



FIRST NATION HEALTH AUTHORITY

ATTN: [REDACTED]

[REDACTED]
Vancouver BC V6E 4S5

Date Received: 21-AUG-14

Report Date: 29-SEP-14 12:27 (MT)

Version: FINAL

Client Phone: [REDACTED]

Certificate of Analysis

Lab Work Order #: L1505873
Project P.O. #: NOT SUBMITTED
Job Reference: FNHA FISH SAMPLING PROJECT
C of C Numbers: WL001
Legal Site Desc:

Comments: Samples were subletted to ALS Kelso for Arsenic speciation, please see the attached report for details.

[REDACTED]
Senior Account Manager

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

29-SEP-14 12:27 (MT)

Version: FINAL

		Sample ID Description Sampled Date Sampled Time Client ID	L1505873-1 fish 20-AUG-14 SAMPLE 7- SOCKEYE (FC) (NSTQ)	L1505873-2 fish 20-AUG-14 SAMPLE 8- SOCKEYE (FC) (NSTQ)	L1505873-3 fish 19-AUG-14 SAMPLE 9- SOCKEYE (SODA CRK) (NSTQ)	L1505873-4 fish 19-AUG-14 SAMPLE 10- SOCKEYE (SODA CRK) (NSTQ)	L1505873-5 fish 17-AUG-14 SAMPLE 11- SOCKEYE (GANG R) (NSTQ)
Grouping	Analyte						
TISSUE							
Metals	Aluminum (Al)-Total (mg/kg wwt)	0.65	1.97	0.44	<0.40	1.88	
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
	Arsenic (As)-Total (mg/kg wwt)	0.660	0.651	0.482	0.332	0.551	
	Barium (Ba)-Total (mg/kg wwt)	0.021	0.030	0.012	0.015	0.040	
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20	
	Cadmium (Cd)-Total (mg/kg wwt)	0.0052	0.0079	0.0053	0.0039	0.0075	
	Calcium (Ca)-Total (mg/kg wwt)	533	757	303	353	583	
	Cesium (Cs)-Total (mg/kg wwt)	0.0178	0.0257	0.0203	0.0237	0.0196	
	Chromium (Cr)-Total (mg/kg wwt)	0.014	0.011	0.033	0.188	0.026	
	Cobalt (Co)-Total (mg/kg wwt)	0.0059	0.0081	0.0047	0.0090	0.0091	
	Copper (Cu)-Total (mg/kg wwt)	0.705	1.10	0.713	0.808	0.578	
	Iron (Fe)-Total (mg/kg wwt)	4.52	7.83	3.61	5.83	6.07	
	Lead (Pb)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10	
	Magnesium (Mg)-Total (mg/kg wwt)	279	278	269	288	310	
	Manganese (Mn)-Total (mg/kg wwt)	0.122	0.185	0.093	0.106	0.172	
	Mercury (Hg)-Total (mg/kg wwt)	0.0467	0.0452	0.0600	0.0467	0.0559	
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0047	0.0060	0.0054	0.0247	0.0047	
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	0.123	<0.040	
	Phosphorus (P)-Total (mg/kg wwt)	2790	2900	2680	2940	3180	
	Potassium (K)-Total (mg/kg wwt)	3740	3620	4010	4080	4350	
	Rubidium (Rb)-Total (mg/kg wwt)	0.880	0.954	1.01	0.993	1.09	
	Selenium (Se)-Total (mg/kg wwt)	0.271	0.298	0.278	0.300	0.289	
	Sodium (Na)-Total (mg/kg wwt)	414	419	495	392	420	
	Strontium (Sr)-Total (mg/kg wwt)	2.54	3.60	1.28	1.39	2.33	
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
	Thallium (Tl)-Total (mg/kg wwt)	<0.00040	0.00083	0.00053	0.00116	0.00082	
	Tin (Sn)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020	
	Uranium (U)-Total (mg/kg wwt)	<0.00040	0.00065	<0.00040	<0.00040	0.00041	
	Vanadium (V)-Total (mg/kg wwt)	0.090	0.156	0.176	<0.020	0.202	
	Zinc (Zn)-Total (mg/kg wwt)	5.71	7.45	4.58	5.13	5.20	
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040	

ALS ENVIRONMENTAL ANALYTICAL REPORT

29-SEP-14 12:27 (MT)

Version: FINAL

		Sample ID Description Sampled Date Sampled Time Client ID	L1505873-6 fish 17-AUG-14 SAMPLE 12- SOCKEYE (GANG R) (NSTQ)	L1505873-7 fish SAMPLE 8- SOCKEYE (FC) (NSTQ) REPLICATE	L1505873-8 fish SAMPLE 10- SOCKEYE (SODA CRK) (NSTQ) REPLICATE	L1505873-9 fish 20-AUG-14 SAMPLE 8- SOCKEYE (FC) (NSTQ) GONAD	L1505873-10 fish 19-AUG-14 SAMPLE 9- SOCKEYE (SODA CRK) (NSTQ) LIVER
Grouping	Analyte						
TISSUE							
Metals	Aluminum (Al)-Total (mg/kg wwt)	0.52	1.18	<0.40	0.68	<0.40	
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
	Arsenic (As)-Total (mg/kg wwt)	1.00	0.685	0.342	0.299	0.351	
	Barium (Ba)-Total (mg/kg wwt)	0.028	0.033	0.019	0.051	<0.010	
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20	
	Cadmium (Cd)-Total (mg/kg wwt)	0.0068	0.0079	0.0040	0.0321	1.12	
	Calcium (Ca)-Total (mg/kg wwt)	659	830	443	515	55.3	
	Cesium (Cs)-Total (mg/kg wwt)	0.0174	0.0272	0.0253	0.0105	0.0059	
	Chromium (Cr)-Total (mg/kg wwt)	0.673	0.015	0.205	<0.010	0.017	
	Cobalt (Co)-Total (mg/kg wwt)	0.0168	0.0079	0.0095	0.0291	0.0204	
	Copper (Cu)-Total (mg/kg wwt)	0.931	1.19	0.848	47.4	209	
	Iron (Fe)-Total (mg/kg wwt)	8.87	6.99	6.21	22.6	80.5	
	Lead (Pb)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10	
	Magnesium (Mg)-Total (mg/kg wwt)	286	283	299	697	140	
	Manganese (Mn)-Total (mg/kg wwt)	0.203	0.157	0.120	0.826	1.13	
	Mercury (Hg)-Total (mg/kg wwt)	0.0613	0.0486	0.0488	0.0052	0.105	
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0883	0.0066	0.0282	0.0071	0.158	
	Nickel (Ni)-Total (mg/kg wwt)	0.451	<0.040	0.145	<0.040	<0.040	
	Phosphorus (P)-Total (mg/kg wwt)	3050	2970	3050	4430	2730	
	Potassium (K)-Total (mg/kg wwt)	3990	3780	4220	2160	3150	
	Rubidium (Rb)-Total (mg/kg wwt)	0.979	0.979	1.05	0.546	0.821	
	Selenium (Se)-Total (mg/kg wwt)	0.275	0.302	0.311	3.22	13.8	
	Sodium (Na)-Total (mg/kg wwt)	362	427	402	591	1310	
	Strontium (Sr)-Total (mg/kg wwt)	3.26	4.01	1.75	4.92	0.168	
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
	Thallium (Tl)-Total (mg/kg wwt)	0.00061	0.00086	0.00122	0.00063	0.00184	
	Tin (Sn)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020	
	Uranium (U)-Total (mg/kg wwt)	0.00060	0.00070	<0.00040	0.00274	0.00064	
	Vanadium (V)-Total (mg/kg wwt)	0.031	0.150	0.022	<0.020	0.231	
	Zinc (Zn)-Total (mg/kg wwt)	6.60	7.74	5.42	35.2	30.8	
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040	

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS (WET)	EPA 200.3, EPA 245.7
<p>This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.</p>			
MET-WET-CCMS-VA	Tissue	Metals in Tissue by CRC ICPMS (WET)	EPA 200.3/6020A
<p>This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).</p>			
<p>Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.</p>			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

WL001

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



ALS Environmental
ALS Group USA, Corp.
1317 South 13th Avenue
Kelso, WA 98626
T: +1 360 577 7222
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September 29, 2014

Analytical Report for Service Request No: K1409557

[REDACTED]
ALS Environmental - Canada
8081 Lougheed Hwy
Suite 100
Burnaby, BC V5A 1W9

CANADA

RE: L1505873

Dear [REDACTED]

Enclosed are the results of the samples submitted to our laboratory on September 06, 2014. For your reference, these analyses have been assigned our service request number K1409557.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is [REDACTED]. You may also contact me via Email at [REDACTED].

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental


[REDACTED]
Project Manager

CL/kd

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjllabs.com/	L14-50
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



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L1505873

VANCOUVER

Subcontract Request Form

Subcontract To:

ALS ENVIRONMENTAL - KELSO, WASHINGTON, USA

1317 S. 13TH AVE
KELSO, WA 98626

KL409557

NOTES: Please reference on final report and invoice: PO# L1505873
ALS requires QC data to be provided with your final results.

Please see enclosed **10** sample(s) in **10** Container(s)

SAMPLE NUMBER	CLIENT ID	ANALYTICAL REQUIRED	DATE SAMPLED	DUE DATE	Priority Flag
L1505873-1	SAMPLE 7-SOCKEYE (FC) (NSTQ)	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/20/2014	9/11/2014	E
L1505873-2	SAMPLE 8-SOCKEYE (FC) (NSTQ)	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/20/2014	9/11/2014	E
L1505873-3	SAMPLE 9-SOCKEYE (SODA CRK) (NSTQ)	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/19/2014	9/11/2014	E
L1505873-4	SAMPLE 10-SOCKEYE (SODA CRK) (NSTQ)	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/19/2014	9/11/2014	E
L1505873-5	SAMPLE 11-SOCKEYE (GANG R) (NSTQ)	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/17/2014	9/11/2014	E
L1505873-6	SAMPLE 12-SOCKEYE (GANG R) (NSTQ)	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/17/2014	9/11/2014	E
L1505873-7	SAMPLE 8-SOCKEYE (FC) (NSTQ) REPLICATE	Special Request - Kelso (SPECIAL REQUEST-KL 14)		9/11/2014	E
L1505873-8	SAMPLE 10-SOCKEYE (SODA CRK) (NSTQ) REPLICATE	Special Request - Kelso (SPECIAL REQUEST-KL 14)		9/11/2014	E
L1505873-9	SAMPLE 8-SOCKEYE (FC) (NSTQ) GONAD	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/20/2014	9/11/2014	E
L1505873-10	SAMPLE 9-SOCKEYE (SODA CRK) (NSTQ) LIVER	Special Request - Kelso (SPECIAL REQUEST-KL 14)	8/19/2014	9/11/2014	E

DID NOT RECEIVE CALL 9/6/17



Subcontract Request Form

Subcontract To:

ALS ENVIRONMENTAL - KELSO, WASHINGTON, USA

1317 S. 13TH AVE
KELSO, WA 98626

Subcontract Info Contact: [Redacted]

Analysis and reporting info contact: [Redacted]

8081 LOUGHEED HWY
SUITE 100
BURNABY, BC V5A 1W9

Phone: [Redacted] [Redacted]

Please email confirmation of receipt to: [Redacted]

Shipped By: _____ Date Shipped: _____

Received By: *[Signature]* _____ Date Received: _____

Verified By: _____ Date Verified: _____

Temperature: _____

Sample Integrity Issues: _____



Cooler Receipt and Preservation Form

Client / Project: AKS Service Request K14 9557
 Received: 9/6/14 Opened: 9/6/14 By: AK Unloaded: 9/6/17 By: AK

1. Samples were received via? Mail Fed Ex UPS DHL PDX Courier Hand Delivered
 2. Samples were received in: (circle) Cooler Box Envelope Other NA
 3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
-45.0	-44.9	-	-	0.1	345	NA	531917603498		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
 11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

RUSH

Notes, Discrepancies, & Resolutions: COC'S NOT SIGNED BY CLIENT.
DID NOT RECEIVE - 2 OR - 4.

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: ALS Environmental - Canada
Project:
Sample Matrix: Animal Tissue
Analysis Method: Freeze Dry
Prep Method: None

Service Request: K1409557
Date Collected: 08/17/14 - 08/20/14
Date Received: 09/6/14
Units: Percent
Basis: Wet

Total Solids

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
L1505873-1	K1409557-001	32.9	-	1	09/09/14 13:40	
L1505873-3	K1409557-002	26.5	-	1	09/09/14 13:40	
L1505873-5	K1409557-003	28.4	-	1	09/09/14 13:40	
L1505873-6	K1409557-004	31.5	-	1	09/09/14 13:40	
L1505873-7	K1409557-005	29.6	-	1	09/09/14 13:40	
L1505873-8	K1409557-006	29.0	-	1	09/09/14 13:40	
L1505873-9	K1409557-007	43.3	-	1	09/09/14 13:40	
L1505873-10	K1409557-008	20.4	-	1	09/09/14 13:40	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: ALS Environmental - Canada

Project

Sample Matrix: Animal Tissue

Service Request: K1409557

Date Collected: NA

Date Received: 09/06/14

Date Analyzed: 09/09/14

Replicate Sample Summary

Inorganic Parameters

Sample Name: L1505873-7

Units: Percent

Lab Code: K1409557-005

Basis: Wet

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>MRL</u>	<u>Sample Result</u>	<u>Duplicate Sample K1409557- 005DUP Result</u>	<u>Average</u>	<u>RPD</u>	<u>RPD Limit</u>
Total Solids	Freeze Dry	-	29.6	28.8	29.2	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
 dba ALS Environmental
 Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: 8/20/2014
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-1
 Lab Code: K1409557-001
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.01	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.03	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.03	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: 8/19/2014
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-3
 Lab Code: K1409557-002
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.01	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.03	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.03	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: 8/17/2014
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-5
Lab Code: K1409557-003
Test Notes:

Units: ug/g
Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.01	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.03	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.03	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: 8/17/2014
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-6
Lab Code: K1409557-004
Test Notes:

Units: ug/g
Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.01	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.03	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.03	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
 dba ALS Environmental
 Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: NA
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-7
 Lab Code: K1409557-005
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.01	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.03	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.03	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
 dba ALS Environmental
 Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: NA
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-8
 Lab Code: K1409557-006
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.01	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.03	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.03	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: NA
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-9
 Lab Code: K1409557-007
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.02	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.02	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.009	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
 dba ALS Environmental
 Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: NA
Date Received: 9/6/2014

Total Metals

Sample Name: L1505873-10
 Lab Code: K1409557-008
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.008	1	9/23/2014	9/24/2014	ND	
Arsenic (V)	1632A	1632A	0.008	1	NA	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.004	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
 dba ALS Environmental
 Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: NA
Date Received: 9/6/2014

Total Metals

Sample Name: Method Blank 1
 Lab Code: K1409557-MB1
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.008	1	9/23/2014	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.004	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
 dba ALS Environmental
 Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: NA
Date Received: 9/6/2014

Total Metals

Sample Name: Method Blank 2
 Lab Code: K1409557-MB2
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.008	1	9/23/2014	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.004	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
 dba ALS Environmental
 Analytical Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: NA
Date Received: 9/6/2014

Total Metals

Sample Name: Method Blank 3
 Lab Code: K1409557-MB3
 Test Notes:

Units: ug/g
 Basis: Wet

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic (III)	1632A	1632A	0.008	1	9/23/2014	9/24/2014	ND	
Inorganic Arsenic	1632A	1632A	0.004	1	9/18/2014	9/19/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental
 QA/QC Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: 8/20/2014
Date Received: 9/6/2014
Date Extracted: 9/23/2014
Date Analyzed: 9/24/2014

Matrix Spike/Duplicate Matrix Spike Summary
 Total Metals

Sample Name: L1505873-9 Units: ug/g
 Lab Code: K1409557-007MS, K1409557-007MSD Basis: Wet
 Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		Method Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Arsenic (III)	1632A	1632A	0.08	0.84	0.81	ND	0.57	0.58	68	72	30-170	2	

ALS Group USA, Corp.
dba ALS Environmental
 QA/QC Report

Client: ALS Environmental - Canada
Project: L1505873
Sample Matrix: Animal tissue

Service Request: K1409557
Date Collected: 8/20/2014
Date Received: 9/6/2014
Date Extracted: 9/18/2014
Date Analyzed: 9/19/2014

Matrix Spike/Duplicate Matrix Spike Summary
 Total Metals

Sample Name: L1505873-10 Units: ug/g
 Lab Code: K1409557-008MS, K1409557-008MSD Basis: Wet
 Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		Method Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Inorganic Arsenic	1632A	1632A	0.02	0.12	0.12	ND	0.12	0.11	100	92	50-150	9	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: ALS Environmental - Canada
Project: L1505873
LCS Matrix: Water

Service Request: K1409557
Date Collected: NA
Date Received: NA
Date Extracted: 09/18,09/23/14
Date Analyzed: 09/19,09/24/14

Ongoing Precision and Recovery (OPR) Sample Summary
 Total Metals

Sample Name: Ongoing Precision and Recovery

Units: ug/g
 Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Arsenic (III)	Method	1632A	2.000	1.750	88	30-170	
Inorganic Arsenic	Method	1632A	0.200	0.202	101	50-150	