 1+2-	0.015	mg/kg	--	--	6.92	3.41	5.92	0.15	2.61	1.82	5.89	3.53
Methylnaphthalene, 1-	0.01	mg/kg	30	0.02	2.74	1.33	2.3	0.058	1.04	0.732	2.31	1.35
Methylnaphthalene, 2-	0.01	mg/kg	30	0.02	4.18	2.08	3.62	0.092	1.57	1.09	3.58	2.18
Naphthalene	0.01	mg/kg	2.2	0.03	2.52	1.3	2.37	0.058	0.842	0.604	2.14	1.38
Perylene	0.01	mg/kg	--	0.03	0.043	<0.010	0.055	<0.010	0.013	<0.010	0.268	<0.010
Phenanthrene	0.01	mg/kg	17	0.07	1.74	0.558	1.08	0.031	0.526	0.309	1.56	0.57
Pyrene	0.01	mg/kg	2100	0.06	0.73	0.087	0.543	<0.010	0.173	0.068	1.91	0.131
Quinoline	0.01	mg/kg	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.017	<0.010
B(a)P total potency equivalents [B(a)P TPE]	0.02	mg/kg	5.3	--	0.433	0.065	0.391	<0.020	0.123	0.056	1.73	0.087
IACR (CCME)	0.15		1	--	6.21	1.03	5.38	0.212	1.81	0.84	21.8	1.2

Notes:

1. Nova Scotia Environment and Climate Change (NSECC) NSECC Tier I Environmental Quality Standards (EQS) for Potable Groundwater site (Residential/Parkland land use) , Table 1A, Revised October 2022
2. Dillon Consulting Limited (Dillon). (2011). Review of Environment Canada's Background Soil Database (2004-2009), Table 5

mg/kg = milligrams per kilogram

--' non applicable criteria

Bold — Exceeds Regional Background

Exceeds NSECC Tier 1 EQS

Project 24-750: Thorburn Mine, Phase II ESA
Table 5: Metal and General Chemistry Concentrations in Surface Water

Client Sample ID	Lowest Detection Limit	Units	Nova Scotia Tier I EQS [1]	SW-1
Date Sampled				02-May-2025
Time Sampled				11:15
ALS Sample ID				HA2501286-001
Analyte				Sub-Matrix: Surface Water
General Chemistry				
Conductivity	1	µS/cm	--	310
Alkalinity, bicarbonate (as HCO3)	1.2	mg/L	--	138
Alkalinity, carbonate (as CO3)	1	mg/L	--	<0.6
Alkalinity, hydroxide (as OH)	1	mg/L	--	<0.3
Alkalinity, total (as CaCO3)	1	mg/L	--	113
Colour, apparent	2	CU	--	62.6
Hardness (as CaCO3), from total Ca/Mg	0.5	mg/L	--	72.3
Langelier index (@ 4°C)	0.01		--	-0.559
Solids, total dissolved [TDS]	10	mg/L	--	178
Turbidity	0.1	NTU	--	9.14
pH	0.1	pH units	6.5 to 9	7.65
Langelier index (@ 20°C)	0.01		--	-0.308
pH, saturation (@ 4°C)	0.01	pH units	--	8.21
pH, saturation (@ 20°C)	0.01	pH units	--	7.96
Anions and Nutrients (Matrix: Water)				
Ammonia, total (as N)	0.005	mg/L	2	0.215
Chloride	0.5	mg/L	120	26.7
Fluoride	0.02	mg/L	0.12	0.184
Nitrate (as N)	0.02	mg/L	13	<0.020
Nitrate + Nitrite (as N)	0.0032	mg/L	--	<0.0224
Nitrite (as N)	0.01	mg/L	60	<0.010
Phosphate, ortho-, dissolved (as P)	0.001	mg/L	--	0.0022
Sulfate (as SO4)	0.3	mg/L	128	3.39
			--	
Carbon, total organic [TOC]	0.5	mg/L	--	3.48
Cation sum (total)	0.1	meq/L	--	3.24
Ion balance (cations/anions)	0.01	%	--	105
Metals			--	
Aluminum, total	0.003	mg/L	0.005	0.0156
Antimony, total	0.0001	mg/L	0.009	<0.00010
Arsenic, total	0.0001	mg/L	0.005	0.00051
Barium, total	0.0001	mg/L	1	0.17
Beryllium, total	0.00002	mg/L	0.00015	<0.000020
Bismuth, total	0.00005	mg/L	--	<0.000050
Boron, total	0.01	mg/L	1.5	0.034
Cadmium, total	0.000005	mg/L	0.00009	<0.0000050
Calcium, total	0.05	mg/L	--	23.4
Cesium, total	0.00001	mg/L	--	0.000034
Chromium, hexavalent	0.0005	mg/L	0.001	<0.00050
Cobalt, total	0.0001	mg/L	0.001	0.00023
Copper, total	0.0005	mg/L	0.002	<0.00050
Iron, total	0.01	mg/L	0.3	1.32
Lead, total	0.00005	mg/L	0.001	0.000111
Lithium, total	0.001	mg/L	--	0.0085
Magnesium, total	0.005	mg/L	--	3.38
Manganese, total	0.0001	mg/L	0.43	0.687
Mercury, total	0.000005	mg/L	0.000026	0.000095
Molybdenum, total	0.00005	mg/L	0.073	<0.00050
Nickel, total	0.0005	mg/L	0.025	<0.050
Phosphorus, total	0.05	mg/L	--	1.83
Potassium, total	0.05	mg/L	--	0.00208
Rubidium, total	0.0002	mg/L	--	<0.000050
Selenium, total	0.00005	mg/L	0.001	6.44
Silicon, total	0.1	mg/L	--	3.01
Silver, total	0.00001	mg/L	0.00025	<0.000010
Sodium, total	0.05	mg/L	--	38.2
Strontium, total	0.0002	mg/L	21	0.233
Sulfur, total	0.5	mg/L	--	1.18
Tellurium, total	0.0002	mg/L	--	<0.00020
Thallium, total	0.00001	mg/L	0.0008	<0.000010
Thorium, total	0.0001	mg/L	--	<0.00010
Tin, total	0.0001	mg/L	--	<0.00010
Titanium, total	0.0003	mg/L	--	<0.00030
Tungsten, total	0.0001	mg/L	--	<0.00010
Uranium, total	0.00001	mg/L	0.015	0.000012
Vanadium, total	0.0005	mg/L	0.12	<0.00050
Zinc, total	0.003	mg/L	0.007	<0.0030
Zirconium, total	0.0002	mg/L	--	<0.00020

Notes:
1. Nova Scotia Environment and Climate Change (NSECC) Tier 1 Environmnetal Quality Standards (EQS) for Surface Water, accessed online May 2025.
mg/L = miligrams per Liter
--' non applicable criteria

Exceeds Nova Scotia Tier I EQS for Surface Water

Project 24-750: Thorbun Mine Phase II ESA

Table 6: Petroleum Hydrocarbon Concentrations in Surface Water

Client Sample ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	SW-1
Date Sampled				02-May-2025
Time Sampled				11:15
ALS Sample ID				HA2501286-001
Analyte				Sub-Matrix: Surface Water
Benzene	0.0005	mg/L	2.1	<0.00050
Toluene	0.0005	mg/L	0.77	<0.00050
Ethylbenzene	0.0005	mg/L	0.32	<0.00050
Xylenes, total	0.0005	mg/L	0.33	<0.00050
Gas (C6-C10)	0.025	mg/L	1.5	<0.050
Fuel (C10-C16)	0.1	mg/L	0.1	<0.050
Fuel (C16-C34)	0.25	mg/L		<0.050
Lube (C34-C50)	0.25	mg/L	0.1	<0.050
Mtph (Tier 1)	0.09	mg/L	--	<0.090
Hydrocarbons, total (C6-C50)	0.37	none	--	N/A

Notes:

1. Nova Scotia Environment and Climate Change (NSECC) Tier 1 Environmnetal Quality Standards (EQS) for Surface Water, accessed online May 2025.

mg/L = miligrams per Liter

--' non applicable criteria

Exceeds Nova Scotia Tier 1 EQS for SW

Project 24-750: Thorbun Mine Phase II ESA
Table 7: Polyciclic Aromatic Hydrocarbon Concentrations in Surface Water

Client Sample ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	SW-1
Date Sampled				02-May-2025
Time Sampled				11:15
ALS Sample ID				HA2501286-001
Analyte				Sub-Matrix: Surface Water
Acenaphthene	0.01	µg/L	5.8	<0.010
Acenaphthylene	0.01	µg/L	--	<0.010
Acridine	0.01	µg/L	--	<0.010
Anthracene	0.01	µg/L	0.012	<0.010
Benz(a)anthracene	0.01	µg/L	--	<0.010
Benzo(a)pyrene	0.005	µg/L	--	<0.0050
Benzo(b+j)fluoranthene	0.01	µg/L	--	<0.010
Benzo(b+j+k)fluoranthene	0.015	µg/L	--	<0.015
Benzo(g,h,i)perylene	0.01	µg/L	--	<0.010
Benzo(k)fluoranthene	0.01	µg/L	--	<0.010
Chrysene	0.01	µg/L	--	<0.010
Dibenz(a,h)anthracene	0.005	µg/L	--	<0.0050
Fluoranthene	0.01	µg/L	0.04	<0.010
Fluorene	0.01	µg/L	3	<0.010
Indeno(1,2,3-c,d)pyrene	0.01	µg/L	--	<0.010
Methylnaphthalene, 1+2-	0.015	µg/L	--	<0.015
Methylnaphthalene, 1-	0.01	µg/L	2	<0.010
Methylnaphthalene, 2-	0.01	µg/L	2	<0.010
Naphthalene	0.05	µg/L	1.1	<0.050
Phenanthrene	0.02	µg/L	0.4	<0.020
Pyrene	0.01	µg/L	0.025	<0.010
Quinoline	0.05	µg/L	--	<0.050
B(a)P total potency equivalents [B(a)P TPE]	0.01	µg/L	--	<0.010

Notes:
1. Nova Scotia Environment and Climate Change (NSECC) Tier 1 Environmnetal Quality Standards (EQS) for Surface Water, accessed online May 2025.
µg/L = micrograms per Liter
--' non applicable criteria

Project 24-750: Thorbun Mine Phase II ESA
Table 8: Metals Concentrations in Sediment

Bureau Veritas ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	SD-1
Sampling Date				02-May-2025
Time Sampled				11:20
Analyte				Sub-Matrix: Soil/Solid
Aluminum	50	mg/kg	--	15900
Antimony	0.1	mg/kg	25	1.68
Arsenic	0.1	mg/kg	17.0	6.31
Barium	0.5	mg/kg	--	123
Beryllium	0.1	mg/kg	--	0.68
Bismuth	0.2	mg/kg	--	0.26
Boron	5	mg/kg	--	<5.0
Cadmium	0.02	mg/kg	3.50	0.028
Calcium	50	mg/kg	--	2380
Chromium (total)	0.5	mg/kg	90.0	22.8
Cobalt	0.1	mg/kg	--	9.49
Copper	0.5	mg/kg	197.0	18.6
Iron	50	mg/kg	43766	31000
Lead	0.5	mg/kg	91.30	28.3
Lithium	2	mg/kg	--	34.6
Magnesium	20	mg/kg	--	3460
Manganese	1	mg/kg	1100	241
Molybdenum	0.1	mg/kg	--	0.52
Nickel	0.5	mg/kg	75	19
Phosphorus	50	mg/kg	--	149
Potassium	100	mg/kg	--	1260
Selenium	0.2	mg/kg	2	<0.20
Silver	0.1	mg/kg	0.5	<0.10
Sodium	50	mg/kg	--	148
Strontium	0.5	mg/kg	--	27.4
Sulfur	1000	mg/kg	--	<1000
Thallium	0.05	mg/kg	--	0.173
Tin	2	mg/kg	--	35.9
Uranium	0.05	mg/kg	--	0.662
Vanadium	0.2	mg/kg	--	27.7
Zinc	2	mg/kg	315	52
Zirconium	1	mg/kg	--	5.3

Notes:
1. Nova Scotia Tier I Environmental Quality Standards (EQS) for Sediment (mg/kg), Table 2, accessed online May 2025
mg/kg = miligrams per kilograms
--' non applicable criteria

	Exceeds Nova Scotia Tier I Environmental Quality Standards (EQS)
	Exceeds CCME ISQG
	Exceeds both CCME and NSECC

Project 24-750: Thorbun Mine Phase II ESA

Table 9: Petroleum Hydrocarbon Concentrations in Sediment

Bureau Veritas ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	SD-1
Sampling Date				02-May-2025
Time Sampled				11:20
Analyte				Sub-Matrix: Soil/Solid
Benzene	0.006	mg/kg	1.2	0.0711
Ethylbenzene	0.01	mg/kg	1.2	0.04
Toluene	0.02	mg/kg	1.4	0.379
Total Xylenes	0.02	mg/kg	1.3	0.648
Gas (C6-C10)	10	mg/kg	15	<5.0
Fuel (C10- C16)	7	mg/kg	25	8.2
Fuel (C16- C21)	50	mg/kg		9.3
Lube (C21- C32)	50	mg/kg	43	82.9
mTPH	10	mg/kg	--	100
hydrocarbon resemblance		none	--	LOF

Notes:

LOF- Lube Oil Fraction

1. Nova Scotia Tier I Environmental Quality Standards (EQS) for Sediment (mg/kg), Table 2, accessed online May 2025

mg/kg = miligrams per kilogram

--' non applicable criteria

Exceeds Nova Scotia Tier 1 EQS

Project 24-750: Thorbun Mine Phase II ESA
Table 10: Polycyclic Aromatic Hydrocarbons in Sediment

Bureau Veritas ID	Lowest Detection Limit	Units	NSECC Tier 1 EQS [1]	SD-1
Sampling Date				02-May-2025
Time sampled				11:20
Analyte				Sub-Matrix: Soil/Solid
Acenaphthene	0.01	mg/kg	0.0889	<0.0065
Acenaphthylene	0.01	mg/kg	0.128	0.0104
Anthracene	0.01	mg/kg	0.245	0.0193
Benzo(a)anthracene	0.01	mg/kg	0.385	0.038
Benzo(a)pyrene	0.01	mg/kg	0.782	0.035
Benzo(b)fluoranthene	0.01	mg/kg	13.4	--
Benzo(b/j)fluoranthene	0.02	mg/kg	--	0.05
Benzo(g,h,i)perylene	0.01	mg/kg	0.32	0.024
Benzo(j)fluoranthene	0.01	mg/kg	13.4	--
Benzo(k)fluoranthene	0.01	mg/kg	13.4	0.02
Chrysene	0.01	mg/kg	0.862	0.051
Dibenzo(a,h)anthracene	0.01	mg/kg	0.135	0.0066
Fluoranthene	0.01	mg/kg	2.355	0.081
Fluorene	0.01	mg/kg	0.144	<0.010
Indeno(1,2,3-cd)pyrene	0.01	mg/kg	3.2	0.022
1-Methylnaphthalene	0.01	mg/kg	0.201	0.153
2-Methylnaphthalene	0.01	mg/kg	0.201	0.217
Naphthalene	0.02	mg/kg	0.391	0.123
Perylene	0.01	mg/kg	--	<0.010
Phenanthrene	0.01	mg/kg	0.515	0.128
Pyrene	0.01	mg/kg	0.875	0.066

Notes:

1. Nova Scotia Tier I Environmental Quality Standards (EQS) for Sediment (mg/kg), Table 2, accessed online May 2025

mg/kg = miligrams per kilogram

-' = no applicable criteria

Exceeds Nova Scotia Tier 1 EQS for Sediment

Project 24-750: Thorbun Mine Phase II ESA

Table 11: General Chemistry and Dissolved Metal concentrations in Ground Water

Client Sample ID	Lowest Detection Limit	Units	HC GCDWQ [1]		Nova Scotia Tier I EQS [2]	MW-1	MW-2	MW-2 Dup	MW-3	RPD
Date Sampled						14-May-2025	14-May-2025	14-May-2025	14-May-2025	
Time Sampled						15:10	12:10	12:11	14:55	
ALS Sample ID						HA2501456-001	HA2501456-002	HA2501456-004	HA2501456-003	
Analyte			MAC	OV		Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	
General Chemistry										
Conductivity	1	µS/cm	--	--	--	294	189	192	553	-2
Alkalinity, bicarbonate (as HCO3)	1.2	mg/L	--	--	--	111	63.1	64.7	984	-3
Alkalinity, carbonate (as CO3)	1	mg/L	--	--	--	<0.6	<0.6	<0.6		
Alkalinity, hydroxide (as OH)	1	mg/L	--	--	--	<0.3	<0.3	<0.3		
Alkalinity, total (as CaCO3)	1	mg/L	--	--	--	90.9	51.7	53	807	-2
Colour, apparent	2	CU	--	15	--	4220	373	786	464000	-71
Hardness (as CaCO3), dissolved	0.5	mg/L	--	--	--	75.4	29.7	29.5	132	1
Langelier index (@ 4°C)	0.01		--	--	--	1	2	3	0.494	-5
Solids, total dissolved [TDS]	10	mg/L	--	500	--	188	136	112	699	19
Turbidity	0.1	NTU	--	--	--	898	89.2	189	>4000	-72
pH	0.1	pH units	--	7.0 - 10.5	--	7.48	6.4	6.24	7.71	3
Langelier index (@ 20°C)	0.01		--	--	--	1	2	2	0.739	-6
pH, saturation (@ 4°C)	0.01	pH units	--	--	--	8.3	8.89	8.87	7.22	0
pH, saturation (@ 20°C)	0.01	pH units	--	--	--	8.05	8.64	8.62	6.97	0
Anions and Nutrients (Matrix: Water)										
Ammonia, total (as N)	0.005	mg/L	--	--	--	0.274	0.0973	0.109	1.64	-11
Chloride	0.5	mg/L	--	250	250	22.6	21.1	21.2	32.3	0
Fluoride	0.02	mg/L	1.5	--	--	0.16	0.127	0.127	0.445	0
Nitrate (as N)	0.02	mg/L	10	--	--	0.12	<0.020	<0.020	<0.020	
Nitrate + Nitrite (as N)	0.0032	mg/L	--	--	--	0.12	<0.0224	<0.0224	<0.0224	
Nitrite (as N)	0.01	mg/L	1	--	--	<0.010	<0.010	<0.010	<0.010	
Phosphate, ortho-, dissolved (as P)	0.001	mg/L	--	--	--	0.0022	0.0051	0.0047	<0.0010	8
Sulfate (as SO4)	0.3	mg/L	--	500	--	17.6	6.6	6.73	14.1	-2
Ion Balance (Matrix: Water)										
Anion sum	0.1	meq/L	--	--	--	2.84	1.77	1.8	17.4	-2
Cation sum	0.1	meq/L	--	--	--	2.78	1.7	1.68	5.91	1
Ion balance (cations/anions)	0.01	%	--	--	--	97.9	96	93.3	34	3
Metals										
Aluminum, dissolved	0.001	mg/L	2.9	0.1	0.1	0.0062	0.0176	0.0223	0.008	-24
Antimony, dissolved	0.0001	mg/L	0.006	--	0.006	0.00036	0.00023	0.00023	0.00514	0
Arsenic, dissolved	0.0001	mg/L	0.01	--	0.01	0.00074	0.00064	0.00068	0.00428	-6
Barium, dissolved	0.0001	mg/L	2	--	1	0.118	0.0244	0.0249	0.181	-2
Beryllium, dissolved	0.00002	mg/L	--	--	0.004	<0.000020	<0.000020	<0.000020	<0.000020	--
Bismuth, dissolved	0.00005	mg/L	--	--	--	<0.000050	<0.000050	<0.000050	<0.000050	--
Boron, dissolved	0.01	mg/L	5	--	5	0.025	0.015	0.015	0.043	0
Cadmium, dissolved	0.000005	mg/L	0.007	--	0.005	0.0000331	0.0000214	0.0000204	0.0000357	5
Calcium, dissolved	0.05	mg/L	--	--	--	23.8	10.2	10.1	42.8	1
Cesium, dissolved	0.00001	mg/L	--	--	--	0.000013	0.000023	0.000026	0.000042	-12
Chromium, dissolved	0.0005	mg/L	0.05	--	0.05	<0.00050	<0.00050	<0.00050	<0.00050	--
Cobalt, dissolved	0.0001	mg/L	--	--	0.0038	0.00098	0.00081	0.00083	0.00065	-2
Copper, dissolved	0.0002	mg/L	2	1	2	0.00046	0.00165	0.0016	0.0008	3
Iron, dissolved	0.01	mg/L	--	0.1	0.3	<0.010	0.034	0.044	<0.010	-26
Lead, dissolved	0.00005	mg/L	0.005	--	0.005	<0.000050	0.000056	0.000057	<0.000050	-2
Lithium, dissolved	0.001	mg/L	--	--	--	0.0117	0.0023	0.0022	0.0165	4
Magnesium, dissolved	0.005	mg/L	--	--	--	3.89	1.03	1.03	6.21	0
Manganese, dissolved	0.0001	mg/L	0.12	--	0.12	1.92	0.176	0.176	0.948	0
Molybdenum, dissolved	0.00005	mg/L	--	--	0.07	0.000523	0.00039	0.000384	0.0138	2
Nickel, dissolved	0.0005	mg/L	--	--	0.1	0.00143	0.00156	0.00151	0.00191	3
Phosphorus, dissolved	0.05	mg/L	--	--	--	<0.050	<0.050	<0.050	<0.050	--
Potassium, dissolved	0.05	mg/L	--	--	--	10.8	1.94	1.96	12.1	-1
Rubidium, dissolved	0.0002	mg/L	--	--	--	0.00117	0.00136	0.00143	0.00366	-5
Selenium, dissolved	0.00005	mg/L	0.05	--	0.05	0.000147	0.000156	0.000184	0.000285	-16
Silicon (as SiO2), dissolved	0.15	mg/L	--	--	--	10.3	20.7	21.6	12	-4
Silicon, dissolved	0.05	mg/L	--	--	--	4.81	9.7	10.1	5.62	-4
Silver, dissolved	0.00001	mg/L	--	--	--	<0.000010	<0.000010	<0.000010	<0.000010	--
Sodium, dissolved	0.05	mg/L	--	200	200	20.8	23.9	23.5	64.5	2
Strontium, dissolved	0.0002	mg/L	7	--	2.4	0.125	0.0406	0.0403	0.246	1
Sulfur, dissolved	0.5	mg/L	--	--	--	6.13	2.42	2.52	4.73	-4
Tellurium, dissolved	0.0002	mg/L	--	--	--	<0.00020	<0.00020	<0.00020	<0.00020	--
Thallium, dissolved	0.00001	mg/L	--	--	0.002	0.000015	0.000023	0.000022	0.00013	4
Thorium, dissolved	0.0001	mg/L	--	--	--	<0.00010	<0.00010	<0.00010	<0.00010	--
Tin, dissolved	0.0001	mg/L	--	--	2.4	0.00014	<0.00010	<0.00010	<0.00010	--
Titanium, dissolved	0.0003	mg/L	--	--	--	<0.00030	0.001	0.00116	<0.00030	-15
Tungsten, dissolved	0.0001	mg/L	--	--	--	<0.00010	<0.00010	<0.00010	<0.00010	--
Uranium, dissolved	0.00001	mg/L	0.02	--	0.02	0.000141	0.000044	0.000038	0.00279	15
Vanadium, dissolved	0.0005	mg/L	--	--	0.0062	<0.00050	<0.00050	<0.00050	<0.00050	--
Zinc, dissolved	0.001	mg/L	--	5	5	<0.0010	0.0079	0.0054	<0.0010	38
Zirconium, dissolved	0.0002	mg/L	--	--	--	<0.00020	<0.00020	<0.00020	<0.00020	--

Notes:

1. Health Canada (HC) Guidelines for Canadian Drinking Water Quality (GCDWQ)
2. Nova Scotia Environment and Climate Change (NSECC) Tier 1 Environmnetal Quality Standards (EQS) for PotableGround Water, accessed online June 2025.

mg/L = miligrams per Liter

MAC = Maximum Acceptable Concentration

OV = Other Value

RPD = Relative Percent Differences

-- non applicable criteria

Exceeds NSECC Tier 1 EQS

Exceeds HC GCDWQ

Exceeds both NSECC and HC GCDWQ

RPD value greater than 40% acceptable range for groundwater.

Project 24-750: Thorbun Mine Phase II ESA

Table 12: Petroleum Hydrocarbon concentration in Ground Water

Client Sample ID	Lowest Detection Limit	Units	HC GCDWQ[1]		Nova Scotia Tier I EQS [2]	MW-1	MW-2	MW-3
Date Sampled						14-May-2025	14-May-2025	14-May-2025
Time Sampled						15:10	12:10	14:55
ALS Sample ID						HA2501456-001	HA2501456-002	HA2501456-003
Analyte			MAC	OV		Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater
Benzene	0.5	µg/L	5	--	5	<0.50	<0.50	<0.50
Ethylbenzene	0.5	µg/L	140	1.6	1.6	<0.50	<0.50	<0.50
Toluene	0.5	µg/L	60	24	24	<0.50	<0.50	<0.50
Xylene, m+p-	0.4	µg/L	--	--	--	<0.40	<0.40	<0.40
Xylene, o-	0.3	µg/L	--	--	--	<0.30	<0.30	<0.30
Xylenes, total	0.5	µg/L	90	20	20	<0.50	<0.50	<0.50
BTEX, total	1	µg/L	--	--	--	<1.0	<1.0	<1.0
Gas (C6-C10)	25	µg/L	--	--	4400	<25	<25	<25
Fuel (C10-C16)	100	µg/L	--	--	3200	<100	<100	<100
Fuel (C16-C34)	250	µg/L	--	--		750	<250	<250
Lube (C34-C50)	250	µg/L	--	--	7800	<250	<250	<250
F1-BTEX	25	µg/L	--	--	--	<25	<25	<25
Hydrocarbons, total (C6-C50)	370	µg/L	--	--	--	750	<370	<370

Notes:

1. Health Canada (HC) Guidelines for Canadian Drinking Water Quality (GCDWQ)
2. Nova Scotia Environment and Climate Change (NSECC) Tier 1 Environmnetal Quality Standards (EQS) for Potable Ground Water, accessed online June 2025.

µg/L = micrograms per Liter

MAC = Maximum Acceptable Concentration

OV = Other Value

-- non applicable criteria

	Exceeds NSECC Tier 1 EQS
	Exceeds HC GCDWQ
	Exceeds both NSECC and HC GCDWQ

Project 24-750: Thorbun Mine Phase II ESA
Table 13: Polycyclic Aromatic Hydrocarbon (PAH) concentration in Ground Water

Client Sample ID	Lowest Detection Limit	Units	HC GCDWQ[1]		Nova Scotia Tier I EQS [2]	MW-1	MW-2	MW-3
Date Sampled						14-May-2025	14-May-2025	14-May-2025
Time Sampled						15:10	12:10	14:55
ALS Sample ID						HA2501456-001	HA2501456-002	HA2501456-003
Analyte			MAC	OV		Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater
Acenaphthene	0.01	µg/L	--	--	1400	<0.010	<0.010	<0.047
Acenaphthylene	0.01	µg/L	--	--	4.5	<0.010	<0.010	<0.039
Acridine	0.01	µg/L	--	--	--	<0.010	<0.010	<0.014
Anthracene	0.01	µg/L	--	--	NGR	<0.010	<0.010	<0.048
Benz(a)anthracene	0.01	µg/L	--	--	--	<0.010	<0.010	0.02
Benzo(a)pyrene	0.005	µg/L	0.04	--	0.04	<0.0050	<0.0050	0.0122
Benzo(b+j)fluoranthene	0.01	µg/L	--	--	--	<0.010	<0.010	0.027
Benzo(b+j+k)fluoranthene	0.015	µg/L	--	--	--	<0.015	<0.015	0.038
Benzo(g,h,i)perylene	0.01	µg/L	--	--	--	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	0.01	µg/L	--	--	--	<0.010	<0.010	0.011
Chrysene	0.01	µg/L	--	--	--	<0.010	<0.010	0.026
Dibenz(a,h)anthracene	0.005	µg/L	--	--	--	<0.0050	<0.0050	<0.0050
Fluoranthene	0.01	µg/L	--	--	NGR	0.016	<0.010	0.069
Fluorene	0.01	µg/L	--	--	940	<0.010	<0.010	0.267
Indeno(1,2,3-c,d)pyrene	0.01	µg/L	--	--	--	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	0.015	µg/L	--	--	--	0.073	<0.015	4.43
Methylnaphthalene, 1-	0.01	µg/L	--	--	12	0.031	<0.010	1.75
Methylnaphthalene, 2-	0.01	µg/L	--	--	12	0.042	<0.010	2.68
Naphthalene	0.05	µg/L	--	--	470	<0.050	<0.050	1.38
Phenanthrene	0.02	µg/L	--	--	--	0.063	<0.020	0.682
Pyrene	0.01	µg/L	--	--	710	0.024	<0.010	0.124
Quinoline	0.05	µg/L	--	--	--	<0.050	<0.050	<0.090
B(a)P total potency equivalents [B(a)P TPE]	0.01	µg/L	--	--	0.04	<0.010	<0.010	0.021

Notes:
1. Health Canada (HC) Guidelines for Canadian Drinking Water Quality (GCDWQ)

2. Nova Scotia Environment and Climate Change (NSECC) Tier 1 Environmnetal Quality Standards (EQS) for Potable Ground Water, accessed online June 2025.
µg/L = micrograms per litre
NGR = No Guideline Required
MAC = Maximum Acceptable Concentration
OV = Other Value
-- non applicable criteria

Exceeds NSECC Tier 1 EQS
Exceeds HC GCDWQ
Exceeds both NSECC and HC GCDWQ

APPENDIX G – LABORATORY CERTIFICATES OF ANALYSIS

CERTIFICATE OF ANALYSIS

Work Order	:	**HA2501286**			
Client	:	**DesignPoint Engineering & Surveying Ltd.**	Laboratory	:	ALS Environmental - Halifax
Contact	:	Charlotte Clark	Account Manager	:	Abby van der Jagt
Address	:	90 Western Parkway Suite 500 Bedford Northwest Territories Canada B4B 2J3	Address	:	13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	:	902 832 5597	E-mail	:	abby.vanderjagt@alsglobal.com
Project	:	----	Telephone	:	+1 902 707 4888
PO	:	----	Date Samples Received	:	02-May-2025 16:34
C-O-C number	:	20-1022359	Date Analysis Commenced	:	06-May-2025
Sampler	:	----	Issue Date	:	13-May-2025 10:11
Site	:	----			
Quote number	:	Alantic Canada 2024 Rate Table			
No. of samples received	:	10			
No. of samples analysed	:	10			

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Andrea Armstrong	Department Manager - Air Quality and Volatiles	VOC, Waterloo, Ontario
Angela Fleming		Metals, Waterloo, Ontario
Angela Fleming		Inorganics, Waterloo, Ontario
Angela Fleming	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Inorganics, Dartmouth, Nova Scotia
Josphin Masihi	Supervisor I	Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Metals, Waterloo, Ontario

General Comments

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

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
%	percent
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
none	none
NTU	nephelometric turbidity units
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: 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

E641A: RRR/RRQC: Detection limit raised due to low recovery in associated matrix spike.

E641A-L -009 - RRR: Surrogate recovery is outside ALS DQO. Detection limits for affected compounds have been raised accordingly.

Sample Comments

Sample	*Client Id*	*Comment*
HA2501286-001	SW-1	N/A: Resemblance Not Applicable (mTPH < LOR)
HA2501286-002	SS-4	PLOF: Possible lube oil fraction

HA2501286-003	SS-5 dup	LOF: Lube oil fraction
HA2501286-004	SD-1	LOF: Lube oil fraction
HA2501286-005	MW3 - SS1	LOF: Lube oil fraction
HA2501286-006	SS5	LOF: Lube oil fraction
		Sample ID- MW2-SS1: Low methanol volume found on one of the submitted VOC soil sample .
HA2501286-007	MW2 - SS1	LOF: Lube oil fraction
HA2501286-008	SS6	LOF: Lube oil fraction
HA2501286-009	SS7	LOF: Lube oil fraction
HA2501286-010	MW1 - SS1	LOF: Lube oil fraction

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
RRR	Refer to report comments for issues regarding this analysis.
SLMI	Surrogate recovery was outside ALS DQO (Low) due to Matrix Interference

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-1	----	----	----	----
					Client sampling date / time	02-May-2025 00:00	----	----	----	----
						HA2501286-001	----	----	----	----
						Result	----	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WT	1.2	mg/L		138	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WT	1.0	mg/L		<0.6	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WT	1.0	mg/L		<0.3	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		113	----	----	----	----
Colour, apparent	----	E330/WT	2.0	CU		62.6	----	----	----	----
Conductivity	----	E100/WT	1.0	µS/cm		310	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WT	0.50	mg/L		72.3	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/WT	0.010	-		-0.308	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/WT	0.010	-		-0.559	----	----	----	----
pH	----	E108/HA	0.10	pH units		7.65	----	----	----	----
pH, saturation (@ 20°C)	----	EC105A/WT	0.010	pH units		7.96	----	----	----	----
pH, saturation (@ 4°C)	----	EC105A/WT	0.010	pH units		8.21	----	----	----	----
Solids, total dissolved [TDS]	----	E162/HA	10	mg/L		178 DLDS	----	----	----	----
Turbidity	----	E121/WT	0.10	NTU		9.14	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.215	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		26.7	----	----	----	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		0.184	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		<0.020	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0032	mg/L		<0.0224	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Surface Water (Matrix: Water)					Client sample ID	SW-1	----	----	----	----
					Client sampling date / time	02-May-2025 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2501286-001	----	----	----	----
						Result	----	----	----	----
Anions and Nutrients										
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0022	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		3.39	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/WT	0.50	mg/L		3.48	----	----	----	----
Ion Balance										
Anion sum	----	EC101A/WT	0.10	meq/L		3.09	----	----	----	----
Cation sum (total)	----	EC101A/WT	0.10	meq/L		3.24	----	----	----	----
Ion balance (cations/anions)	----	EC101A/WT	0.01	%		105	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/WT	0.0030	mg/L		0.0156	----	----	----	----
Antimony, total	7440-36-0	E420/WT	0.00010	mg/L		<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L		0.00051	----	----	----	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L		0.170	----	----	----	----
Beryllium, total	7440-41-7	E420/WT	0.000020	mg/L		<0.000020	----	----	----	----
Bismuth, total	7440-69-9	E420/WT	0.000050	mg/L		<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L		0.034	----	----	----	----
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L		<0.0000050	----	----	----	----
Calcium, total	7440-70-2	E420/WT	0.100	mg/L		23.4	----	----	----	----
Cesium, total	7440-46-2	E420/WT	0.000010	mg/L		0.000034	----	----	----	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L		<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/WT	0.00010	mg/L		0.00023	----	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-1	----	----	----	----
					Client sampling date / time	02-May-2025 00:00	----	----	----	----
						HA2501286-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Copper, total	7440-50-8	E420/WT	0.00050	mg/L		<0.00050	----	----	----	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L		1.32	----	----	----	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L		0.000111	----	----	----	----
Lithium, total	7439-93-2	E420/WT	0.0010	mg/L		0.0085	----	----	----	----
Magnesium, total	7439-95-4	E420/WT	0.0050	mg/L		3.38	----	----	----	----
Manganese, total	7439-96-5	E420/WT	0.00010	mg/L		0.687	----	----	----	----
Molybdenum, total	7439-98-7	E420/WT	0.000050	mg/L		0.000095	----	----	----	----
Nickel, total	7440-02-0	E420/WT	0.00050	mg/L		<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/WT	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/WT	0.050	mg/L		1.83	----	----	----	----
Rubidium, total	7440-17-7	E420/WT	0.00020	mg/L		0.00208	----	----	----	----
Selenium, total	7782-49-2	E420/WT	0.000050	mg/L		<0.000050	----	----	----	----
Silicon (as SiO2), total	7631-86-9	EC420.SiO2/WT	0.25	mg/L		6.44	----	----	----	----
Silicon, total	7440-21-3	E420/WT	0.10	mg/L		3.01	----	----	----	----
Silver, total	7440-22-4	E420/WT	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/WT	0.050	mg/L		38.2	----	----	----	----
Strontium, total	7440-24-6	E420/WT	0.00020	mg/L		0.233	----	----	----	----
Sulfur, total	7704-34-9	E420/WT	0.50	mg/L		1.18	----	----	----	----
Tellurium, total	13494-80-9	E420/WT	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/WT	0.000010	mg/L		<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/WT	0.00010	mg/L		<0.00010	----	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-1	----	----	----	----
					Client sampling date / time	02-May-2025 00:00	----	----	----	----
						HA2501286-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Tin, total	7440-31-5	E420/WT	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/WT	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/WT	0.00010	mg/L		<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/WT	0.000010	mg/L		0.000012	----	----	----	----
Vanadium, total	7440-62-2	E420/WT	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L		<0.0030	----	----	----	----
Zirconium, total	7440-67-7	E420/WT	0.00020	mg/L		<0.00020	----	----	----	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	----	----	----
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	----	----	----
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	----	----	----
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	----	----	----
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.00050	mg/L		<0.00050	----	----	----	----
Toluene	108-88-3	E611A/WT	0.00050	mg/L		<0.00050	----	----	----	----
Ethylbenzene	100-41-4	E611A/WT	0.00050	mg/L		<0.00050	----	----	----	----
Xylenes, total	1330-20-7	E611A/WT	0.00050	mg/L		<0.00050	----	----	----	----
Xylene, o-	95-47-6	E611A/WT	0.00030	mg/L		<0.00030	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WT	0.00040	mg/L		<0.00040	----	----	----	----
VPH C6-C10	n/a	E581.VPH/WT	0.025	mg/L		<0.025	----	----	----	----
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	0.025	mg/L		<0.025	----	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-1	----	----	----	----
					Client sampling date / time	02-May-2025 00:00	----	----	----	----
					HA2501286-001	----	----	----	----	----
					Result	----	----	----	----	----
Hydrocarbons										
EPH >C10-C16	n/a	E601F/WT	0.050	mg/L	<0.050	----	----	----	----	
EPH >C16-C21	n/a	E601F/WT	0.050	mg/L	<0.050	----	----	----	----	
EPH >C21-C32	n/a	E601F/WT	0.050	mg/L	<0.050	----	----	----	----	
EPH >C34-C50	n/a	E601F/WT	0.10	mg/L	<0.10	----	----	----	----	
hydrocarbon resemblance	n/a	E601F/WT	-	none	N/A	----	----	----	----	
mTPH (Tier I)	n/a	EC581D/WT	0.090	mg/L	<0.090	----	----	----	----	
return to baseline at C32	n/a	E601F/WT	-	-	Yes	----	----	----	----	
TEH >C10-C32	n/a	E601F/WT	0.100	mg/L	<0.100	----	----	----	----	
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%	101	----	----	----	----	
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%	79.6	----	----	----	----	
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%	85.5	----	----	----	----	
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	1.0	%	95.5	----	----	----	----	
Difluorobenzene, 1,4-	540-36-3	E611A/WT	1.0	%	99.2	----	----	----	----	
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.010	µg/L	<0.010	----	----	----	----	
Acenaphthylene	208-96-8	E641A/WT	0.010	µg/L	<0.010	----	----	----	----	
Acridine	260-94-6	E641A/WT	0.010	µg/L	<0.010	----	----	----	----	
Anthracene	120-12-7	E641A/WT	0.010	µg/L	<0.010	----	----	----	----	
Benz(a)anthracene	56-55-3	E641A/WT	0.010	µg/L	<0.010	----	----	----	----	

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-1	----	----	----	----
					Client sampling date / time	02-May-2025 00:00	----	----	----	----
						HA2501286-001	----	----	----	----
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Benzo(a)pyrene	50-32-8	E641A/WT	0.0050	µg/L		<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT	0.015	µg/L		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Chrysene	218-01-9	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.0050	µg/L		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Fluorene	86-73-7	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	0.015	µg/L		<0.015	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A/WT	0.050	µg/L		<0.050	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	0.020	µg/L		<0.020	----	----	----	----
Pyrene	129-00-0	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
Quinoline	91-22-5	E641A/WT	0.050	µg/L		<0.050	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	0.010	µg/L		<0.010	----	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT	0.030	µg/L		<0.030	----	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	0.060	µg/L		<0.060	----	----	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT	0.070	µg/L		<0.070	----	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-1	----	----	----	----
					Client sampling date / time	02-May-2025 00:00	----	----	----	----
					HA2501286-001	----	----	----	----	----
					Result	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
PAHs, total (EPA 16)	n/a	E641A/WT	0.065	µg/L		<0.065	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/WT	0.1	%		114	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%		99.6	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%		108	----	----	----	----

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

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS-4	SS-5 dup	SD-1	MW3 - SS1	SS5
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00
						HA2501286-002	HA2501286-003	HA2501286-004	HA2501286-005	HA2501286-006
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/WT	0.25	%		14.4	27.0	23.5	27.6	32.0
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		14800	14900	15900	15400	13000
Antimony	7440-36-0	E440/WT	0.10	mg/kg		0.58	23.4	1.68	3.51	16.1
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		7.74	32.6	6.31	35.6	54.9
Barium	7440-39-3	E440/WT	0.50	mg/kg		199	269	123	513	357
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		1.00	1.40	0.68	0.86	1.31
Bismuth	7440-69-9	E440/WT	0.20	mg/kg		0.26	0.36	0.26	<0.20	0.40
Boron	7440-42-8	E440/WT	5.0	mg/kg		<5.0	<5.0	<5.0	5.6	<5.0
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		0.172	0.350	0.028	0.990	0.630

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS-4	SS-5 dup	SD-1	MW3 - SS1	SS5
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00
						HA2501286-002	HA2501286-003	HA2501286-004	HA2501286-005	HA2501286-006
						Result	Result	Result	Result	Result
Metals										
Calcium	7440-70-2	E440/WT	50	mg/kg		4380	5790	2380	11700	5110
Chromium	7440-47-3	E440/WT	0.50	mg/kg		21.9	17.6	22.8	16.4	17.3
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		15.2	13.4	9.49	11.0	14.4
Copper	7440-50-8	E440/WT	0.50	mg/kg		29.8	63.1	18.6	40.3	78.0
Iron	7439-89-6	E440/WT	50	mg/kg		33100	28900	31000	16300	33500
Lead	7439-92-1	E440/WT	0.50	mg/kg		20.3	127	28.3	151	341
Lithium	7439-93-2	E440/WT	2.0	mg/kg		38.7	29.2	34.6	23.2	26.2
Magnesium	7439-95-4	E440/WT	20	mg/kg		5030	2440	3460	1230	1890
Manganese	7439-96-5	E440/WT	1.0	mg/kg		970	418	241	750	724
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		0.42	1.71	0.52	2.98	2.17
Nickel	7440-02-0	E440/WT	0.50	mg/kg		29.3	33.4	18.8	25.1	36.6
Phosphorus	7723-14-0	E440/WT	50	mg/kg		407	230	149	311	212
Potassium	7440-09-7	E440/WT	100	mg/kg		2090	1690	1260	1020	1660
Selenium	7782-49-2	E440/WT	0.20	mg/kg		0.20	0.72	<0.20	0.41	0.88
Silver	7440-22-4	E440/WT	0.10	mg/kg		<0.10	0.15	<0.10	0.12	0.18
Sodium	7440-23-5	E440/WT	50	mg/kg		92	323	148	515	307
Strontium	7440-24-6	E440/WT	0.50	mg/kg		17.0	61.1	27.4	114	63.8
Sulfur	7704-34-9	E440/WT	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/WT	0.050	mg/kg		0.214	0.356	0.173	0.140	0.627
Tin	7440-31-5	E440/WT	2.0	mg/kg		<2.0	100	35.9	3.6	60.4
Titanium	7440-32-6	E440/WT	1.0	mg/kg		78.1	47.3	77.2	231	50.3

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS-4	SS-5 dup	SD-1	MW3 - SS1	SS5
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00
						HA2501286-002	HA2501286-003	HA2501286-004	HA2501286-005	HA2501286-006
						Result	Result	Result	Result	Result
Metals										
Tungsten	7440-33-7	E440/WT	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/WT	0.050	mg/kg		0.629	0.824	0.662	0.662	0.826
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		24.2	23.6	27.7	26.8	23.5
Zinc	7440-66-6	E440/WT	2.0	mg/kg		139	205	52.0	491	297
Zirconium	7440-67-7	E440/WT	1.0	mg/kg		7.4	6.1	5.3	3.6	3.8
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		<1	6	<1	18	13
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		23	24	8	21	22
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		32	22	9	18	20
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		45	48	82	42	45
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		0.0383	0.648	0.0711	4.22	1.18
Toluene	108-88-3	E611A/WT	0.050	mg/kg		0.134	2.79	0.379	16.8	6.60
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		<0.015	0.172	0.040	0.809	0.454
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		0.090	2.78	0.648	15.9	7.34
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		<0.030	0.621	0.174	3.73	1.74
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		0.090	2.16	0.474	12.2	5.60
VPH C6-C10	n/a	E581.VPH/WT	5.0	mg/kg		<5.0	17.1	<5.0	88.7	43.4
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	5.0	mg/kg		<5.0	10.7	<5.0	50.9	27.8
EPH >C10-C16	n/a	E601F/WT	5.0	mg/kg		5.8	44.3	8.2	58.1	45.4
EPH >C16-C21	n/a	E601F/WT	5.0	mg/kg		7.9	39.1	9.3	49.5	41.6

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS-4	SS-5 dup	SD-1	MW3 - SS1	SS5
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00
						HA2501286-002	HA2501286-003	HA2501286-004	HA2501286-005	HA2501286-006
						Result	Result	Result	Result	Result
Hydrocarbons										
EPH >C21-C32	n/a	E601F/WT	5.0	mg/kg		11.1	86.5	82.9	116	93.8
EPH >C34-C50	n/a	E601F/WT	20	mg/kg		<20	39	58	77	45
hydrocarbon resemblance	n/a	E601F/WT	-	none		PLOF	LOF	LOF	LOF	LOF
mTPH (Tier I)	n/a	EC581D/WT	10	mg/kg		25	181	100	274	209
return to baseline at C32	n/a	E601F/WT	-	-		No	Yes	No	No	Yes
TEH >C10-C32	n/a	E601F/WT	10	mg/kg		25	170	100	224	181
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%		77.7	70.9	71.2	73.0	72.6
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%		72.8	71.6	77.3	79.1	75.7
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%		81.6	82.4	81.4	77.1	77.7
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		88.1	90.8	102	77.2	76.8
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		89.2	95.7	104	79.4	82.3
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0100 DLM	<0.0065 DLM	<0.0355 DLM	<0.0165 DLM
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg		<0.0050	0.0146	0.0104	0.0754	0.0308
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg		<0.010	<0.017 DLM	<0.010	<0.048 DLM	<0.030 DLM
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg		<0.0040	0.0195	0.0193	0.104	0.0431 EMPC
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg		<0.010	0.051	0.038	0.330	0.113
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg		<0.010	0.031	0.035	0.243	0.072
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg		0.021	0.063	0.050	0.383	0.135

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS-4	SS-5 dup	SD-1	MW3 - SS1	SS5
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00
						HA2501286-002	HA2501286-003	HA2501286-004	HA2501286-005	HA2501286-006
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg		0.021	0.082	0.070	0.523	0.178
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg		<0.010	0.030	0.024	0.124	<0.109 RRR
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		<0.010	0.019	0.020	0.140	0.043
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		0.016	0.079	0.051	0.406	0.160
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		<0.0050	0.0091	0.0066	0.0431	0.0162 EMPC
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		<0.010	0.079	0.081	0.668	0.198
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	<0.030 DLM	<0.021 DLM
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		<0.010	0.021	0.022	0.139	0.043
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		0.058	0.732	0.153	2.30	1.04
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		0.150	1.82	0.370	5.92	2.61
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		0.092	1.09	0.217	3.62	1.57
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		0.058	0.604	0.123	2.37	0.842
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	0.055	0.013
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		0.031	0.309	0.128	1.08	0.526
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		<0.010	0.068	0.066	0.543	0.173
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		<0.020	0.056	0.055	0.391	0.123
IACR (CCME)	----	E641A-L/WT	0.150	-		0.212	0.840	0.712	5.38	1.81
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		87.1	78.8	85.7	64.9	81.2
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		94.6	87.5	89.4	79.6	89.7

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS-4	SS-5 dup	SD-1	MW3 - SS1	SS5
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00
						HA2501286-002	HA2501286-003	HA2501286-004	HA2501286-005	HA2501286-006
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates										
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		91.8	88.8	85.4	93.8	98.9
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		97.4	96.6	95.1	95.2	101

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

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 - SS1	SS6	SS7	MW1 - SS1	----
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	----
						HA2501286-007	HA2501286-008	HA2501286-009	HA2501286-010	----
						Result	Result	Result	Result	----
Physical Tests										
Moisture	----	E144/WT	0.25	%		31.4	29.8	34.3	41.1	----
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		12500	11700	9690	9570	----
Antimony	7440-36-0	E440/WT	0.10	mg/kg		1.26	4.58	1.22	3.22	----
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		24.8	31.3	33.4	21.7	----
Barium	7440-39-3	E440/WT	0.50	mg/kg		624	476	196	289	----
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		0.76	0.98	0.72	0.61	----
Bismuth	7440-69-9	E440/WT	0.20	mg/kg		0.24	0.29	0.23	<0.20	----
Boron	7440-42-8	E440/WT	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	----
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		0.295	0.562	0.570	0.999	----
Calcium	7440-70-2	E440/WT	50	mg/kg		4780	6990	5860	4720	----
Chromium	7440-47-3	E440/WT	0.50	mg/kg		18.6	22.4	11.7	14.2	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 - SS1	SS6	SS7	MW1 - SS1	----
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	----
						HA2501286-007	HA2501286-008	HA2501286-009	HA2501286-010	----
						Result	Result	Result	Result	----
Metals										
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		12.8	12.9	8.15	8.28	----
Copper	7440-50-8	E440/WT	0.50	mg/kg		36.7	59.2	37.5	34.1	----
Iron	7439-89-6	E440/WT	50	mg/kg		22500	31000	12800	21100	----
Lead	7439-92-1	E440/WT	0.50	mg/kg		56.4	170	102	75.6	----
Lithium	7439-93-2	E440/WT	2.0	mg/kg		27.7	25.1	17.2	20.4	----
Magnesium	7439-95-4	E440/WT	20	mg/kg		2480	2800	1360	1250	----
Manganese	7439-96-5	E440/WT	1.0	mg/kg		453	842	377	423	----
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		1.92	1.98	1.74	2.02	----
Nickel	7440-02-0	E440/WT	0.50	mg/kg		31.1	29.4	19.2	18.0	----
Phosphorus	7723-14-0	E440/WT	50	mg/kg		292	407	192	703	----
Potassium	7440-09-7	E440/WT	100	mg/kg		1130	1140	950	1140	----
Selenium	7782-49-2	E440/WT	0.20	mg/kg		0.46	0.68	0.48	0.67	----
Silver	7440-22-4	E440/WT	0.10	mg/kg		<0.10	0.13	0.13	<0.10	----
Sodium	7440-23-5	E440/WT	50	mg/kg		248	164	252	154	----
Strontium	7440-24-6	E440/WT	0.50	mg/kg		47.1	52.4	41.9	40.2	----
Sulfur	7704-34-9	E440/WT	1000	mg/kg		<1000	<1000	<1000	<1000	----
Thallium	7440-28-0	E440/WT	0.050	mg/kg		0.142	0.188	0.169	0.152	----
Tin	7440-31-5	E440/WT	2.0	mg/kg		3.9	10.7	2.2	3.9	----
Titanium	7440-32-6	E440/WT	1.0	mg/kg		110	160	201	72.1	----
Tungsten	7440-33-7	E440/WT	0.50	mg/kg		<0.50	0.56	<0.50	<0.50	----
Uranium	7440-61-1	E440/WT	0.050	mg/kg		0.777	0.744	0.582	0.530	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW2 - SS1	SS6	SS7	MW1 - SS1	----
Client sample ID					MW2 - SS1	SS6	SS7	MW1 - SS1	----
Client sampling date / time					02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	----
					HA2501286-007	HA2501286-008	HA2501286-009	HA2501286-010	----
					Result	Result	Result	Result	----
Metals									
Vanadium	7440-62-2	E440/WT	0.20	mg/kg	22.9	30.3	25.1	22.3	----
Zinc	7440-66-6	E440/WT	2.0	mg/kg	162	301	290	247	----
Zirconium	7440-67-7	E440/WT	1.0	mg/kg	2.5	1.6	2.6	1.8	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions									
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%	16	6	6	17	----
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%	24	5	6	19	----
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%	20	9	7	20	----
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%	40	81	80	43	----
Hydrocarbons									
Benzene	71-43-2	E611A/WT	0.0050	mg/kg	1.26	1.78	3.70	3.78	----
Toluene	108-88-3	E611A/WT	0.050	mg/kg	6.34	9.00	15.3	16.4	----
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg	0.363	0.549	0.679	1.18	----
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg	7.84	10.3	13.6	18.4	----
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg	1.98	2.55	3.17	4.86	----
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg	5.86	7.76	10.4	13.5	----
VPH C6-C10	n/a	E581.VPH/WT	5.0	mg/kg	38.7	54.7	71.8	130	----
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	5.0	mg/kg	22.9	33.1	38.6	90.3	----
EPH >C10-C16	n/a	E601F/WT	5.0	mg/kg	35.2	29.9	43.8	97.5	----
EPH >C16-C21	n/a	E601F/WT	5.0	mg/kg	28.6	52.3	51.4	106	----
EPH >C21-C32	n/a	E601F/WT	5.0	mg/kg	58.3	480	555	224	----
EPH >C34-C50	n/a	E601F/WT	20	mg/kg	30	686	584	158	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW2 - SS1	SS6	SS7	MW1 - SS1	----
Client sample ID									
Client sampling date / time					02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	----
					HA2501286-007	HA2501286-008	HA2501286-009	HA2501286-010	----
					Result	Result	Result	Result	----
Hydrocarbons									
hydrocarbon resemblance	n/a	E601F/WT	-	none	LOF	LOF	LOF	LOF	----
mTPH (Tier I)	n/a	EC581D/WT	10	mg/kg	145	595	689	518	----
return to baseline at C32	n/a	E601F/WT	-	-	No	No	No	No	----
TEH >C10-C32	n/a	E601F/WT	10	mg/kg	122	562	650	428	----
Hydrocarbons Surrogates									
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%	74.7	67.2	73.6	64.9	----
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%	89.7	80.0	104	78.1	----
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%	69.2	74.0	66.0	65.7	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%	84.5	84.7	72.9	82.1	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%	90.5	92.9	80.5	89.2	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg	<0.0160 DLM	<0.0465 DLM	<0.0165 DLM	<0.0560 DLM	----
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg	0.0195	0.421	0.0262	0.104	----
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg	<0.027 DLM	<0.097 DLM	<0.055 DLM, RRR	<0.090 DLM	----
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg	0.0277 EMPC	0.341	0.0450	0.226	----
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg	0.084 EMPC	1.16	0.093	0.531	----
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg	0.036	1.13	0.048	0.260	----
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg	0.073	1.60	0.085	0.404	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg	0.093	2.18	0.104	0.541	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg	<0.042 RRR	<1.09 RRR	<0.258 RRR	<0.204 RRR	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 - SS1	SS6	SS7	MW1 - SS1	----
					Client sampling date / time	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	02-May-2025 00:00	----
						HA2501286-007	HA2501286-008	HA2501286-009	HA2501286-010	----
						Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons										
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		0.020	0.578	0.019	0.137	----
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		0.112 EMPC	1.28	0.138	0.557	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		0.0084	0.187	0.0148	0.0492	----
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		0.098	2.12	0.126	0.844	----
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		<0.011 DLM	<0.088 DLM	<0.014 DLM	<0.077 DLM	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		0.016	0.670	0.028	0.106	----
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		1.33	2.31	1.35	2.74	----
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		3.41	5.89	3.53	6.92	----
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		2.08	3.58	2.18	4.18	----
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		1.30	2.14	1.38	2.52	----
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		<0.010	0.268	<0.010	0.043	----
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		0.558	1.56	0.570	1.74	----
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		0.087	1.91	0.131	0.730	----
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.017 DLM	<0.010	<0.010	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		0.065	1.73	0.087	0.433	----
IACR (CCME)	----	E641A-L/WT	0.150	-		1.03	21.8	1.20	6.21	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		61.5	74.5	48.0 SLMI	67.4	----
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		82.7	89.0	72.7	75.5	----
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		93.6	96.7	89.6	95.9	----
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		94.6	99.1	87.5	93.6	----

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

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **HA2501286**	Page	: 1 of 20
Client	: **DesignPoint Engineering & Surveying Ltd.**	Laboratory	: ALS Environmental - Halifax
Contact	: Charlotte Clark	Account Manager	: Abby van der Jagt
Address	: 90 Western Parkway Suite 500 Bedford NT Canada B4B 2J3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902 832 5597	Telephone	: +1 902 707 4888
Project	: ----	Date Samples Received	: 02-May-2025 16:34
PO	: ----	Issue Date	: 13-May-2025 10:11
C-O-C number	: 20-1022359		
Sampler	: ----		
Site	: ----		
Quote number	: Alantic Canada 2024 Rate Table		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Polycyclic Aromatic Hydrocarbons	HA2501286-006	SS5	Anthracene	120-12-7	E641A-L	57.0 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	HA2501286-006	SS5	Fluoranthene	206-44-0	E641A-L	55.5 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	HA2501286-006	SS5	Pyrene	129-00-0	E641A-L	52.7 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Matrix Spike (MS) Recoveries								
Polycyclic Aromatic Hydrocarbons	HA2501286-006	SS5	Benzo(g,h,i)perylene	191-24-2	E641A-L	46.8 % RRQC	50.0-140%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	Description
RRQC	*Refer to report comments for information regarding this QC result.*

Regular Sample Surrogates

Sub-Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Polycyclic Aromatic Hydrocarbons Surrogates	HA2501286-009	SS7	Acridine-d9	34749-75-2	48.0 %	60.0-130 %	Recovery less than lower data quality objective

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
MW1 - SS1	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
MW2 - SS1	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
MW3 - SS1	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
SD-1	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
SS-4	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
SS5	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
SS-5 dup	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap SS6	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap SS7	E601F	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	40 days	1 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial MW1 - SS1	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial MW2 - SS1	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial MW3 - SS1	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial SD-1	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial SS-4	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial SS5	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial SS-5 dup	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial SS6	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial SS7	E581.VPH	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap MW1 - SS1	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap MW2 - SS1	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap MW3 - SS1	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap SD-1	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap SS-4	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap SS5	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap SS-5 dup	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS6	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS7	E440	02-May-2025	09-May-2025	180 days	7 days	✓	09-May-2025	180 days	7 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
MW1 - SS1	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
MW2 - SS1	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
MW3 - SS1	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SD-1	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SS-4	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SS5	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SS-5 dup	E144	02-May-2025	----	----	----		08-May-2025	----	----	

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SS6	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SS7	E144	02-May-2025	----	----	----		08-May-2025	----	----	
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
MW1 - SS1	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
MW2 - SS1	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
MW3 - SS1	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SD-1	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS-4	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS5	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS-5 dup	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS6	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS7	E641A-L	02-May-2025	10-May-2025	14 days	8 days	✓	12-May-2025	40 days	2 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
MW1 - SS1	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
MW2 - SS1	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
MW3 - SS1	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SD-1	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SS-4	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SS5	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SS-5 dup	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SS6	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SS7	E611A	02-May-2025	06-May-2025	40 days	5 days	✓	07-May-2025	40 days	5 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
HDPE SW-1	E298	02-May-2025	06-May-2025	3 days	5 days	× EHT	07-May-2025	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW-1	E235.Cl	02-May-2025	06-May-2025	28 days	5 days	✓	07-May-2025	28 days	5 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW-1	E378-U	02-May-2025	06-May-2025	3 days	5 days	× EHT	07-May-2025	3 days	5 days	× EHT
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW-1	E235.F	02-May-2025	06-May-2025	28 days	5 days	✓	07-May-2025	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE SW-1	E235.NO3	02-May-2025	06-May-2025	3 days	5 days	× EHT	07-May-2025	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE SW-1	E235.NO2	02-May-2025	06-May-2025	3 days	5 days	× EHT	07-May-2025	3 days	5 days	× EHT

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE SW-1	E235.SO4	02-May-2025	06-May-2025	28 days	5 days	✓	07-May-2025	28 days	5 days	✓
Hydrocarbons : EPH in Water by GC-FID (RBCA)										
Amber glass/Teflon lined cap (sodium bisulfate) SW-1	E601F	02-May-2025	09-May-2025	14 days	8 days	✓	12-May-2025	40 days	3 days	✓
Hydrocarbons : VPH by Headspace GC-FID (RBCA)										
Glass vial (sodium bisulfate) SW-1	E581.VPH	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	14 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
HDPE SW-1	E355-L	02-May-2025	06-May-2025	3 days	5 days	× EHT	07-May-2025	28 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SW-1	E290	02-May-2025	06-May-2025	14 days	5 days	✓	07-May-2025	14 days	5 days	✓
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE SW-1	E330	02-May-2025	----	----	----		06-May-2025	48 hrs	110 hrs	× EHT
Physical Tests : Conductivity in Water										
HDPE SW-1	E100	02-May-2025	06-May-2025	28 days	5 days	✓	07-May-2025	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE SW-1	E108	02-May-2025	07-May-2025	0.25 hrs	129 hrs	× EHTR-FM	08-May-2025	0.25 hrs	129 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE SW-1	E162	02-May-2025	----	----	----		07-May-2025	7 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*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Physical Tests : Turbidity by Nephelometry										
HDPE										
SW-1	E121	02-May-2025	----	----	----		07-May-2025	3 days	6 days	× EHT
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SW-1	E641A	02-May-2025	09-May-2025	14 days	7 days	✓	12-May-2025	40 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SW-1	E420	02-May-2025	07-May-2025	180 days	5 days	✓	07-May-2025	180 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SW-1	E611A	02-May-2025	09-May-2025	14 days	7 days	✓	09-May-2025	14 days	7 days	✓

Legend & Qualifier Definitions

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

EHT: Exceeded ALS recommended hold time prior to analysis.

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Moisture Content by Gravimetry	E144	1985835	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1983961	1	13	7.6	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1988318	2	17	11.7	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1985953	1	17	5.8	5.0	✓
BTEX by Headspace GC-MS	E611A	1982161	2	17	11.7	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1987429	2	24	8.3	5.0	✓
Laboratory Control Samples (LCS)							
Moisture Content by Gravimetry	E144	1985835	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1983961	2	13	15.3	10.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1988318	2	17	11.7	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1985953	1	17	5.8	5.0	✓
BTEX by Headspace GC-MS	E611A	1982161	2	17	11.7	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1987429	2	24	8.3	5.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	1985835	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1983961	1	13	7.6	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1988318	2	17	11.7	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1985953	1	17	5.8	5.0	✓
BTEX by Headspace GC-MS	E611A	1982161	2	17	11.7	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1987429	2	24	8.3	5.0	✓
Matrix Spikes (MS)							
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1988318	2	17	11.7	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1985953	1	17	5.8	5.0	✓
BTEX by Headspace GC-MS	E611A	1982161	2	17	11.7	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1987429	2	24	8.3	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	1982541	1	12	8.3	5.0	✓
pH by Meter	E108	1983346	1	9	11.1	5.0	✓
Turbidity by Nephelometry	E121	1983981	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1984281	1	9	11.1	5.2	✓
Chloride in Water by IC	E235.Cl	1982538	1	10	10.0	5.0	✓
Fluoride in Water by IC	E235.F	1982536	1	9	11.1	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP) - Continued							
Nitrite in Water by IC	E235.NO2	1982537	1	12	8.3	5.0	✓
Nitrate in Water by IC	E235.NO3	1982535	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1982539	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1982542	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1982456	1	19	5.2	5.0	✓
Colour (Apparent) by Spectrometer	E330	1982030	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1982454	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1982545	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1982920	1	20	5.0	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1987506	1	2	50.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1987507	1	2	50.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	1982541	1	12	8.3	5.0	✓
pH by Meter	E108	1983346	1	9	11.1	5.0	✓
Turbidity by Nephelometry	E121	1983981	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1984281	1	9	11.1	5.2	✓
Chloride in Water by IC	E235.Cl	1982538	1	10	10.0	5.0	✓
Fluoride in Water by IC	E235.F	1982536	1	9	11.1	5.0	✓
Nitrite in Water by IC	E235.NO2	1982537	1	12	8.3	5.0	✓
Nitrate in Water by IC	E235.NO3	1982535	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1982539	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1982542	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1982456	1	19	5.2	5.0	✓
Colour (Apparent) by Spectrometer	E330	1982030	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1982454	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1982545	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1982920	1	20	5.0	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1987506	1	2	50.0	5.0	✓
EPH in Water by GC-FID (RBCA)	E601F	1987770	1	2	50.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1987507	1	2	50.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1987686	1	9	11.1	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	1982541	1	12	8.3	5.0	✓
Turbidity by Nephelometry	E121	1983981	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1984281	1	9	11.1	5.2	✓
Chloride in Water by IC	E235.Cl	1982538	1	10	10.0	5.0	✓
Fluoride in Water by IC	E235.F	1982536	1	9	11.1	5.0	✓
Nitrite in Water by IC	E235.NO2	1982537	1	12	8.3	5.0	✓
Nitrate in Water by IC	E235.NO3	1982535	1	19	5.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Sulfate in Water by IC	E235.SO4	1982539	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1982542	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1982456	1	19	5.2	5.0	✓
Colour (Apparent) by Spectrometer	E330	1982030	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1982454	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1982545	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1982920	1	20	5.0	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1987506	1	2	50.0	5.0	✓
EPH in Water by GC-FID (RBCA)	E601F	1987770	1	2	50.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1987507	1	2	50.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1987686	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1982538	1	10	10.0	5.0	✓
Fluoride in Water by IC	E235.F	1982536	1	9	11.1	5.0	✓
Nitrite in Water by IC	E235.NO2	1982537	1	12	8.3	5.0	✓
Nitrate in Water by IC	E235.NO3	1982535	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1982539	1	13	7.6	5.0	✓
Ammonia by Fluorescence	E298	1982456	1	19	5.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1982454	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1982545	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1982920	1	20	5.0	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1987506	1	2	50.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1987507	1	2	50.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	VPH (Volatile Petroleum Hydrocarbons) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
EPH in Soil/Solid by GC-FID (RBCA)	E601F ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	Sample Extracts are analyzed by GC-FID for RBCA Tier I hydrocarbon fractions C10-C16, C16-C21, C21-C32.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
VPH C6-C10 (less BTEX) [RBCA]	EC580C ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	VPH C6-C10 (less BTEX) is calculated as follows: VPH (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Modified TPH (RBCA) Tier I	EC581D ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	Modified TPH (RBCA), Tier I is the sum of PIRI Fraction (C6 - C10 - BTEX) + (>C10 - C16) +(>C16 – C21) + (>C21 - C32).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Waterloo	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 - Halifax	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Waterloo	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry	E162 ALS Environmental - Halifax	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	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 - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	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 - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	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 - Waterloo	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)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Colour (Apparent) by Spectrometer	E330 ALS Environmental - Waterloo	Water	APHA 2120 C (mod)	Colour (Apparent) is measured in an unfiltered sample spectrophotometrically using the single wavelength method. The colour contribution of settleable solids are not included in the result. This method is intended for potable waters. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	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.
VPH by Headspace GC-FID (RBCA)	E581.VPH ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	VPH (Volatile Petroleum Hydrocarbons) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
EPH in Water by GC-FID (RBCA)	E601F ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	Sample Extracts are analyzed by GC-FID for RBCA Tier I hydrocarbon fractions C10-C16, C16-C21, C21-C32.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs in Water by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 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 hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.
Ion Balance using Total Metals	EC101A ALS Environmental - Waterloo	Water	APHA 1030E	Cation Sum (using total metals), Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
Saturation Index using Laboratory pH (Ca-T)	EC105A ALS Environmental - Waterloo	Water	APHA 2330B	Langelier Index provides an indication of scale formation potential at a given pH and temperature, and is calculated as per APHA 2330B Saturation Index. Positive values indicate oversaturation with respect to CaCO3. Negative values indicate undersaturation of CaCO3. This calculation uses laboratory pH measurements and provides estimates of Langelier Index at temperatures of 4, 15, 20, 25, 66, and 77°C. Ryznar Stability Index is an alternative index used for scale formation and corrosion potential.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Total Silicon as Silica (Calculation)	EC420.SiO2 ALS Environmental - Waterloo	Water	N/A	Total Silicon (as SiO2) is a calculated parameter. Total Silicon (as SiO2 mg/L) = 2.139 x Total Silicon (mg/L).
VPH C6-C10 (less BTEX) [RBCA]	EC580C ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	VPH C6-C10 (less BTEX) is calculated as follows: VPH (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Modified TPH (RBCA) Tier I	EC581D ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	Modified TPH (PIRI), Tier I is the sum of PIRI Fraction (C6 - C10 - BTEX) + (>C10 - C16) + (>C16 – C21) + (>C21 - C32).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
PHCs Hexane-Acetone Tumbler Extraction (RBCA)	EP601F ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) are extracted with 1:1 hexane:acetone using a rotary extractor.
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Waterloo	Water		Preparation for Total Organic Carbon by Combustion
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
PHCs Hexane Extraction (RBCA)	EP601F ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) are extracted using a hexane liquid-liquid extraction.

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QUALITY CONTROL REPORT

Work Order	: **HA2501286**	Page	: 1 of 26
Client	: DesignPoint Engineering & Surveying Ltd.	Laboratory	: ALS Environmental - Halifax
Contact	: Charlotte Clark	Account Manager	: Abby van der Jagt
Address	: 90 Western Parkway Suite 500 Bedford NT Canada B4B 2J3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902 832 5597	Telephone	: +1 902 707 4888
Project	: ----	Date Samples Received	: 02-May-2025 16:34
PO	: ----	Date Analysis Commenced	: 06-May-2025
C-O-C number	: 20-1022359	Issue Date	: 13-May-2025 10:11
Sampler	: ----		
Site	: ----		
Quote number	: Alantic Canada 2024 Rate Table		
No. of samples received	: 10		
No. of samples analysed	: 10		

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
- Reference Material (RM) 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*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Andrea Armstrong	Department Manager - Air Quality and Volatiles	Waterloo VOC, Waterloo, Ontario
Angela Fleming	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Angela Fleming	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
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Walt Kippenhuck	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

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: **Soil/Solid**

					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: 1985835)											
HA2501286-002	SS-4	Moisture	----	E144	0.25	%	14.4	14.2	1.86%	20%	----
Metals (QC Lot: 1983961)											
HA2501286-002	SS-4	Aluminum	7429-90-5	E440	50	mg/kg	14800	15400	3.67%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.58	0.57	0.009	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	7.74	7.90	2.09%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	199	212	6.47%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	1.00	1.03	2.37%	30%	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	0.26	0.25	0.01	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.172	0.215	22.5%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	4380	4600	4.90%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	21.9	22.2	1.31%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	15.2	15.8	4.26%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	29.8	30.2	1.03%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	33100	32900	0.565%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	20.3	22.1	8.72%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	38.7	41.7	7.39%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	5030	5420	7.37%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	970	1080	10.3%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.42	0.42	0.009	Diff <2x LOR	----
		Nickel	7440-02-0	E440	0.50	mg/kg	29.3	30.5	4.19%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	407	494	19.3%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	2090	2110	0.860%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.20	<0.20	0.006	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	92	92	0.2	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	17.0	17.0	0.156%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.214	0.232	0.017	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					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*
Metals (QC Lot: 1983961) - continued											
HA2501286-002	SS-4	Titanium	7440-32-6	E440	1.0	mg/kg	78.1	73.8	5.68%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.629	0.655	4.09%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	24.2	24.5	1.04%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	139	144	3.18%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	7.4	8.0	7.76%	30%	----
Volatile Organic Compounds (QC Lot: 1982161)											
HA2501286-002	SS-4	Benzene	71-43-2	E611A	0.0050	mg/kg	0.0383	0.0362	5.52%	40%	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	0.134	0.131	0.003	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	0.090	0.089	0.001	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1988317)											
HA2501286-010	MW1 - SS1	Benzene	71-43-2	E611A	0.0050	mg/kg	3.78	3.36	11.6%	40%	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	1.18	1.05	11.6%	40%	----
		Toluene	108-88-3	E611A	0.050	mg/kg	16.4	14.5	12.2%	40%	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	13.5	12.0	11.3%	40%	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	4.86	4.35	11.0%	40%	----
Hydrocarbons (QC Lot: 1982162)											
HA2501286-002	SS-4	VPH C6-C10	n/a	E581.VPH	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1985953)											
HA2501286-002	SS-4	EPH >C10-C16	n/a	E601F	5.0	mg/kg	5.8	<5.0	0.8	Diff <2x LOR	----
		EPH >C16-C21	n/a	E601F	5.0	mg/kg	7.9	<5.0	2.9	Diff <2x LOR	----
		EPH >C21-C32	n/a	E601F	5.0	mg/kg	11.1	<5.0	6.1	Diff <2x LOR	----
		EPH >C34-C50	n/a	E601F	20	mg/kg	<20	<20	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1988318)											
HA2501286-010	MW1 - SS1	VPH C6-C10	n/a	E581.VPH	5.0	mg/kg	130	128	1.59%	30%	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1987429)											
HA2501286-006	SS5	Acenaphthene	83-32-9	E641A-L	0.0165	mg/kg	<0.0165	<0.0165	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	0.0308	0.0198	43.3%	50%	----
		Acridine	260-94-6	E641A-L	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0043	mg/kg	0.0431	0.0240	57.0%	50%	DUP-H
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	0.113	0.074	40.9%	50%	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	0.072	0.046	43.6%	50%	----

Sub-Matrix: **Soil/Solid**

					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*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1987429) - continued											
HA2501286-006	SS5	Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	0.135	0.097	32.8%	50%	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.109	mg/kg	<0.109	<0.109	0	Diff <2x LOR	RRQC
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	0.043	0.036	0.006	Diff <2x LOR	J
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	0.160	0.111	35.8%	50%	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	0.0162	0.0171	0.0009	Diff <2x LOR	J
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	0.198	0.112	55.5%	50%	DUP-H
		Fluorene	86-73-7	E641A-L	0.021	mg/kg	<0.021	<0.021	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	0.043	0.036	0.007	Diff <2x LOR	J
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	1.04	0.878	16.6%	50%	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	1.57	1.34	15.8%	50%	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	0.842	0.746	12.1%	50%	----
		Perylene	198-55-0	E641A-L	0.010	mg/kg	0.013	0.010	0.003	Diff <2x LOR	J
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	0.526	0.379	32.6%	50%	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	0.173	0.101	52.7%	50%	DUP-H
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1987611)											
HA2501286-002	SS-4	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0040	mg/kg	<0.0040	<0.0040	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	0.021	0.031	0.010	Diff <2x LOR	J
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	0.013	0.003	Diff <2x LOR	J
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	0.016	0.017	0.002	Diff <2x LOR	J
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	0.013	0.003	Diff <2x LOR	J
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	0.058	0.042	31.6%	50%	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	0.092	0.064	35.1%	50%	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	0.058	0.039	39.2%	50%	----
		Perylene	198-55-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					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*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1987611) - continued											
HA2501286-002	SS-4	Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	0.031	0.023	0.008	Diff <2x LOR	J
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	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*
Physical Tests (QC Lot: 1982030)											
HA2501286-001	SW-1	Colour, apparent	----	E330	2.0	CU	62.6	63.5	1.44%	20%	----
Physical Tests (QC Lot: 1982541)											
WT2510171-001	Anonymous	Conductivity	----	E100	1.0	µS/cm	625	634	1.43%	10%	----
Physical Tests (QC Lot: 1982542)											
WT2510171-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	322000 µg/L	325	0.846%	20%	----
Physical Tests (QC Lot: 1983346)											
HA2501106-001	Anonymous	pH	----	E108	0.10	pH units	7.56	7.66	1.22%	4%	----
Physical Tests (QC Lot: 1983981)											
HA2501295-001	Anonymous	Turbidity	----	E121	0.10	NTU	98.8	103	4.06%	15%	----
Physical Tests (QC Lot: 1984281)											
HA2501254-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	247	244	1.02%	20%	----
Anions and Nutrients (QC Lot: 1982456)											
HA2501109-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0353	0.0367	0.0014	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1982535)											
WT2510044-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.040	mg/L	0.275	0.278	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1982536)											
WT2510044-001	Anonymous	Fluoride	16984-48-8	E235.F	0.040	mg/L	0.498	0.496	0.304%	20%	----
Anions and Nutrients (QC Lot: 1982537)											
WT2510044-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1982538)											
WT2510044-001	Anonymous	Chloride	16887-00-6	E235.Cl	1.00	mg/L	2.24	2.13	0.11	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1982539)											
WT2510044-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.60	mg/L	254	253	0.527%	20%	----
Anions and Nutrients (QC Lot: 1982545)											
HA2501109-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0015	0.0014	0.0001	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1982454)											
HA2501241-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.22	2.63	0.42	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: 1982920)											
HA2501286-001	SW-1	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0156	0.0132	0.0023	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00051	0.00048	0.00003	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.170	0.171	0.282%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.034	0.033	0.0009	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.100	mg/L	23.4	23.1	1.41%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000034	0.000033	0.000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00023	0.00024	0.000005	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	1.32	1.33	0.865%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000111	0.000110	0.000001	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0085	0.0080	0.0004	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	3.38	3.38	0.0785%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.687	0.690	0.456%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000095	0.000090	0.000004	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.83	1.83	0.145%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00208	0.00203	2.72%	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	3.01	2.99	0.718%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	38.2	38.1	0.250%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.233	0.233	0.00528%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	1.18	1.26	0.08	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	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	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	<0.00030	<0.00030	0	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: 1982920) - continued											
HA2501286-001	SW-1	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	0.000012	0.000012	0.0000002	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1987507)											
HA2501286-001	SW-1	Benzene	71-43-2	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.00040 mg/L	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.00030 mg/L	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1987506)											
HA2501286-001	SW-1	VPH C6-C10	n/a	E581.VPH	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*
J	*Duplicate results and limits are expressed in terms of absolute difference.*

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: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1985835)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 1983961)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1983961) - continued						
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Volatile Organic Compounds (QCLot: 1982161)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1988317)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1982162)						
VPH C6-C10	n/a	E581.VPH	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1985953)						
EPH >C10-C16	n/a	E601F	5	mg/kg	<5.0	----
EPH >C16-C21	n/a	E601F	5	mg/kg	<5.0	----
EPH >C21-C32	n/a	E601F	5	mg/kg	<5.0	----
EPH >C34-C50	n/a	E601F	20	mg/kg	<20	----
Hydrocarbons (QCLot: 1988318)						
VPH C6-C10	n/a	E581.VPH	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1987429)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1987429) - continued						
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1987611)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Water**

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1982030)						
Colour, apparent	----	E330	2	CU	<2.0	----
Physical Tests (QCLot: 1982541)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1982542)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1983981)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1984281)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1982456)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1982535)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1982536)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1982537)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1982538)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1982539)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1982545)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 1982454)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1982920)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1982920) - continued						
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
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	----
Volatile Organic Compounds (QCLot: 1987507)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1987507) - continued						
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1987506)						
VPH C6-C10	n/a	E581.VPH	25	µg/L	<25	----
Hydrocarbons (QCLot: 1987770)						
EPH >C10-C16	n/a	E601F	50	µg/L	<50	----
EPH >C16-C21	n/a	E601F	50	µg/L	<50	----
EPH >C21-C32	n/a	E601F	50	µg/L	<50	----
EPH >C34-C50	n/a	E601F	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1987686)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

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: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1985835)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Metals (QCLot: 1983961)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	105	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	106	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	108	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	106	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	101	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	106	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	105	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	103	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	101	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	108	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	110	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	102	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	104	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	102	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	110	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	105	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	107	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	106	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	101	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	108	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	106	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	101	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	105	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	102	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	111	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1983961) - continued									
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	105	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	101	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	107	80.0	120	----
Volatile Organic Compounds (QCLot: 1982161)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.48 mg/kg	97.8	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.48 mg/kg	95.6	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.48 mg/kg	101	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	102	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.48 mg/kg	94.0	70.0	130	----
Volatile Organic Compounds (QCLot: 1988317)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.48 mg/kg	98.6	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.48 mg/kg	94.1	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.48 mg/kg	99.1	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	100	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.48 mg/kg	94.7	70.0	130	----
Hydrocarbons (QCLot: 1982162)									
VPH C6-C10	n/a	E581.VPH	5	mg/kg	69.2 mg/kg	80.7	80.0	120	----
Hydrocarbons (QCLot: 1985953)									
EPH >C10-C16	n/a	E601F	5	mg/kg	617 mg/kg	86.5	70.0	130	----
EPH >C16-C21	n/a	E601F	5	mg/kg	643 mg/kg	90.7	70.0	130	----
EPH >C21-C32	n/a	E601F	5	mg/kg	492 mg/kg	89.7	70.0	130	----
EPH >C34-C50	n/a	E601F	20	mg/kg	734 mg/kg	89.2	70.0	130	----
Hydrocarbons (QCLot: 1988318)									
VPH C6-C10	n/a	E581.VPH	5	mg/kg	69.2 mg/kg	96.5	80.0	120	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1987429)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	80.1	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	81.7	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	81.1	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	78.0	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	80.8	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	79.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	85.9	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	78.0	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1987429) - continued									
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	81.6	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	82.9	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	80.3	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	82.1	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	80.7	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	81.9	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	76.3	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	83.1	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	76.5	60.0	130	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	0.5 mg/kg	79.9	60.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	78.6	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	81.2	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	77.5	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1987611)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	85.8	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	86.0	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	84.0	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	80.8	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	79.4	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	83.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	86.4	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	84.3	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	85.9	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	85.1	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	85.4	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	85.5	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	85.3	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	84.4	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	82.1	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	88.4	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	81.4	60.0	130	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	0.5 mg/kg	85.6	60.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	82.2	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	85.1	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	79.7	60.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Physical Tests (QCLot: 1982030)									
Colour, apparent	----	E330	2	CU	25 CU	97.4	85.0	115	----
Physical Tests (QCLot: 1982541)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	99.7	90.0	110	----
Physical Tests (QCLot: 1982542)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1983346)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1983981)									
Turbidity	----	E121	0.1	NTU	200 NTU	98.5	85.0	115	----
Physical Tests (QCLot: 1984281)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	94.3	85.0	115	----
Anions and Nutrients (QCLot: 1982456)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	91.8	85.0	115	----
Anions and Nutrients (QCLot: 1982535)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 1982536)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1982537)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1982538)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1982539)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1982545)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	93.7	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1982454)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Total Metals (QCLot: 1982920)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	0.1 mg/L	106	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.012 mg/L	103	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.005 mg/L	107	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
Total Metals (QCLot: 1982920) - continued									
Bismuth, total	7440-69-9	E420	0.00005	mg/L	0.05 mg/L	103	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	106	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	103	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.002 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	104	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.012 mg/L	99.1	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	100	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	103	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.012 mg/L	113	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	2.5 mg/L	112	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.012 mg/L	105	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.012 mg/L	102	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.025 mg/L	101	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	0.5 mg/L	103	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	2.5 mg/L	102	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.005 mg/L	105	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	99.6	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	0.5 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.005 mg/L	97.1	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	2.5 mg/L	106	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.012 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	2.5 mg/L	106	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.005 mg/L	97.2	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.005 mg/L	99.6	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.025 mg/L	103	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.012 mg/L	104	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.005 mg/L	99.2	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.025 mg/L	105	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	101	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.005 mg/L	100	80.0	120	----
Volatile Organic Compounds (QCLot: 1987507)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1987507) - continued									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	107	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	98.5	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	105	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	97.0	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	97.3	70.0	130	----
Hydrocarbons (QCLot: 1987506)									
VPH C6-C10	n/a	E581.VPH	25	µg/L	2000 µg/L	92.7	80.0	120	----
Hydrocarbons (QCLot: 1987770)									
EPH >C10-C16	n/a	E601F	50	µg/L	3460 µg/L	91.7	70.0	130	----
EPH >C16-C21	n/a	E601F	50	µg/L	3610 µg/L	90.0	70.0	130	----
EPH >C21-C32	n/a	E601F	50	µg/L	2760 µg/L	99.0	70.0	130	----
EPH >C34-C50	n/a	E601F	100	µg/L	4120 µg/L	102	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1987686)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.526 µg/L	104	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.526 µg/L	95.8	50.0	140	----
Acridine	260-94-6	E641A	0.01	µg/L	0.526 µg/L	110	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.526 µg/L	93.2	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.526 µg/L	98.8	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.526 µg/L	81.1	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.526 µg/L	83.5	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.526 µg/L	91.5	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.526 µg/L	82.5	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.526 µg/L	102	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.526 µg/L	108	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.526 µg/L	100	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.526 µg/L	100	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.526 µg/L	90.3	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.526 µg/L	97.6	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.526 µg/L	103	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.526 µg/L	90.7	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.526 µg/L	106	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.526 µg/L	102	50.0	140	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.526 µg/L	111	50.0	140	----

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: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1982161)										
HA2501286-002	SS-4	Benzene	71-43-2	E611A	2.02 mg/kg	2.02 mg/kg	100	60.0	140	----
		Ethylbenzene	100-41-4	E611A	1.93 mg/kg	2.02 mg/kg	95.6	60.0	140	----
		Toluene	108-88-3	E611A	2.02 mg/kg	2.02 mg/kg	99.9	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	4.12 mg/kg	4.04 mg/kg	102	60.0	140	----
		Xylene, o-	95-47-6	E611A	1.92 mg/kg	2.02 mg/kg	95.1	60.0	140	----
Volatile Organic Compounds (QCLot: 1988317)										
HA2501286-010	MW1 - SS1	Benzene	71-43-2	E611A	2.23 mg/kg	2.37 mg/kg	94.2	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.27 mg/kg	2.37 mg/kg	95.9	60.0	140	----
		Toluene	108-88-3	E611A	ND mg/kg	----	ND	60.0	140	MS-B
		Xylene, m+p-	179601-23-1	E611A	ND mg/kg	----	ND	60.0	140	MS-B
		Xylene, o-	95-47-6	E611A	2.11 mg/kg	2.37 mg/kg	89.2	60.0	140	----
Hydrocarbons (QCLot: 1982162)										
HA2501286-002	SS-4	VPH C6-C10	n/a	E581.VPH	38.2 mg/kg	40.4 mg/kg	94.7	60.0	140	----
Hydrocarbons (QCLot: 1985953)										
HA2501286-002	SS-4	EPH >C10-C16	n/a	E601F	520 mg/kg	516 mg/kg	101	60.0	140	----
		EPH >C16-C21	n/a	E601F	461 mg/kg	538 mg/kg	85.7	60.0	140	----
		EPH >C21-C32	n/a	E601F	412 mg/kg	412 mg/kg	100	60.0	140	----
		EPH >C34-C50	n/a	E601F	573 mg/kg	614 mg/kg	93.3	60.0	140	----
Hydrocarbons (QCLot: 1988318)										
HA2501286-010	MW1 - SS1	VPH C6-C10	n/a	E581.VPH	ND mg/kg	----	ND	60.0	140	MS-B
Polycyclic Aromatic Hydrocarbons (QCLot: 1987429)										
HA2501286-006	SS5	Acenaphthene	83-32-9	E641A-L	0.334 mg/kg	0.393 mg/kg	85.0	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.326 mg/kg	0.393 mg/kg	83.1	50.0	140	----
		Acridine	260-94-6	E641A-L	0.300 mg/kg	0.393 mg/kg	76.4	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.322 mg/kg	0.393 mg/kg	82.0	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.294 mg/kg	0.393 mg/kg	74.9	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.247 mg/kg	0.393 mg/kg	63.0	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.273 mg/kg	0.393 mg/kg	69.5	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.184 mg/kg	0.393 mg/kg	46.8	50.0	140	RRQC
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.294 mg/kg	0.393 mg/kg	74.7	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.284 mg/kg	0.393 mg/kg	72.4	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.249 mg/kg	0.393 mg/kg	63.4	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.296 mg/kg	0.393 mg/kg	75.3	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.336 mg/kg	0.393 mg/kg	85.5	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.210 mg/kg	0.393 mg/kg	53.4	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	ND mg/kg	----	ND	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1987429) - continued										
HA2501286-006	SS5	Methylnaphthalene, 2-	91-57-6	E641A-L	ND mg/kg	----	ND	50.0	140	----
		Naphthalene	91-20-3	E641A-L	ND mg/kg	----	ND	50.0	140	----
		Perylene	198-55-0	E641A-L	0.243 mg/kg	0.393 mg/kg	61.8	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.293 mg/kg	0.393 mg/kg	74.5	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.296 mg/kg	0.393 mg/kg	75.2	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.296 mg/kg	0.393 mg/kg	75.4	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1987611)										
HA2501286-002	SS-4	Acenaphthene	83-32-9	E641A-L	0.363 mg/kg	0.418 mg/kg	86.8	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.367 mg/kg	0.418 mg/kg	87.6	50.0	140	----
		Acridine	260-94-6	E641A-L	0.360 mg/kg	0.418 mg/kg	85.9	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.354 mg/kg	0.418 mg/kg	84.7	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.339 mg/kg	0.418 mg/kg	81.0	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.355 mg/kg	0.418 mg/kg	84.9	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.367 mg/kg	0.418 mg/kg	87.8	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.334 mg/kg	0.418 mg/kg	79.9	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.363 mg/kg	0.418 mg/kg	86.7	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.358 mg/kg	0.418 mg/kg	85.5	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.356 mg/kg	0.418 mg/kg	85.0	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.368 mg/kg	0.418 mg/kg	87.8	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.366 mg/kg	0.418 mg/kg	87.4	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.347 mg/kg	0.418 mg/kg	83.0	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.337 mg/kg	0.418 mg/kg	80.6	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.361 mg/kg	0.418 mg/kg	86.2	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.350 mg/kg	0.418 mg/kg	83.7	50.0	140	----
		Perylene	198-55-0	E641A-L	0.354 mg/kg	0.418 mg/kg	84.7	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.348 mg/kg	0.418 mg/kg	83.3	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.362 mg/kg	0.418 mg/kg	86.6	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.336 mg/kg	0.418 mg/kg	80.2	50.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1982456)										
HA2501109-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0970 mg/L	0.1 mg/L	97.0	75.0	125	----
Anions and Nutrients (QCLot: 1982535)										
WT2510044-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	5.17 mg/L	5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1982536)										
WT2510044-001	Anonymous	Fluoride	16984-48-8	E235.F	2.08 mg/L	2 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1982537)										
WT2510044-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	1.04 mg/L	1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1982538)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1982538) - continued										
WT2510044-001	Anonymous	Chloride	16887-00-6	E235.Cl	207 mg/L	200 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1982539)										
WT2510044-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1982545)										
HA2501109-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0177 mg/L	0.02 mg/L	90.3	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1982454)										
HA2501241-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.88 mg/L	5 mg/L	118	70.0	130	----
Total Metals (QCLot: 1982920)										
HA2501293-001	Anonymous	Aluminum, total	7429-90-5	E420	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0509 mg/L	0.05 mg/L	102	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0526 mg/L	0.05 mg/L	105	70.0	130	----
		Barium, total	7440-39-3	E420	0.0126 mg/L	0.012 mg/L	101	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.00503 mg/L	0.005 mg/L	101	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0501 mg/L	0.05 mg/L	100	70.0	130	----
		Boron, total	7440-42-8	E420	0.050 mg/L	0.05 mg/L	101	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00511 mg/L	0.005 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00249 mg/L	0.002 mg/L	99.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0129 mg/L	0.012 mg/L	104	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0125 mg/L	0.012 mg/L	100	70.0	130	----
		Copper, total	7440-50-8	E420	0.0128 mg/L	0.012 mg/L	103	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0253 mg/L	0.025 mg/L	101	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0122 mg/L	0.012 mg/L	97.7	70.0	130	----
		Magnesium, total	7439-95-4	E420	2.74 mg/L	2.5 mg/L	109	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0128 mg/L	0.012 mg/L	103	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0254 mg/L	0.025 mg/L	101	70.0	130	----
		Phosphorus, total	7723-14-0	E420	0.562 mg/L	0.5 mg/L	112	70.0	130	----
		Potassium, total	7440-09-7	E420	2.48 mg/L	2.5 mg/L	99.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.00514 mg/L	0.005 mg/L	103	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0509 mg/L	0.05 mg/L	102	70.0	130	----
		Silicon, total	7440-21-3	E420	0.50 mg/L	0.5 mg/L	99.3	70.0	130	----
		Silver, total	7440-22-4	E420	0.00479 mg/L	0.005 mg/L	95.8	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	2.46 mg/L	2.5 mg/L	98.6	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.00488 mg/L	0.005 mg/L	97.6	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0507 mg/L	0.05 mg/L	101	70.0	130	----
		Thorium, total	7440-29-1	E420	0.00498 mg/L	0.005 mg/L	99.5	70.0	130	----
		Tin, total	7440-31-5	E420	0.0255 mg/L	0.025 mg/L	102	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0127 mg/L	0.012 mg/L	102	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1982920) - continued										
HA2501293-001	Anonymous	Tungsten, total	7440-33-7	E420	0.00496 mg/L	0.005 mg/L	99.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.000257 mg/L	0 mg/L	103	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0259 mg/L	0.025 mg/L	104	70.0	130	----
		Zinc, total	7440-66-6	E420	0.0251 mg/L	0.025 mg/L	100	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.00482 mg/L	0.005 mg/L	96.5	70.0	130	----
Volatile Organic Compounds (QCLot: 1987507)										
HA2501286-001	SW-1	Benzene	71-43-2	E611A	107 µg/L	100 µg/L	107	60.0	140	----
		Ethylbenzene	100-41-4	E611A	97.0 µg/L	100 µg/L	97.0	60.0	140	----
		Toluene	108-88-3	E611A	107 µg/L	100 µg/L	107	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	193 µg/L	200 µg/L	96.7	60.0	140	----
		Xylene, o-	95-47-6	E611A	95.1 µg/L	100 µg/L	95.1	60.0	140	----
Hydrocarbons (QCLot: 1987506)										
HA2501286-001	SW-1	VPH C6-C10	n/a	E581.VPH	1750 µg/L	2000 µg/L	87.5	60.0	140	----

Qualifiers

Qualifier	Description
MS-B	*Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.*
RRQC	*Refer to report comments for information regarding this QC result.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1983961)									
QC-1983961-003	RM	Aluminum	7429-90-5	E440	22500 mg/kg	103	70.0	130	----
QC-1983961-003	RM	Antimony	7440-36-0	E440	24.8 mg/kg	109	70.0	130	----
QC-1983961-003	RM	Arsenic	7440-38-2	E440	21.2 mg/kg	95.2	70.0	130	----
QC-1983961-003	RM	Barium	7440-39-3	E440	788 mg/kg	88.4	70.0	130	----
QC-1983961-003	RM	Beryllium	7440-41-7	E440	1.82 mg/kg	102	70.0	130	----
QC-1983961-003	RM	Bismuth	7440-69-9	E440	1.78 mg/kg	99.6	70.0	130	----
QC-1983961-003	RM	Cadmium	7440-43-9	E440	2.15 mg/kg	96.8	70.0	130	----
QC-1983961-003	RM	Calcium	7440-70-2	E440	4900 mg/kg	101	70.0	130	----
QC-1983961-003	RM	Chromium	7440-47-3	E440	56.9 mg/kg	97.4	70.0	130	----
QC-1983961-003	RM	Cobalt	7440-48-4	E440	32 mg/kg	96.4	70.0	130	----
QC-1983961-003	RM	Copper	7440-50-8	E440	969 mg/kg	99.2	70.0	130	----
QC-1983961-003	RM	Iron	7439-89-6	E440	32700 mg/kg	99.5	70.0	130	----
QC-1983961-003	RM	Lead	7439-92-1	E440	919 mg/kg	90.3	70.0	130	----
QC-1983961-003	RM	Lithium	7439-93-2	E440	47.3 mg/kg	103	70.0	130	----
QC-1983961-003	RM	Magnesium	7439-95-4	E440	7780 mg/kg	102	70.0	130	----
QC-1983961-003	RM	Manganese	7439-96-5	E440	8640 mg/kg	98.2	70.0	130	----
QC-1983961-003	RM	Molybdenum	7439-98-7	E440	25.1 mg/kg	96.4	70.0	130	----
QC-1983961-003	RM	Nickel	7440-02-0	E440	1000 mg/kg	96.0	70.0	130	----
QC-1983961-003	RM	Phosphorus	7723-14-0	E440	660 mg/kg	97.8	70.0	130	----
QC-1983961-003	RM	Potassium	7440-09-7	E440	10800 mg/kg	98.8	70.0	130	----
QC-1983961-003	RM	Selenium	7782-49-2	E440	1.04 mg/kg	94.3	60.0	140	----
QC-1983961-003	RM	Silver	7440-22-4	E440	8.98 mg/kg	101	70.0	130	----
QC-1983961-003	RM	Sodium	7440-23-5	E440	1770 mg/kg	104	70.0	130	----
QC-1983961-003	RM	Strontium	7440-24-6	E440	41 mg/kg	96.3	70.0	130	----
QC-1983961-003	RM	Sulfur	7704-34-9	E440	3940 mg/kg	102	50.0	150	----
QC-1983961-003	RM	Thallium	7440-28-0	E440	0.907 mg/kg	102	70.0	130	----
QC-1983961-003	RM	Tin	7440-31-5	E440	3.79 mg/kg	98.1	40.0	160	----
QC-1983961-003	RM	Titanium	7440-32-6	E440	2790 mg/kg	101	70.0	130	----
QC-1983961-003	RM	Tungsten	7440-33-7	E440	6.99 mg/kg	114	70.0	130	----
QC-1983961-003	RM	Uranium	7440-61-1	E440	3.97 mg/kg	99.4	70.0	130	----
QC-1983961-003	RM	Vanadium	7440-62-2	E440	66.2 mg/kg	97.0	70.0	130	----
QC-1983961-003	RM	Zinc	7440-66-6	E440	828 mg/kg	96.4	70.0	130	----
QC-1983961-003	RM	Zirconium	7440-67-7	E440	6.91 mg/kg	113	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1022359

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Page of

Environmental Division
Halifax
Work Order Reference
HA2501286

Telephone : +1 902 707 4888

Report To	Contact and company name below will appear on the final report
Company:	design point
Contact:	Charlotte Clark
Phone:	
	Company address below will appear on the final report
Street:	90 western pkwy unit
City/Province:	Bedford NS
Postal Code:	
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax Arman.Palathekov@designpoint.ca
Email 2 Ryleigh.Boudreau@designpoint.ca
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax allan.vanhesse@designpoint.ca
Email 2

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests.

Date and Time Required for all E&P TATs:

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

Project Information

ALS Account # / Quote #:	
Job #:	
PO / AFE:	
LSD:	
ALS Lab Work Order # (ALS use only):	HA2501286

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Analysis Requ

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals	BTEX (RBCA)	PAH	General Water Chem	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRE	SUSPECTED HAZARD (see note
	SW-1			SW	9	✓	✓	✓	✓			
	SS-4			Soil	4	✓	✓	✓				
	SS-5 dup			Soil	3	✓	✓	✓				
	SD-1			Soil	4	✓	✓	✓				
	MW3-SS1			Soil	4	✓	✓	✓				
	SS5			Soil	4	✓	✓	✓				
	MW2-SS1			Soil	4	✓	✓	✓				
	SS6			Soil	4	✓	✓	✓				
	SS7			Soil	4	✓	✓	✓				
	MW1-SS1			Soil	4	✓	✓	✓				

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

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

email arman with any questions

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
11.3							

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Rboudreau	2-may-25	3:15

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	2 May 2025	3:15

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Group's Environmental Division and the party named in the Offer (the "Client").

1. Definitions. Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any chain of custody form provided with any sample. Unless otherwise agreed, ALS may elect to re-allocate testing, without prior notice, to other ALS Canada laboratories with equivalent services and applicable accreditations and licenses, if required to prevent hold time or due date exceedance due to unanticipated over-capacity situations.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations expire after three years.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices. Applicable surcharges and additional fees will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program. Clients' samples are analyzed using approved, referenced procedures followed by thorough data validation prior to reporting of the analytical results.
8. Test Results. Results are obtained from analytical measurements that are subject to inherent variability. Measurement results reflect characteristics of submitted test samples at time of analysis. The Client is responsible for informing itself on the limitation of test results and acknowledges that test results are not guaranteed. When statements of conformity are requested on test reports (e.g. within Criteria Reports), measurement uncertainty is not applied to test results prior to the evaluation.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store; soil and water samples for 45 days from date of receipt, tissue/biota samples for 6 months from date of receipt, air samples or re-usable media for 14 days from date of receipt, and microbiological samples for 3 days from date of receipt.
11. Holds. If the Client requests a sample to be placed on hold, ALS will store the samples according to paragraph 10, after which ALS will invoice the Client and discard the sample. Each sample is subject to a minimum $5.00 hold fee. Longer hold periods are available upon request. See paragraph 12.
12. Archives. If the Client requests for a sample to be archived, ALS will invoice in advance and will store the sample for the period requested, after which ALS may discard the sample.
13. Legal Sample Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS charges a surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Additional charges will apply for samples that require storage by ALS.
14. Samples. The quality, condition, content, and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged, or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with GHS and TDG regulations, and must provide appropriate Safety Data that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, cyanide, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pickup and delivery services are provided, subject in each instance to a minimum charge of $25.00.
21. Holding Times. Samples and chain of custody forms should be submitted to ALS as soon as possible after sampling, with a minimum of half the analytical hold time remaining; unless prior arrangements are made.
22. Re-Tests. ALS reserves the right to re-test any samples that remain in its possession. Re-tests requested by the Client may be subject to charges.
23. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
24. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary, or punitive damages, whether foreseeable or unforeseeable (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets), incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 23 and 25, as applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
25. Notice of Liability. Notwithstanding paragraph 24, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
26. Third Party Service Provider Indemnity. For testing not performed at ALS, and where the Client requires ALS to forward samples to a third party service provider, the Client indemnifies ALS against any breach of this Agreement, all liabilities or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
27. Third Party Service Provider Indemnity. If ALS is required to engage a third party service provider for whatever reason, the Client indemnifies ALS against any breach of this Agreement, liabilities, or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
28. Entire Agreement. The Agreement is the entire agreement between the parties and supersedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.
29. Term. Providing the first batch of samples to which this tender refers is submitted within three months of the starting date of this quotation, the following prices, terms and conditions will remain firm until the closing date. This offer, and its terms and conditions will automatically lapse if the offer has not been accepted and samples not delivered to ALS by the Closing Date.
30. Termination. (a) Either party may terminate this Agreement for any reason by giving the other party thirty (30) days written notice (Notice Period). (b) If the Agreement is terminated pursuant to clause (a), then the Client must pay ALS for all Services performed up to the expiry of the Notice Period.

ALS Canada Ltd.

CERTIFICATE OF ANALYSIS

Work Order	:	**HA2501456**			
Client	:	**DesignPoint Engineering & Surveying Ltd.**	Laboratory	:	ALS Environmental - Halifax
Contact	:	Charlotte Clark	Account Manager	:	Abby van der Jagt
Address	:	90 Western Parkway Suite 500 Bedford Northwest Territories Canada B4B 2J3	Address	:	13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	:	902 832 5597	E-mail	:	abby.vanderjagt@alsglobal.com
Project	:	----	Telephone	:	+1 902 707 4888
PO	:	----	Date Samples Received	:	15-May-2025 15:25
C-O-C number	:	----	Date Analysis Commenced	:	20-May-2025
Sampler	:	----	Issue Date	:	28-May-2025 17:52
Site	:	----			
Quote number	:	Alantic Canada 2024 Rate Table			
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
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jiaxi Wang	Supervisor - Water Chemistry	Inorganics, Dartmouth, Nova Scotia
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario

General Comments

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

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
%	percent
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: 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.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
TMV	Turbidity exceeded upper limit of the nephelometric method. Minimum value reported.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW1	MW2	MW3	MW-2DUP	----
					Client sampling date / time	14-May-2025 03:10	14-May-2025 12:10	14-May-2025 14:55	14-May-2025 00:00	----
						HA2501456-001	HA2501456-002	HA2501456-003	HA2501456-004	----
						Result	Result	Result	Result	----
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WT	1.2	mg/L		111	63.1	984	64.7	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WT	1	mg/L		----	----	0.0	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WT	1.0	mg/L		<0.6	<0.6	----	<0.6	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WT	1	mg/L		----	----	0.00	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WT	1.0	mg/L		<0.3	<0.3	----	<0.3	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		90.9	51.7	807	53.0	----
Colour, apparent	----	E330/WT	2.0	CU		4220	373	464000	786	----
Conductivity	----	E100/WT	1.0	µS/cm		294	189	553	192	----
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		75.4	29.7	132	29.5	----
Langelier index (@ 20°C)	----	EC105/WT	0.010	-		-0.569	-2.24	0.739	-2.38	----
Langelier index (@ 4°C)	----	EC105/WT	0.010	-		-0.820	-2.49	0.494	-2.63	----
pH	----	E108/HA	0.10	pH units		7.48	6.40	7.71	6.24	----
pH, saturation (@ 20°C)	----	EC105/WT	0.010	pH units		8.05	8.64	6.97	8.62	----
pH, saturation (@ 4°C)	----	EC105/WT	0.010	pH units		8.30	8.89	7.22	8.87	----
Solids, total dissolved [TDS]	----	E162/HA	10	mg/L		188 DLDS	136 DLDS	699 DLDS	112 DLDS	----
Turbidity	----	E121/WT	0.10	NTU		898	89.2	>4000 TMV	189	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.274	0.0973	1.64	0.109	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		22.6	21.1	32.3	21.2	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		0.160	0.127	0.445	0.127	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		0.120	<0.020	<0.020	<0.020	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW1	MW2	MW3	MW-2DUP	----
Client sample ID									
Client sampling date / time					14-May-2025 03:10	14-May-2025 12:10	14-May-2025 14:55	14-May-2025 00:00	----
					HA2501456-001	HA2501456-002	HA2501456-003	HA2501456-004	----
					Result	Result	Result	Result	----
Anions and Nutrients									
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0032	mg/L	0.120	<0.0224	<0.0224	<0.0224	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L	0.0022	0.0051	<0.0010	0.0047	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L	17.6	6.60	14.1	6.73	----
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/WT	0.50	mg/L	16.4	4.60	33.2	7.21	----
Ion Balance									
Anion sum	----	EC101/WT	0.10	meq/L	2.84	1.77	17.4	1.80	----
Cation sum	----	EC101/WT	0.10	meq/L	2.78	1.70	5.91	1.68	----
Ion balance (cations/anions)	----	EC101/WT	0.010	%	97.9	96.0	34.0	93.3	----
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L	0.0062	0.0176	0.0080	0.0223	----
Antimony, dissolved	7440-36-0	E421/WT	0.00010	mg/L	0.00036	0.00023	0.00514	0.00023	----
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L	0.00074	0.00064	0.00428	0.00068	----
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L	0.118	0.0244	0.181	0.0249	----
Beryllium, dissolved	7440-41-7	E421/WT	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	----
Bismuth, dissolved	7440-69-9	E421/WT	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L	0.025	0.015	0.043	0.015	----
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L	0.0000331	0.0000214	0.0000357	0.0000204	----
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L	23.8	10.2	42.8	10.1	----
Cesium, dissolved	7440-46-2	E421/WT	0.000010	mg/L	0.000013	0.000023	0.000042	0.000026	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW1	MW2	MW3	MW-2DUP	----
Client sample ID					MW1	MW2	MW3	MW-2DUP	----
Client sampling date / time					14-May-2025 03:10	14-May-2025 12:10	14-May-2025 14:55	14-May-2025 00:00	----
					HA2501456-001	HA2501456-002	HA2501456-003	HA2501456-004	----
					Result	Result	Result	Result	----
Dissolved Metals									
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, dissolved	7440-48-4	E421/WT	0.00010	mg/L	0.00098	0.00081	0.00065	0.00083	----
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L	0.00046	0.00165	0.00080	0.00160	----
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L	<0.010	0.034	<0.010	0.044	----
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L	<0.000050	0.000056	<0.000050	0.000057	----
Lithium, dissolved	7439-93-2	E421/WT	0.0010	mg/L	0.0117	0.0023	0.0165	0.0022	----
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L	3.89	1.03	6.21	1.03	----
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L	1.92	0.176	0.948	0.176	----
Molybdenum, dissolved	7439-98-7	E421/WT	0.000050	mg/L	0.000523	0.000390	0.0138	0.000384	----
Nickel, dissolved	7440-02-0	E421/WT	0.00050	mg/L	0.00143	0.00156	0.00191	0.00151	----
Phosphorus, dissolved	7723-14-0	E421/WT	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L	10.8	1.94	12.1	1.96	----
Rubidium, dissolved	7440-17-7	E421/WT	0.00020	mg/L	0.00117	0.00136	0.00366	0.00143	----
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L	0.000147	0.000156	0.000285	0.000184	----
Silicon (as SiO2), dissolved	7440-21-3	EC421.SiO2/WT	0.15	mg/L	10.3	20.7	12.0	21.6	----
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L	4.81	9.70	5.62	10.1	----
Silver, dissolved	7440-22-4	E421/WT	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	----
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L	20.8	23.9	64.5	23.5	----
Strontium, dissolved	7440-24-6	E421/WT	0.00020	mg/L	0.125	0.0406	0.246	0.0403	----
Sulfur, dissolved	7704-34-9	E421/WT	0.50	mg/L	6.13	2.42	4.73	2.52	----
Tellurium, dissolved	13494-80-9	E421/WT	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW1	MW2	MW3	MW-2DUP	----
Client sample ID									
Client sampling date / time					14-May-2025 03:10	14-May-2025 12:10	14-May-2025 14:55	14-May-2025 00:00	----
					HA2501456-001	HA2501456-002	HA2501456-003	HA2501456-004	----
					Result	Result	Result	Result	----
Dissolved Metals									
Thallium, dissolved	7440-28-0	E421/WT	0.000010	mg/L	0.000015	0.000023	0.000130	0.000022	----
Thorium, dissolved	7440-29-1	E421/WT	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
Tin, dissolved	7440-31-5	E421/WT	0.00010	mg/L	0.00014	<0.00010	<0.00010	<0.00010	----
Titanium, dissolved	7440-32-6	E421/WT	0.00030	mg/L	<0.00030	0.00100	<0.00030	0.00116	----
Tungsten, dissolved	7440-33-7	E421/WT	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, dissolved	7440-61-1	E421/WT	0.000010	mg/L	0.000141	0.000044	0.00279	0.000038	----
Vanadium, dissolved	7440-62-2	E421/WT	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L	<0.0010	0.0079	<0.0010	0.0054	----
Zirconium, dissolved	7440-67-7	E421/WT	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved metals filtration location	----	EP421/WT	-	-	Laboratory	Field	Laboratory	Field	----
Volatile Organic Compounds									
Benzene	71-43-2	E611A/WT	0.50	µg/L	<0.50	<0.50	<0.50	----	----
Ethylbenzene	100-41-4	E611A/WT	0.50	µg/L	<0.50	<0.50	<0.50	----	----
Toluene	108-88-3	E611A/WT	0.50	µg/L	<0.50	<0.50	<0.50	----	----
Xylene, m+p-	179601-23-1	E611A/WT	0.40	µg/L	<0.40	<0.40	<0.40	----	----
Xylene, o-	95-47-6	E611A/WT	0.30	µg/L	<0.30	<0.30	<0.30	----	----
Xylenes, total	1330-20-7	E611A/WT	0.50	µg/L	<0.50	<0.50	<0.50	----	----
BTEX, total	----	E611A/WT	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Hydrocarbons									
F1 (C6-C10)	----	E581.F1-L/WT	25	µg/L	<25	<25	<25	----	----
F2 (C10-C16)	----	E601/WT	100	µg/L	<100	<100	<100	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW1	MW2	MW3	MW-2DUP	----
					Client sampling date / time	14-May-2025 03:10	14-May-2025 12:10	14-May-2025 14:55	14-May-2025 00:00	----
						HA2501456-001	HA2501456-002	HA2501456-003	HA2501456-004	----
						Result	Result	Result	Result	----
Hydrocarbons										
F3 (C16-C34)	----	E601/WT	250	µg/L		750	<250	<250	----	----
F4 (C34-C50)	----	E601/WT	250	µg/L		<250	<250	<250	----	----
F1-BTEX	----	EC580/WT	25	µg/L		<25	<25	<25	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	370	µg/L		750	<370	<370	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/WT	1.0	%		85.3	80.7	80.0	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1-L/WT	1.0	%		90.0	86.8	79.9	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	1.0	%		98.7	97.0	98.3	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	1.0	%		102	102	102	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.010	µg/L		<0.010	<0.010	<0.047 DLM	----	----
Acenaphthylene	208-96-8	E641A/WT	0.010	µg/L		<0.010	<0.010	<0.039 DLM	----	----
Acridine	260-94-6	E641A/WT	0.010	µg/L		<0.010	<0.010	<0.014 DLM	----	----
Anthracene	120-12-7	E641A/WT	0.010	µg/L		<0.010	<0.010	<0.048 DLM	----	----
Benz(a)anthracene	56-55-3	E641A/WT	0.010	µg/L		<0.010	<0.010	0.020	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	0.0050	µg/L		<0.0050	<0.0050	0.0122	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.010	µg/L		<0.010	<0.010	0.027	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/WT	0.015	µg/L		<0.015	<0.015	0.038	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.010	µg/L		<0.010	<0.010	0.011	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW1	MW2	MW3	MW-2DUP	----
Client sample ID									
Client sampling date / time					14-May-2025 03:10	14-May-2025 12:10	14-May-2025 14:55	14-May-2025 00:00	----
					HA2501456-001	HA2501456-002	HA2501456-003	HA2501456-004	----
					Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons									
Chrysene	218-01-9	E641A/WT	0.010	µg/L	<0.010	<0.010	0.026	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.0050	µg/L	<0.0050	<0.0050	<0.0050	----	----
Fluoranthene	206-44-0	E641A/WT	0.010	µg/L	0.016	<0.010	0.069	----	----
Fluorene	86-73-7	E641A/WT	0.010	µg/L	<0.010	<0.010	0.267	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.010	µg/L	<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.010	µg/L	0.031	<0.010	1.75	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	0.015	µg/L	0.073	<0.015	4.43	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.010	µg/L	0.042	<0.010	2.68	----	----
Naphthalene	91-20-3	E641A/WT	0.050	µg/L	<0.050	<0.050	1.38	----	----
Phenanthrene	85-01-8	E641A/WT	0.020	µg/L	0.063	<0.020	0.682	----	----
Pyrene	129-00-0	E641A/WT	0.010	µg/L	0.024	<0.010	0.124	----	----
Quinoline	91-22-5	E641A/WT	0.050	µg/L	<0.050	<0.050	<0.090 DLM	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/WT	0.010	µg/L	<0.010	<0.010	0.021	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/WT	0.030	µg/L	0.040	<0.030	0.289	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/WT	0.060	µg/L	0.063	<0.060	2.33	----	----
PAHs, total (CCME sewer 18)	n/a	E641A/WT	0.070	µg/L	0.176	<0.070	7.05	----	----
PAHs, total (EPA 16)	n/a	E641A/WT	0.065	µg/L	0.103	<0.065	2.62	----	----
Polycyclic Aromatic Hydrocarbons Surrogates									
Chrysene-d12	1719-03-5	E641A/WT	0.1	%	102	109	100	----	----
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%	108	104	105	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%	99.3	99.0	95.2	----	----

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

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **HA2501456**	Page	: 1 of 17
Client	: **DesignPoint Engineering & Surveying Ltd.**	Laboratory	: ALS Environmental - Halifax
Contact	: Charlotte Clark	Account Manager	: Abby van der Jagt
Address	: 90 Western Parkway Suite 500 Bedford NT Canada B4B 2J3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902 832 5597	Telephone	: +1 902 707 4888
Project	: ----	Date Samples Received	: 15-May-2025 15:25
PO	: ----	Issue Date	: 28-May-2025 17:38
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Alantic Canada 2024 Rate Table		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-2DUP	E298	14-May-2025	23-May-2025	28 days	10 days	✓	26-May-2025	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW1	E298	14-May-2025	23-May-2025	28 days	9 days	✓	26-May-2025	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW2	E298	14-May-2025	23-May-2025	28 days	9 days	✓	26-May-2025	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW3	E298	14-May-2025	23-May-2025	28 days	9 days	✓	26-May-2025	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW1	E235.Cl	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW2	E235.Cl	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW3	E235.Cl	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-2DUP	E235.Cl	14-May-2025	21-May-2025	28 days	8 days	✓	23-May-2025	28 days	8 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW1	E378-U	14-May-2025	21-May-2025	3 days	7 days	× EHT	22-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW2	E378-U	14-May-2025	21-May-2025	3 days	7 days	× EHT	22-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW3	E378-U	14-May-2025	21-May-2025	3 days	7 days	× EHT	22-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-2DUP	E378-U	14-May-2025	21-May-2025	3 days	8 days	× EHT	22-May-2025	3 days	8 days	× EHT
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW1	E235.F	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW2	E235.F	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW3	E235.F	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-2DUP	E235.F	14-May-2025	21-May-2025	28 days	8 days	✓	23-May-2025	28 days	8 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW1	E235.NO3	14-May-2025	21-May-2025	3 days	7 days	× EHT	23-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW2	E235.NO3	14-May-2025	21-May-2025	3 days	7 days	× EHT	23-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW3	E235.NO3	14-May-2025	21-May-2025	3 days	7 days	× EHT	23-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-2DUP	E235.NO3	14-May-2025	21-May-2025	3 days	8 days	× EHT	23-May-2025	3 days	8 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW1	E235.NO2	14-May-2025	21-May-2025	3 days	7 days	× EHT	23-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW2	E235.NO2	14-May-2025	21-May-2025	3 days	7 days	× EHT	23-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW3	E235.NO2	14-May-2025	21-May-2025	3 days	7 days	× EHT	23-May-2025	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-2DUP	E235.NO2	14-May-2025	21-May-2025	3 days	8 days	× EHT	23-May-2025	3 days	8 days	× EHT
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW1	E235.SO4	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW2	E235.SO4	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW3	E235.SO4	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW-2DUP	E235.SO4	14-May-2025	21-May-2025	28 days	8 days	✓	23-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE										
MW3	E421	14-May-2025	22-May-2025	0 hrs	187 hrs	× UCP	22-May-2025	0 hrs	187 hrs	× UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE										
MW1	E421	14-May-2025	22-May-2025	0 hrs	198 hrs	× UCP	22-May-2025	0 hrs	198 hrs	× UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
MW2	E421	14-May-2025	20-May-2025	180 days	6 days	✓	20-May-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
MW-2DUP	E421	14-May-2025	20-May-2025	180 days	7 days	✓	20-May-2025	180 days	7 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
MW1	E581.F1-L	14-May-2025	23-May-2025	14 days	9 days	✓	23-May-2025	14 days	9 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
MW2	E581.F1-L	14-May-2025	23-May-2025	14 days	9 days	✓	23-May-2025	14 days	9 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) MW3	E581.F1-L	14-May-2025	23-May-2025	14 days	9 days	✓	23-May-2025	14 days	9 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW2	E601	14-May-2025	27-May-2025	14 days	13 days	✓	28-May-2025	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW3	E601	14-May-2025	27-May-2025	14 days	13 days	✓	28-May-2025	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW1	E601	14-May-2025	27-May-2025	14 days	14 days	✓	28-May-2025	40 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-2DUP	E355-L	14-May-2025	23-May-2025	28 days	10 days	✓	26-May-2025	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW1	E355-L	14-May-2025	23-May-2025	28 days	9 days	✓	26-May-2025	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW2	E355-L	14-May-2025	23-May-2025	28 days	9 days	✓	26-May-2025	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW3	E355-L	14-May-2025	23-May-2025	28 days	9 days	✓	26-May-2025	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW1	E290	14-May-2025	21-May-2025	14 days	7 days	✓	23-May-2025	14 days	7 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MW2	E290	14-May-2025	21-May-2025	14 days	7 days	✓	23-May-2025	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW3	E290	14-May-2025	21-May-2025	14 days	7 days	✓	23-May-2025	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-2DUP	E290	14-May-2025	21-May-2025	14 days	8 days	✓	23-May-2025	14 days	8 days	✓
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE MW3	E330	14-May-2025	----	----	----		22-May-2025	48 hrs	189 hrs	× EHTL
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE MW2	E330	14-May-2025	----	----	----		22-May-2025	48 hrs	192 hrs	× EHTL
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE MW1	E330	14-May-2025	----	----	----		22-May-2025	48 hrs	201 hrs	× EHTL
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE MW-2DUP	E330	14-May-2025	----	----	----		22-May-2025	48 hrs	204 hrs	× EHTL
Physical Tests : Conductivity in Water										
HDPE MW1	E100	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE MW2	E100	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 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	
Physical Tests : Conductivity in Water										
HDPE MW3	E100	14-May-2025	21-May-2025	28 days	7 days	✓	23-May-2025	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-2DUP	E100	14-May-2025	21-May-2025	28 days	8 days	✓	23-May-2025	28 days	8 days	✓
Physical Tests : pH by Meter										
HDPE MW3	E108	14-May-2025	21-May-2025	0.25 hrs	162 hrs	× EHTR-FM	21-May-2025	0.25 hrs	162 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW2	E108	14-May-2025	21-May-2025	0.25 hrs	165 hrs	× EHTR-FM	21-May-2025	0.25 hrs	165 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW1	E108	14-May-2025	21-May-2025	0.25 hrs	174 hrs	× EHTR-FM	21-May-2025	0.25 hrs	174 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-2DUP	E108	14-May-2025	21-May-2025	0.25 hrs	177 hrs	× EHTR-FM	21-May-2025	0.25 hrs	177 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE MW2	E162	14-May-2025	----	----	----		21-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW3	E162	14-May-2025	----	----	----		21-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW1	E162	14-May-2025	----	----	----		21-May-2025	7 days	8 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE MW-2DUP	E162	14-May-2025	----	----	----		21-May-2025	7 days	8 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE MW1	E121	14-May-2025	----	----	----		21-May-2025	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE MW2	E121	14-May-2025	----	----	----		21-May-2025	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE MW-2DUP	E121	14-May-2025	----	----	----		21-May-2025	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE MW3	E121	14-May-2025	----	----	----		21-May-2025	3 days	7 days	× EHT
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MW2	E641A	14-May-2025	27-May-2025	14 days	13 days	✓	28-May-2025	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MW3	E641A	14-May-2025	27-May-2025	14 days	13 days	✓	28-May-2025	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MW1	E641A	14-May-2025	27-May-2025	14 days	14 days	✓	28-May-2025	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW1	E611A	14-May-2025	23-May-2025	14 days	9 days	✓	23-May-2025	14 days	9 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	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW2	E611A	14-May-2025	23-May-2025	14 days	9 days	✓	23-May-2025	14 days	9 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW3	E611A	14-May-2025	23-May-2025	14 days	9 days	✓	23-May-2025	14 days	9 days	✓

Legend & Qualifier Definitions

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

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

EHT: Exceeded ALS recommended hold time prior to analysis.

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2005869	1	20	5.0	5.0	✓
pH by Meter	E108	2005937	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	2006335	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2007123	1	14	7.1	5.2	✓
Chloride in Water by IC	E235.Cl	2005867	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005864	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2005866	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2005865	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005868	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2005870	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2010935	1	20	5.0	5.0	✓
Colour (Apparent) by Spectrometer	E330	2008871	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2010933	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005872	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2004823	2	28	7.1	5.0	✓
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	2011496	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	2011497	1	8	12.5	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2005869	1	20	5.0	5.0	✓
pH by Meter	E108	2005937	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	2006335	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2007123	1	14	7.1	5.2	✓
Chloride in Water by IC	E235.Cl	2005867	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005864	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2005866	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2005865	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005868	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2005870	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2010935	1	20	5.0	5.0	✓
Colour (Apparent) by Spectrometer	E330	2008871	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2010933	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005872	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2004823	2	28	7.1	5.0	✓
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	2011496	1	20	5.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	2016083	1	3	33.3	5.0	✓
BTEX by Headspace GC-MS	E611A	2011497	1	8	12.5	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
PAHs in Water by Hexane LVI GC-MS	E641A	2016082	1	13	7.6	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2005869	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	2006335	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2007123	1	14	7.1	5.2	✓
Chloride in Water by IC	E235.Cl	2005867	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005864	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2005866	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2005865	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005868	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2005870	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2010935	1	20	5.0	5.0	✓
Colour (Apparent) by Spectrometer	E330	2008871	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2010933	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005872	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2004823	2	28	7.1	5.0	✓
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	2011496	1	20	5.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	2016083	1	3	33.3	5.0	✓
BTEX by Headspace GC-MS	E611A	2011497	1	8	12.5	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	2016082	1	13	7.6	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	2005867	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005864	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2005866	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2005865	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005868	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2010935	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2010933	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005872	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2004823	2	28	7.1	5.0	✓
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	2011496	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	2011497	1	8	12.5	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 - Waterloo	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 - Halifax	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Waterloo	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry	E162 ALS Environmental - Halifax	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	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 - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	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 - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	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)
Colour (Apparent) by Spectrometer	E330 ALS Environmental - Waterloo	Water	APHA 2120 C (mod)	Colour (Apparent) is measured in an unfiltered sample spectrophotometrically using the single wavelength method. The colour contribution of settleable solids are not included in the result. This method is intended for potable waters. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	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.
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs in Water by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), 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.
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Waterloo	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are 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. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
Saturation Index using Laboratory pH (Ca-D)	EC105 ALS Environmental - Waterloo	Water	APHA 2330B	Langelier Index provides an indication of scale formation potential at a given pH and temperature, and is calculated as per APHA 2330B Saturation Index. Positive values indicate oversaturation with respect to CaCO3. Negative values indicate undersaturation of CaCO3. This calculation uses laboratory pH measurements and provides estimates of Langelier Index at temperatures of 4, 15, 20, 25, 66, and 77°C. Ryznar Stability Index is an alternative index used for scale formation and corrosion potential. If available, Field pH measurements are recommended for best accuracy (test code EC104).
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Dissolved Silicon as Silica (Calculation)	EC421.SiO2 ALS Environmental - Waterloo	Water	N/A	Dissolved Silicon (as SiO_2) is a calculated parameter. Dissolved Silicon (as SiO_2 mg/L) = 2.139 x Dissolved Silicon (mg/L).
F1-BTEX	EC580 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Waterloo	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **HA2501456**	Page	: 1 of 19
Client	: DesignPoint Engineering & Surveying Ltd.	Laboratory	: ALS Environmental - Halifax
Contact	: Charlotte Clark	Account Manager	: Abby van der Jagt
Address	: 90 Western Parkway Suite 500 Bedford NT Canada B4B 2J3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902 832 5597	Telephone	: +1 902 707 4888
Project	: ----	Date Samples Received	: 15-May-2025 15:25
PO	: ----	Date Analysis Commenced	: 20-May-2025
C-O-C number	: ----	Issue Date	: 28-May-2025 17:40
Sampler	: ----		
Site	: ----		
Quote number	: Alantic Canada 2024 Rate Table		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
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Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
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Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jiaxi Wang	Supervisor - Water Chemistry	Halifax Inorganics, Dartmouth, Nova Scotia
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario

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: 2005869)											
HA2501489-001	Anonymous	Conductivity	----	E100	1.0	µS/cm	1340	1350	0.816%	10%	----
Physical Tests (QC Lot: 2005870)											
HA2501489-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	158	158	0.126%	20%	----
Physical Tests (QC Lot: 2005937)											
HA2501272-001	Anonymous	pH	----	E108	0.10	pH units	7.45	7.45	0.0134%	4%	----
Physical Tests (QC Lot: 2006335)											
HA2501456-001	MW1	Turbidity	----	E121	0.10	NTU	898	903	0.555%	15%	----
Physical Tests (QC Lot: 2007123)											
HA2501431-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	100	94	6	Diff <2x LOR	----
Physical Tests (QC Lot: 2008871)											
HA2501456-001	MW1	Colour, apparent	----	E330	40.0	CU	4220	4230	0.155%	20%	----
Anions and Nutrients (QC Lot: 2005864)											
HA2501456-001	MW1	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.160	0.158	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005865)											
HA2501456-001	MW1	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.120	0.119	0.0005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005866)											
HA2501456-001	MW1	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005867)											
HA2501456-001	MW1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	22.6	22.6	0.0578%	20%	----
Anions and Nutrients (QC Lot: 2005868)											
HA2501456-001	MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	17.6	17.6	0.512%	20%	----
Anions and Nutrients (QC Lot: 2005872)											
HA2501449-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0100	mg/L	0.626	0.626	0.0352%	20%	----
Anions and Nutrients (QC Lot: 2010935)											
HA2501449-001	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: 2010933)											
HA2501456-001	MW1	Carbon, total organic [TOC]	----	E355-L	10.0	mg/L	16.4	24.1	7.67	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2004823)											
WT2511862-003	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00030	0.00030	0.000003	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*
Dissolved Metals (QC Lot: 2004823) - continued											
WT2511862-003	Anonymous	Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	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*
Dissolved Metals (QC Lot: 2004823) - continued											
WT2511862-003	Anonymous	Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2008320)											
WT2511974-008	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.0100	mg/L	0.530	0.539	1.66%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	5.00	mg/L	330	335	1.43%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.500	mg/L	114	117	2.22%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.0100	mg/L	1.19	1.22	2.32%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	5.00	mg/L	<5.00	<5.00	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	5.00	mg/L	208	212	2.03%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	5.00	mg/L	<5.00	5.08	0.084	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	5.00	mg/L	6550	6690	2.07%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.0200	mg/L	2.21	2.24	1.38%	20%	----
		Sulfur, dissolved	7704-34-9	E421	50.0	mg/L	<50.0	<50.0	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.0200	mg/L	<0.0200	<0.0200	0	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*
Dissolved Metals (QC Lot: 2008320) - continued											
WT2511974-008	Anonymous	Thallium, dissolved	7440-28-0	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.00100	mg/L	0.00990	0.0101	2.30%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2011497)											
HA2501456-001	MW1	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 2011496)											
HA2501456-001	MW1	F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	<25	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: 2005869)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 2005870)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2006335)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 2007123)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2008871)						
Colour, apparent	----	E330	2	CU	<2.0	----
Anions and Nutrients (QCLot: 2005864)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2005865)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2005866)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2005867)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2005868)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2005872)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2010935)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 2010933)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Dissolved Metals (QCLot: 2004823)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2004823) - continued						
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	----
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	----
Dissolved Metals (QCLot: 2008320)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2008320) - continued						
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	----
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2008320) - continued						
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	----
Volatile Organic Compounds (QCLot: 2011497)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 2011496)						
F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	----
Hydrocarbons (QCLot: 2016083)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 2016082)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 2016082) - continued						
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2005869)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	98.2	90.0	110	----
Physical Tests (QCLot: 2005870)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	101	85.0	115	----
Physical Tests (QCLot: 2005937)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 2006335)									
Turbidity	----	E121	0.1	NTU	200 NTU	97.0	85.0	115	----
Physical Tests (QCLot: 2007123)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.0	85.0	115	----
Physical Tests (QCLot: 2008871)									
Colour, apparent	----	E330	2	CU	25 CU	101	85.0	115	----
Anions and Nutrients (QCLot: 2005864)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2005865)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.1	90.0	110	----
Anions and Nutrients (QCLot: 2005866)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 2005867)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 2005868)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 2005872)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	99.9	80.0	120	----
Anions and Nutrients (QCLot: 2010935)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	104	85.0	115	----
Organic / Inorganic Carbon (QCLot: 2010933)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Dissolved Metals (QCLot: 2004823)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	94.6	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 (QCLot: 2004823) - continued									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	96.1	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	101	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.012 mg/L	102	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	88.2	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	98.4	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	81.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	92.3	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	93.8	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.002 mg/L	99.0	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.012 mg/L	94.4	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.012 mg/L	93.0	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.012 mg/L	92.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	90.9	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	95.9	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.012 mg/L	81.0	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	92.9	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.012 mg/L	95.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.012 mg/L	96.8	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	92.4	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	99.2	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	95.6	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	93.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	93.8	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	91.8	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	94.3	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.012 mg/L	96.1	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	87.3	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	91.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	95.7	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	91.9	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	95.9	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.012 mg/L	91.1	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	93.4	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0 mg/L	93.4	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	96.5	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 (QCLot: 2004823) - continued									
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	93.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	93.8	80.0	120	----
Dissolved Metals (QCLot: 2008320)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	99.2	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	95.2	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	101	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.012 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	94.6	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	95.4	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	92.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	97.8	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	95.4	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.002 mg/L	98.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.012 mg/L	96.5	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.012 mg/L	96.5	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.012 mg/L	95.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	96.2	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	98.4	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.012 mg/L	87.8	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	102	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.012 mg/L	96.4	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.012 mg/L	95.2	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	97.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	96.0	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	93.4	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	103	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	98.8	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	97.9	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	90.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	101	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.012 mg/L	95.2	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	95.0	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	96.4	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	95.6	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	90.6	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	96.1	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Dissolved Metals (QCLot: 2008320) - continued									
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.012 mg/L	96.1	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	96.3	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0 mg/L	100	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	98.0	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	97.0	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	88.7	80.0	120	----
Volatile Organic Compounds (QCLot: 2011497)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	91.3	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	100	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	102	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	95.3	70.0	130	----
Hydrocarbons (QCLot: 2011496)									
F1 (C6-C10)	----	E581.F1-L	25	µg/L	2000 µg/L	115	80.0	120	----
Hydrocarbons (QCLot: 2016083)									
F2 (C10-C16)	----	E601	100	µg/L	3770 µg/L	94.8	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7760 µg/L	97.6	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	4200 µg/L	102	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 2016082)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.526 µg/L	87.7	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.526 µg/L	86.0	50.0	140	----
Acridine	260-94-6	E641A	0.01	µg/L	0.526 µg/L	92.5	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.526 µg/L	76.9	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.526 µg/L	115	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.526 µg/L	88.4	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.526 µg/L	93.4	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.526 µg/L	117	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.526 µg/L	92.9	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.526 µg/L	120	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.526 µg/L	101	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.526 µg/L	98.6	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.526 µg/L	100	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.526 µg/L	102	50.0	140	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 2016082) - continued									
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.526 µg/L	99.9	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.526 µg/L	103	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.526 µg/L	91.6	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.526 µg/L	101	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.526 µg/L	108	50.0	140	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.526 µg/L	107	50.0	140	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2005864)										
HA2501456-001	MW1	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 2005865)										
HA2501456-001	MW1	Nitrate (as N)	14797-55-8	E235.NO3	2.44 mg/L	2.5 mg/L	97.4	75.0	125	----
Anions and Nutrients (QCLot: 2005866)										
HA2501456-001	MW1	Nitrite (as N)	14797-65-0	E235.NO2	0.492 mg/L	0.5 mg/L	98.5	75.0	125	----
Anions and Nutrients (QCLot: 2005867)										
HA2501456-001	MW1	Chloride	16887-00-6	E235.Cl	97.8 mg/L	100 mg/L	97.8	75.0	125	----
Anions and Nutrients (QCLot: 2005868)										
HA2501456-001	MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	97.7 mg/L	100 mg/L	97.7	75.0	125	----
Anions and Nutrients (QCLot: 2005872)										
HA2501449-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 2010935)										
HA2501449-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.109 mg/L	0.1 mg/L	109	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2010933)										
HA2501456-001	MW1	Carbon, total organic [TOC]	----	E355-L	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 2004823)										
HA2501412-021	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0909 mg/L	0.1 mg/L	90.9	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0508 mg/L	0.05 mg/L	102	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0562 mg/L	0.05 mg/L	112	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0118 mg/L	0.012 mg/L	94.6	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.00494 mg/L	0.005 mg/L	98.8	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0462 mg/L	0.05 mg/L	92.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.043 mg/L	0.05 mg/L	85.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00502 mg/L	0.005 mg/L	100	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00251 mg/L	0.002 mg/L	100	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0117 mg/L	0.012 mg/L	93.3	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0115 mg/L	0.012 mg/L	91.8	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0114 mg/L	0.012 mg/L	91.6	70.0	130	----
		Iron, dissolved	7439-89-6	E421	0.040 mg/L	0.05 mg/L	80.9	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0238 mg/L	0.025 mg/L	95.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0112 mg/L	0.012 mg/L	89.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0108 mg/L	0.012 mg/L	86.6	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0125 mg/L	0.012 mg/L	100	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2004823) - continued										
HA2501412-021	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0227 mg/L	0.025 mg/L	91.0	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	0.555 mg/L	0.5 mg/L	111	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	2.29 mg/L	2.5 mg/L	91.6	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.00486 mg/L	0.005 mg/L	97.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0559 mg/L	0.05 mg/L	112	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00365 mg/L	0.005 mg/L	73.0	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	2.30 mg/L	2.5 mg/L	92.2	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.00454 mg/L	0.005 mg/L	90.9	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0476 mg/L	0.05 mg/L	95.2	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.00404 mg/L	0.005 mg/L	80.8	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0240 mg/L	0.025 mg/L	95.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0114 mg/L	0.012 mg/L	91.4	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.00477 mg/L	0.005 mg/L	95.5	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.000242 mg/L	0 mg/L	97.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0238 mg/L	0.025 mg/L	95.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0258 mg/L	0.025 mg/L	103	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.00470 mg/L	0.005 mg/L	94.1	70.0	130	----
Dissolved Metals (QCLot: 2008320)										
WT2511974-015	Anonymous	Aluminum, dissolved	7429-90-5	E421	9.20 mg/L	10 mg/L	92.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	4.58 mg/L	5 mg/L	91.6	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	4.88 mg/L	5 mg/L	97.7	70.0	130	----
		Barium, dissolved	7440-39-3	E421	1.10 mg/L	1.25 mg/L	87.8	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.431 mg/L	0.5 mg/L	86.2	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	4.39 mg/L	5 mg/L	87.8	70.0	130	----
		Boron, dissolved	7440-42-8	E421	4.42 mg/L	5 mg/L	88.5	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.470 mg/L	0.5 mg/L	93.9	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.243 mg/L	0.25 mg/L	97.2	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	1.17 mg/L	1.25 mg/L	93.5	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	1.16 mg/L	1.25 mg/L	92.8	70.0	130	----
		Copper, dissolved	7440-50-8	E421	1.14 mg/L	1.25 mg/L	91.0	70.0	130	----
		Iron, dissolved	7439-89-6	E421	4.64 mg/L	5 mg/L	92.8	70.0	130	----
		Lead, dissolved	7439-92-1	E421	2.27 mg/L	2.5 mg/L	90.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	1.11 mg/L	1.25 mg/L	88.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	237 mg/L	250 mg/L	94.9	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	1.15 mg/L	1.25 mg/L	91.8	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	1.14 mg/L	1.25 mg/L	91.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	2.27 mg/L	2.5 mg/L	90.9	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	50.8 mg/L	50 mg/L	102	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	226 mg/L	250 mg/L	90.3	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.483 mg/L	0.5 mg/L	96.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2008320) - continued										
WT2511974-015	Anonymous	Selenium, dissolved	7782-49-2	E421	4.89 mg/L	5 mg/L	97.7	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	45.9 mg/L	50 mg/L	91.8	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.406 mg/L	0.5 mg/L	81.2	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	221 mg/L	250 mg/L	88.4	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.443 mg/L	0.5 mg/L	88.6	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	4.56 mg/L	5 mg/L	91.2	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.438 mg/L	0.5 mg/L	87.6	70.0	130	----
		Tin, dissolved	7440-31-5	E421	2.32 mg/L	2.5 mg/L	92.6	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	1.16 mg/L	1.25 mg/L	92.7	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.478 mg/L	0.5 mg/L	95.7	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.0252 mg/L	0.025 mg/L	101	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	2.38 mg/L	2.5 mg/L	95.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	2.34 mg/L	2.5 mg/L	93.5	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.413 mg/L	0.5 mg/L	82.5	70.0	130	----
Volatile Organic Compounds (QCLot: 2011497)										
HA2501456-001	MW1	Benzene	71-43-2	E611A	91.9 µg/L	100 µg/L	91.9	60.0	140	----
		Ethylbenzene	100-41-4	E611A	94.8 µg/L	100 µg/L	94.8	60.0	140	----
		Toluene	108-88-3	E611A	99.2 µg/L	100 µg/L	99.2	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	194 µg/L	200 µg/L	97.1	60.0	140	----
		Xylene, o-	95-47-6	E611A	92.6 µg/L	100 µg/L	92.6	60.0	140	----
Hydrocarbons (QCLot: 2011496)										
HA2501456-001	MW1	F1 (C6-C10)	----	E581.F1-L	2100 µg/L	2000 µg/L	105	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Halifax

Work Order Reference

HA2501456

Telephone : +1 902 707 4888

Report To	Contact and company name below will appear on the final report
Company:	DESIGNPOINT
Contact:	
Phone:	902-919-4356
	Company address below will appear on the final report
Street:	150 Bentinck Street
City/Province:	Sydney, NS
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	DesignPoint
Contact:	charlotte.clark@designpoint.ca

Reports / Recipients

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

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

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

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: sarah.wilson@designpoint.ca

Email 2: arman.polatbekov@designpoint.ca

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minim

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minim

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minim

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge

Additional fees may apply to rush requests on weekends

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please co

Project Information

ALS Client Code / QUOTE #:

Job / Project #:

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only): HA2501456

ALS Contact: Sampler:

Analysis Req

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals	PAH	PHC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW1 (Filter metals)	14-05-2025	03:10pm	GW	6	P					
	MW2	14-05-2025	12:10PM	GW	10	F					
	MW3 (Filter Metals)	14-05-2025	2:55PM	GW	9	P					

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

Are samples taken from a Regulated DW System?

☐ YES ☑ NO

Are samples for human consumption/ use?

☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.7							

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Navomi	15/05/2025	7:40

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
Robyn MacDonald	May 15/25	3:25

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Abby van der Jagt

From: Arman Polatbekov <arman.polatbekov@designpoint.ca>
Sent: Friday, May 16, 2025 12:11 PM
To: Abby van der Jagt
Cc: Charlotte Clark; Navomi James
Subject: [EXTERNAL] - RE: Sydney samples

Hi Abby,

Sorry for the missing things, learning curve here.

Samples are:

1. MW-1
2. MW-2
3. MW-2Dup
4. MW-3

We need MW-1, MW-2, and MW-3 samples to be analyzed for:

1. general chemistry plus metals
2. PHCs
3. PAHs

MW2 and MW2 Dup metals are filtered in the field.
Please filter MW-1 and MW-3 metals out of unpreserved. We run out of filters on MW-2.

MW-1 had very poor recovery and could not provide enough water for all bottles, we filled what we could, hope that is enough for just analyses.

"We also received bottles for a sample that is not listed on your COC MW2DUP. We received unpreserved general chemistry bottles, a nutrient bottle and a metals bottle." – that is our MW-2Dup field duplicate, only general chemistry and metals on that sample, please.

Please decant samples, if possible.

From: Abby van der Jagt <abby.vanderjagt@ALSGlobal.com>
Sent: Friday, May 16, 2025 11:46 AM
To: Arman Polatbekov <arman.polatbekov@designpoint.ca>
Cc: Charlotte Clark <charlotte.clark@designpoint.ca>; Sarah Wilson <sarah.wilson@designpoint.ca>
Subject: Sydney samples

ALS Canada Ltd.

right solutions. right partner.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **HA2501456**		
Client	: **DesignPoint Engineering & Surveying Ltd.**	Laboratory	: ALS Environmental - Halifax
Contact	: Charlotte Clark	Contact	: Abby van der Jagt
Address	: 90 Western Parkway Suite 500 Bedford, NT Canada B4B 2J3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
E-mail	: charlotte.clark@designpoint.ca	E-mail	: abby.vanderjagt@alsglobal.com
Telephone	: 902 832 5597	Telephone	: +1 902 707 4888
Facsimile	: ----	Facsimile	:
Project	: ----	Page	: 1 of 6
Purchase order number	: ----	Quote number	: HA2024DESI1000001 (Alantic Canada 2024 Rate Table)
C-O-C number	: ----	QC Level	: ALS Canada Standard Quality Control
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 15-May-2025 15:25	Issue Date	: 16-May-2025
Client Requested Due Date	: 26-May-2025	Scheduled Reporting Date	: 26-May-2025

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.7 - Ice present
Receipt Detail	:	No. of samples received / analyzed	: 4 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances (if any)
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample ID - MW1: Received only one 40ml Sodium Bisulfate vial.**
- **Sample ID- MW1 and MW2: Container for Dissolved Metals not received at laboratory, but requested on Chain of Custody / analytical request form; subsample will be obtained from other submitted containers to meet request. Test results may be qualified in the Certificate of Analysis.**
- *Where possible, ALS will store samples for the following durations, measured from date of sample submission: 30 days for Soil and Water samples; 6 months for Tissue/Biota samples; 14 days for air samples collected on re-usable media; and 3 days for water samples submitted for microbiological testing. Longer storage times are available upon request.*
- **Temperature is recorded in °C unless otherwise noted.**

Sample Container(s)/Preservation Non-Compliances (if any)

All comparisons are made against pretreatment/preservation practices published by CCME, BC ENV, Ontario MOE, Environment Canada, Health Canada, US EPA, APHA Standard Methods, ASTM, or ISO, and comply with provincial requirements for the laboratory location.

Method		
Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Dissolved Metals in Water by CRC ICPMS : E421		
MW1	- HDPE	- HDPE dissolved (nitric acid)
MW3	- HDPE	- HDPE dissolved (nitric acid)

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Matrix: **Water**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	Water - CA43 General Chemistry + Dissolved Metals in Water	Water - E641A PAHs (all calcs) in Water by LVI GC-MS	Water - S665A.Q BTEX/TPH (RBCA Tier 1) in Water
HA2501456-001	14-May-2025 03:10	MW1	✓	✓	✓
HA2501456-002	14-May-2025 12:10	MW2	✓	✓	✓
HA2501456-003	14-May-2025 14:55	MW3	✓	✓	✓
HA2501456-004	14-May-2025 00:00	MW-2DUP	✓		

Proactive Holding Time Report

The following sample(s) were received with less than half the recommended holding time remaining for the indicated tests. ALS cannot guarantee analysis for these tests within holding times.

Client Sample ID	Test Method	Recommended Holding Time
MW1	E330	48 hours
MW2	E330	48 hours
MW3	E330	48 hours
MW-2DUP	E330	48 hours

The following samples were received beyond the recommended holding times for the indicated tests.

Client Sample ID	Test Method	Recommended Holding Time
MW1	E108	0.25 hours
MW1	E421	
MW2	E108	0.25 hours
MW3	E108	0.25 hours
MW3	E421	
MW-2DUP	E108	0.25 hours

Requested Deliverables

Allen Varghese

Tax Invoice (INVOICE (CAN))	Email	allen.varghese@designpoint.ca

Arman Polatbekov

ALS Excel Report (ALS_MTABXL_CAN)	Email	arman.polatbekov@designpoint.ca
Certificate of Analysis (Crosstab) (COA - CrossTab (CAN))	Email	arman.polatbekov@designpoint.ca
Interpretive Quality Control Report (QCI (CAN))	Email	arman.polatbekov@designpoint.ca
Quality Control (QC (CAN))	Email	arman.polatbekov@designpoint.ca
Sample Receipt Notification (standard format) (SRN - Short (CAN))	Email	arman.polatbekov@designpoint.ca
Tax Invoice (INVOICE (CAN))	Email	arman.polatbekov@designpoint.ca

Charlotte Clark

ALS Excel Report (ALS_MTABXL_CAN)	Email	charlotte.clark@designpoint.ca
Certificate of Analysis (Crosstab) (COA - CrossTab (CAN))	Email	charlotte.clark@designpoint.ca
Interpretive Quality Control Report (QCI (CAN))	Email	charlotte.clark@designpoint.ca
Quality Control (QC (CAN))	Email	charlotte.clark@designpoint.ca
Sample Receipt Notification (standard format) (SRN - Short (CAN))	Email	charlotte.clark@designpoint.ca
Tax Invoice (INVOICE (CAN))	Email	charlotte.clark@designpoint.ca

Sarah Wilson

ALS Excel Report (ALS_MTABXL_CAN)	Email	sarah.wilson@designpoint.ca
Certificate of Analysis (Crosstab) (COA - CrossTab (CAN))	Email	sarah.wilson@designpoint.ca
Interpretive Quality Control Report (QCI (CAN))	Email	sarah.wilson@designpoint.ca
Quality Control (QC (CAN))	Email	sarah.wilson@designpoint.ca
Sample Receipt Notification (standard format) (SRN - Short (CAN))	Email	sarah.wilson@designpoint.ca
Tax Invoice (INVOICE (CAN))	Email	sarah.wilson@designpoint.ca

Methods with Laboratory

Sale item

Method	Laboratory	Address	City	Province	Country
BTEX/TPH (RBCA Tier 1) in Water					
E581.VPH	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E601F	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E611A	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
EC580C	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
EC581D	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
Dissolved Metals Water Filtration					
EP421	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
General Chemistry + Dissolved Metals in Water (Major Anions+Dissolved Hardness,Ammonia,turbidity,pH,Cond,Alk,Colour,TOC,PO4,TDS)					
E100	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E108	Halifax	13-100 Wright Ave	Dartmouth	Nova Scotia	Canada
E121	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E162	Halifax	13-100 Wright Ave	Dartmouth	Nova Scotia	Canada
E235.Cl	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E235.F	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E235.NO2	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E235.NO3	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E235.SO4	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E290	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E298	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E330	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E355-L	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E378-U	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
E421	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
EC100	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
EC101	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
EC105	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
EC235.N+N	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
EC421.SiO2	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada
PAHs (all calcs) in Water by LVI GC-MS					
E641A	Waterloo	60 Northland Road, Unit 1	Waterloo	Ontario	Canada

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Halifax

Work Order Reference

HA2501456

Telephone : +1 902 707 4888

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	DESIGNPOINT	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:		Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim
Phone:	902-919-4356	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minim
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minim
Street:	150 Bentinck Street	Email 1 or Fax	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minim
City/Province:	Sydney, NS	Email 2	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge
Postal Code:		Email 3	Additional fees may apply to rush requests on weekends
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Recipients**	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please co
Company:	Designpoint	Email 1 or Fax sarah.wilson@designpoint.ca	Analysis Req
Contact:	charlotte-clark@designpoint.ca	Email 2 ayman.polatbekov@designpoint.ca	

Project Information		Oil and Gas Required Fields (client use)	
ALS Client Code / QUOTE #:		AFE/Cost Center:	PO#
Job / Project #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):	HA2501456	ALS Contact:	Sampler:

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals	PAH	PHC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW1 (Filter metals)	14-05-2025	03:10pm	GW	6	P					
	MW2	14-05-2025	12:10pm	GW	10	F					
	MW3 (Filter Metals)	14-05-2025	2:55pm	GW	9	P					

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

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.7							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Navomi	15/05/2025	7:40	Robyn MacDonald	May 15/25	3:35			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 FRONT

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Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Halifax

Work Order Reference

HA2501456

Telephone : +1 902 707 4888

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Contact:	
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	Company address below will appear on the final report
Street:	150 Bentinck Street
City/Province:	Sydney, NS
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	DesignPoint
Contact:	charlotte.clark@designpoint.ca

Reports / Recipients

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

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

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

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Email 1 or Fax

Email 2

Email 3

Invoice Recipients

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Email 1 or Fax: sarah.wilson@designpoint.ca

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Job / Project #:

PO / AFE:

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Major/Minor Code: Routing Code:

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ALS Lab Work Order # (ALS use only): HA2501456

ALS Contact: Sampler:

Analysis Req

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3.7							

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Released by:	Date:	Time:
Navomi	15/05/2025	7:40

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
Robyn MacDonald	May 15/25	3:25

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

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MAY 2023 FRONT

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3. PAHs

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Please decant samples, if possible.

From: Abby van der Jagt <abby.vanderjagt@ALSGlobal.com>
Sent: Friday, May 16, 2025 11:46 AM
To: Arman Polatbekov <arman.polatbekov@designpoint.ca>
Cc: Charlotte Clark <charlotte.clark@designpoint.ca>; Sarah Wilson <sarah.wilson@designpoint.ca>
Subject: Sydney samples