

Page : 13 of 13
 Work Order : YL2401152
 Client : WSP Canada Inc.
 Project : CA0026317.6821/86000/03



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Calgary	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 ALS Environmental - Calgary	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO ₃ and HCl. This method is intended to liberate metals that may be environmentally available.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Calgary	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.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Calgary	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: YL2401152	Page	: 1 of 15
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Adrienne Ducharme	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: CA0026317.6821/86000/03	Date Samples Received	: 12-Aug-2024 11:24
PO	: ----	Date Analysis Commenced	: 15-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 09:45
Sampler	: ----		
Site	: Baffinland Milne Port		
Quote number	: VA24-GOLD100-011		
No. of samples received	: 3		
No. of samples analysed	: 3		

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.

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Page : 2 of 15
Work Order : YL2401152
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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: 1597851)											
EO2406771-096	Anonymous	Moisture	----	E144	0.25	%	16.8	16.1	4.13%	20%	----
Physical Tests (QC Lot: 1604483)											
EO2406972-001	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	7.66	7.68	0.261%	5%	----
Percent Passing (QC Lot: 1599810)											
VA24C0228-041	Anonymous	Passing (0.002mm)	----	E184	1.0	%	9.2	9.7	0.4	Diff <2x LOR	----
		Passing (0.004mm)	----	E184	1.0	%	11.6	12.0	0.4	Diff <2x LOR	----
		Passing (0.005mm)	----	E184	1.0	%	12.7	13.1	0.4	Diff <2x LOR	----
		Passing (0.020mm)	----	E184	1.0	%	26.0	26.1	0.0877%	15%	----
		Passing (0.0312mm)	----	E184	1.0	%	32.6	32.1	1.42%	15%	----
Percent Passing (QC Lot: 1599812)											
VA24C0228-041	Anonymous	Passing (0.05mm)	----	E182	1.0	%	43.5	42.2	2.95%	15%	----
		Passing (0.063mm)	----	E182	1.0	%	45.3	44.2	2.50%	15%	----
		Passing (0.075mm)	----	E182	1.0	%	47.0	46.0	2.12%	15%	----
		Passing (0.125mm)	----	E182	1.0	%	53.8	53.4	0.775%	15%	----
		Passing (0.149mm)	----	E182	1.0	%	55.3	55.0	0.618%	15%	----
		Passing (0.250mm)	----	E182	1.0	%	61.4	61.4	0.0409%	15%	----
		Passing (0.420mm)	----	E182	1.0	%	65.5	65.7	0.320%	15%	----
		Passing (0.50mm)	----	E182	1.0	%	67.5	67.8	0.474%	15%	----
		Passing (0.841mm)	----	E182	1.0	%	70.5	71.0	0.745%	15%	----
		Passing (1.0mm)	----	E182	1.0	%	71.9	72.5	0.863%	15%	----
Organic / Inorganic Carbon (QC Lot: 1599758)											
EO2406802-001	Anonymous	Carbon, inorganic [IC]	----	E354	0.050	%	0.082	0.076	0.006	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1600140)											
VA24C0228-039	Anonymous	Carbon, total [TC]	----	E351	0.050	%	0.735	0.770	4.58%	20%	----
Metals (QC Lot: 1602984)											
FJ2402354-001	Anonymous	Mercury	7439-97-6	E510	0.0500	mg/kg	0.0968	0.107	0.0104	Diff <2x LOR	----
Metals (QC Lot: 1602985)											
FJ2402354-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	13800	12600	8.60%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.82	0.95	14.9%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	10.6	10.2	3.67%	30%	----



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: 1602985) - continued											
FJ2402354-001	Anonymous	Barium	7440-39-3	E440	0.50	mg/kg	577	564	2.34%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.79	0.78	0.700%	30%	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	0.21	0.20	0.006	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	6.1	6.0	0.1	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	1.20	1.15	4.54%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	30600	31100	1.63%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	30.7	27.0	13.0%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	12.4	12.1	1.86%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	27.5	26.6	3.24%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	29500	28500	3.40%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	13.5	13.2	2.22%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	20.2	19.2	5.09%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	7230	6800	6.12%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	436	434	0.301%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	1.95	1.97	0.980%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	41.1	39.1	5.02%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	1060	973	9.01%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	1940	1840	5.11%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.62	0.58	0.03	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.24	0.25	0.0004	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	273	254	7.32%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	82.4	81.1	1.61%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.254	0.251	0.003	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	9.9	11.5	14.6%	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	1.22	1.20	1.93%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	48.4	45.5	6.06%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	131	126	3.80%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	3.4	3.5	0.1	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1597847)											
EO2406771-096	Anonymous	F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	<25	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	<50	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
Hydrocarbons (QC Lot: 1597847) - continued											
EO2406771-096	Anonymous	F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1597849)											
FJ2402353-001	Anonymous	EPH (C10-C19)	----	E601A	200	mg/kg	<200	<200	0	Diff <2x LOR	----
		EPH (C19-C32)	----	E601A	200	mg/kg	<200	<200	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1597848)											
FJ2402353-001	Anonymous	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	0.014	<0.010	0.004	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	0.025	0.014	0.011	Diff <2x LOR	----
		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	0.012	<0.010	0.002	Diff <2x LOR	----
		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	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	0.011	<0.010	0.001	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	0.012	<0.010	0.002	Diff <2x LOR	----
		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	----



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: 1597851)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1599758)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1600140)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Metals (QCLot: 1602984)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1602985)						
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	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1602985) - continued						
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	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
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	----
Hydrocarbons (QCLot: 1597847)						
F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1597849)						
EPH (C10-C19)	----	E601A	200	mg/kg	<200	----
EPH (C19-C32)	----	E601A	200	mg/kg	<200	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1597848)						
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	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1597848) - continued						
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	----



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: 1597851)									
Moisture	----	E144	0.25	%	50 %	92.7	90.0	110	----
Physical Tests (QCLot: 1604483)									
pH (1:2 soil:water)	----	E108	----	pH units	7 pH units	101	97.0	103	----
Organic / Inorganic Carbon (QCLot: 1599758)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	94.0	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1600140)									
Carbon, total [TC]	----	E351	0.05	%	48 %	104	90.0	110	----
Metals (QCLot: 1602984)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	114	80.0	120	----
Metals (QCLot: 1602985)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	111	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	113	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	113	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	101	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	105	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	104	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	106	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	100	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	110	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	108	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	105	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	108	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	107	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	101	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	112	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	107	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	110	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	107	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	113	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	114	80.0	120	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Target Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1602985) - continued									
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	108	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	100	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	112	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	111	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	114	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	105	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	109	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	108	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	105	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	104	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	111	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	106	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	105	80.0	120	----
Hydrocarbons (QCLot: 1597847)									
F2 (C10-C16)	----	E601.SG	25	mg/kg	614 mg/kg	96.9	70.0	130	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	1330 mg/kg	89.6	70.0	130	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	736 mg/kg	85.6	70.0	130	----
Hydrocarbons (QCLot: 1597849)									
EPH (C10-C19)	----	E601A	200	mg/kg	988 mg/kg	90.2	70.0	130	----
EPH (C19-C32)	----	E601A	200	mg/kg	648 mg/kg	89.3	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1597848)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.455 mg/kg	97.8	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.455 mg/kg	97.3	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.455 mg/kg	75.4	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.455 mg/kg	79.8	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.455 mg/kg	78.3	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.455 mg/kg	75.3	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.455 mg/kg	80.5	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.455 mg/kg	79.6	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.455 mg/kg	81.2	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.455 mg/kg	83.5	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.455 mg/kg	77.3	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.455 mg/kg	81.8	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.455 mg/kg	79.8	60.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1597848) - continued									
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.455 mg/kg	82.2	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.455 mg/kg	92.2	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.455 mg/kg	99.7	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.455 mg/kg	95.0	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.455 mg/kg	80.6	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.455 mg/kg	78.6	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.455 mg/kg	85.8	60.0	130	----



Matrix Spike (MS) Report

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

Sub-Matrix: Soil/Solid

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
Hydrocarbons (QCLot: 1597847)										
EO2406771-096	Anonymous	F2 (C10-C16)	----	E601.SG	490 mg/kg	515 mg/kg	95.0	60.0	140	----
		F3 (C16-C34)	----	E601.SG	988 mg/kg	1120 mg/kg	88.5	60.0	140	----
		F4 (C34-C50)	----	E601.SG	504 mg/kg	617 mg/kg	81.6	60.0	140	----
Hydrocarbons (QCLot: 1597849)										
FJ2402353-001	Anonymous	EPH (C10-C19)	----	E601A	840 mg/kg	856 mg/kg	97.8	60.0	140	----
		EPH (C19-C32)	----	E601A	490 mg/kg	562 mg/kg	86.7	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1597848)										
FJ2402353-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.307 mg/kg	0.347 mg/kg	88.5	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.308 mg/kg	0.347 mg/kg	88.8	50.0	140	----
		Acridine	260-94-6	E641A-L	0.260 mg/kg	0.347 mg/kg	75.0	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.286 mg/kg	0.347 mg/kg	82.5	50.0	140	----
		Benzo(a)anthracene	56-55-3	E641A-L	0.290 mg/kg	0.347 mg/kg	83.6	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.281 mg/kg	0.347 mg/kg	81.0	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.291 mg/kg	0.347 mg/kg	83.8	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.274 mg/kg	0.347 mg/kg	78.9	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.299 mg/kg	0.347 mg/kg	86.2	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.303 mg/kg	0.347 mg/kg	87.2	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.265 mg/kg	0.347 mg/kg	76.5	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.295 mg/kg	0.347 mg/kg	84.9	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.281 mg/kg	0.347 mg/kg	80.8	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.330 mg/kg	0.347 mg/kg	95.0	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.288 mg/kg	0.347 mg/kg	83.0	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.318 mg/kg	0.347 mg/kg	91.7	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.298 mg/kg	0.347 mg/kg	85.8	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.283 mg/kg	0.347 mg/kg	81.5	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.288 mg/kg	0.347 mg/kg	83.0	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.272 mg/kg	0.347 mg/kg	78.2	50.0	140	----



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:

Sub-Matrix:					Reference Material (RM) Report				
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	RM Target	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	RM	Low	High	
Physical Tests (QCLot: 1604483)									
QC-1604483-002	RM	pH (1:2 soil:water)	----	E108	7.78 pH units	103	96.0	104	----
Percent Passing (QCLot: 1599810)									
QC-1599810-001	RM	Passing (0.002mm)	----	E184	22.5 %	107	74.1	126	----
QC-1599810-001	RM	Passing (0.004mm)	----	E184	25.1 %	106	76.8	123	----
QC-1599810-001	RM	Passing (0.005mm)	----	E184	26.5 %	105	77.9	122	----
QC-1599810-001	RM	Passing (0.020mm)	----	E184	41.8 %	99.6	85.8	114	----
QC-1599810-001	RM	Passing (0.0312mm)	----	E184	45.6 %	103	88.0	112	----
Percent Passing (QCLot: 1599811)									
QC-1599811-001	RM	Passing (19mm)	----	E181	100 %	100	90.0	110	----
QC-1599811-001	RM	Passing (2.0mm)	----	E181	100 %	100	90.0	110	----
QC-1599811-001	RM	Passing (25.4mm)	----	E181	100 %	100	90.0	110	----
QC-1599811-001	RM	Passing (38.1mm)	----	E181	100 %	100	90.0	110	----
QC-1599811-001	RM	Passing (4.75mm)	----	E181	100 %	100	90.0	110	----
QC-1599811-001	RM	Passing (50.8mm)	----	E181	100 %	100	90.0	110	----
QC-1599811-001	RM	Passing (76.2mm)	----	E181	100 %	100	90.0	110	----
QC-1599811-001	RM	Passing (9.5mm)	----	E181	100 %	100	90.0	110	----
Percent Passing (QCLot: 1599812)									
QC-1599812-001	RM	Passing (0.05mm)	----	E182	54.1 %	104	90.0	110	----
QC-1599812-001	RM	Passing (0.063mm)	----	E182	57.1 %	103	90.8	109	----
QC-1599812-001	RM	Passing (0.075mm)	----	E182	60.2 %	101	91.4	109	----
QC-1599812-001	RM	Passing (0.125mm)	----	E182	68.2 %	102	92.7	107	----
QC-1599812-001	RM	Passing (0.149mm)	----	E182	72 %	100	93.1	107	----
QC-1599812-001	RM	Passing (0.250mm)	----	E182	82.3 %	101	94.1	106	----
QC-1599812-001	RM	Passing (0.420mm)	----	E182	89.9 %	99.3	94.6	105	----
QC-1599812-001	RM	Passing (0.50mm)	----	E182	91.2 %	101	94.7	105	----
QC-1599812-001	RM	Passing (0.841mm)	----	E182	95.6 %	99.5	94.9	105	----
QC-1599812-001	RM	Passing (1.0mm)	----	E182	96.3 %	100	94.9	105	----
Organic / Inorganic Carbon (QCLot: 1599758)									
QC-1599758-003	RM	Carbon, inorganic [IC]	----	E354	0.383 %	98.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1600140)									
QC-1600140-003	RM	Carbon, total [TC]	----	E351	1.4 %	101	80.0	120	----
Metals (QCLot: 1602984)									



Sub-Matrix:					Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method					
Metals (QCLot: 1602984) - continued									
QC-1602984-003	RM	Mercury	7439-97-6	E510	0.068 mg/kg	112	70.0	130	----
Metals (QCLot: 1602985)									
QC-1602985-003	RM	Aluminum	7429-90-5	E440	22500 mg/kg	86.9	70.0	130	----
QC-1602985-003	RM	Antimony	7440-36-0	E440	24.8 mg/kg	94.4	70.0	130	----
QC-1602985-003	RM	Arsenic	7440-38-2	E440	21.2 mg/kg	89.1	70.0	130	----
QC-1602985-003	RM	Barium	7440-39-3	E440	788 mg/kg	87.9	70.0	130	----
QC-1602985-003	RM	Beryllium	7440-41-7	E440	1.82 mg/kg	94.5	70.0	130	----
QC-1602985-003	RM	Bismuth	7440-69-9	E440	1.78 mg/kg	79.0	70.0	130	----
QC-1602985-003	RM	Cadmium	7440-43-9	E440	2.15 mg/kg	90.0	70.0	130	----
QC-1602985-003	RM	Calcium	7440-70-2	E440	4900 mg/kg	86.4	70.0	130	----
QC-1602985-003	RM	Chromium	7440-47-3	E440	56.9 mg/kg	89.9	70.0	130	----
QC-1602985-003	RM	Cobalt	7440-48-4	E440	32 mg/kg	89.7	70.0	130	----
QC-1602985-003	RM	Copper	7440-50-8	E440	969 mg/kg	88.8	70.0	130	----
QC-1602985-003	RM	Iron	7439-89-6	E440	32700 mg/kg	92.0	70.0	130	----
QC-1602985-003	RM	Lead	7439-92-1	E440	919 mg/kg	87.3	70.0	130	----
QC-1602985-003	RM	Lithium	7439-93-2	E440	47.3 mg/kg	91.5	70.0	130	----
QC-1602985-003	RM	Magnesium	7439-95-4	E440	7780 mg/kg	92.1	70.0	130	----
QC-1602985-003	RM	Manganese	7439-96-5	E440	8640 mg/kg	87.3	70.0	130	----
QC-1602985-003	RM	Molybdenum	7439-98-7	E440	25.1 mg/kg	88.9	70.0	130	----
QC-1602985-003	RM	Nickel	7440-02-0	E440	1000 mg/kg	87.6	70.0	130	----
QC-1602985-003	RM	Phosphorus	7723-14-0	E440	660 mg/kg	84.7	70.0	130	----
QC-1602985-003	RM	Potassium	7440-09-7	E440	10800 mg/kg	92.0	70.0	130	----
QC-1602985-003	RM	Selenium	7782-49-2	E440	1.04 mg/kg	95.7	60.0	140	----
QC-1602985-003	RM	Silver	7440-22-4	E440	8.98 mg/kg	86.3	70.0	130	----
QC-1602985-003	RM	Sodium	7440-23-5	E440	1770 mg/kg	90.6	70.0	130	----
QC-1602985-003	RM	Strontium	7440-24-6	E440	41 mg/kg	86.7	70.0	130	----
QC-1602985-003	RM	Sulfur	7704-34-9	E440	3940 mg/kg	105	50.0	150	----
QC-1602985-003	RM	Thallium	7440-28-0	E440	0.907 mg/kg	91.2	70.0	130	----
QC-1602985-003	RM	Tin	7440-31-5	E440	3.79 mg/kg	90.1	40.0	160	----
QC-1602985-003	RM	Titanium	7440-32-6	E440	2790 mg/kg	93.6	70.0	130	----
QC-1602985-003	RM	Tungsten	7440-33-7	E440	6.99 mg/kg	90.4	70.0	130	----
QC-1602985-003	RM	Uranium	7440-61-1	E440	3.97 mg/kg	# 69.5	70.0	130	MES
QC-1602985-003	RM	Vanadium	7440-62-2	E440	66.2 mg/kg	89.6	70.0	130	----
QC-1602985-003	RM	Zinc	7440-66-6	E440	828 mg/kg	90.0	70.0	130	----
QC-1602985-003	RM	Zirconium	7440-67-7	E440	6.91 mg/kg	88.5	70.0	130	----



Qualifiers

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



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