



FIRST NATION HEALTH AUTHORITY

ATTN: [REDACTED]

[REDACTED]  
Vancouver BC V6E 4S5

Date Received: 14-AUG-14

Report Date: 09-SEP-14 11:41 (MT)

Version: FINAL

Client Phone: [REDACTED]

## Certificate of Analysis

Lab Work Order #: L1502423  
Project P.O. #: NOT SUBMITTED  
Job Reference:  
C of C Numbers: 10-385317  
Legal Site Desc:

**Comments:** Samples were sublet to ALS Kelso for Arsenic Speciation analyses, please see the attached report for details.

[REDACTED]  
Senior Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

|               |                                  | Sample ID    | L1502423-1  | L1502423-2   | L1502423-3  |
|---------------|----------------------------------|--------------|---|--|---|
|               |                                  | Description  | Fish  | Fish   | Fish  |
|               |                                  | Sampled Date | 09-AUG-14   | 09-AUG-14  | 09-AUG-14   |
|               |                                  | Sampled Time |   |  |   |
|               |                                  | Client ID    | SAMPLE 6-<br>CHINOOK (FC)<br>(TOOSEY)(FOUND<br>DEAD)<br>(MUSCLE+SKIN) | SAMPLE 6-<br>CHINOOK (FC)<br>(TOOSEY)(FOUND<br>DEAD) (LIVER) | SAMPLE 6-<br>CHINOOK(FC)<br>(TOOSEY)(FOUND<br>DEAD) (GONAD) |
| Grouping      | Analyte                          |              |   |  |   |
| <b>TISSUE</b> |                                  |              |   |  |   |
| <b>Metals</b> | Aluminum (Al)-Total (mg/kg ww)   |              | <0.40   | <0.40  | <0.40   |
|               | Antimony (Sb)-Total (mg/kg ww)   |              | <0.0020   | <0.0020  | <0.0020   |
|               | Arsenic (As)-Total (mg/kg ww)    |              | 0.675   | 0.595  | 0.287   |
|               | Barium (Ba)-Total (mg/kg ww)     |              | 0.012   | <0.010   | 0.034   |
|               | Beryllium (Be)-Total (mg/kg ww)  |              | <0.0020   | <0.0020  | <0.0020   |
|               | Bismuth (Bi)-Total (mg/kg ww)    |              | <0.0020   | <0.0020  | <0.0020   |
|               | Boron (B)-Total (mg/kg ww)       |              | <0.20   | <0.20  | <0.20   |
|               | Cadmium (Cd)-Total (mg/kg ww)    |              | 0.0026  | 0.474  | 0.0152  |
|               | Calcium (Ca)-Total (mg/kg ww)    |              | 646   | 115  | 425   |
|               | Cesium (Cs)-Total (mg/kg ww)     |              | 0.0502  | 0.0189   | 0.0163  |
|               | Chromium (Cr)-Total (mg/kg ww)   |              | 0.019   | <0.010   | <0.010  |
|               | Cobalt (Co)-Total (mg/kg ww)     |              | <0.0040   | <0.0040  | 0.0062  |
|               | Copper (Cu)-Total (mg/kg ww)     |              | 0.605   | 10.6   | 4.96  |
|               | Iron (Fe)-Total (mg/kg ww)       |              | 5.33  | 55.6   | 40.0  |
|               | Lead (Pb)-Total (mg/kg ww)       |              | <0.0040   | <0.0040  | <0.0040   |
|               | Lithium (Li)-Total (mg/kg ww)    |              | <0.10   | <0.10  | <0.10   |
|               | Magnesium (Mg)-Total (mg/kg ww)  |              | 268   | 217  | 566   |
|               | Manganese (Mn)-Total (mg/kg ww)  |              | 0.084   | 0.878  | 0.750   |
|               | Mercury (Hg)-Total (mg/kg ww)    |              | 0.0550  | 0.0660   | 0.0116  |
|               | Molybdenum (Mo)-Total (mg/kg ww) |              | 0.0055  | 0.0994   | 0.0073  |
|               | Nickel (Ni)-Total (mg/kg ww)     |              | <0.040  | <0.040   | <0.040  |
|               | Phosphorus (P)-Total (mg/kg ww)  |              | 2680  | 3610   | 3630  |
|               | Potassium (K)-Total (mg/kg ww)   |              | 3650  | 3630   | 1630  |
|               | Rubidium (Rb)-Total (mg/kg ww)   |              | 0.884   | 1.13   | 0.403   |
|               | Selenium (Se)-Total (mg/kg ww)   |              | 0.246   | 0.961  | 2.11  |
|               | Sodium (Na)-Total (mg/kg ww)     |              | 315   | 699  | 530   |
|               | Strontium (Sr)-Total (mg/kg ww)  |              | 1.90  | 0.142  | 1.94  |
|               | Tellurium (Te)-Total (mg/kg ww)  |              | <0.0040   | <0.0040  | <0.0040   |
|               | Thallium (Tl)-Total (mg/kg ww)   |              | 0.00055   | 0.00644  | 0.00053   |
|               | Tin (Sn)-Total (mg/kg ww)        |              | 0.024   | <0.020   | <0.020  |
|               | Uranium (U)-Total (mg/kg ww)     |              | <0.00040  | 0.00063  | 0.00057   |
|               | Vanadium (V)-Total (mg/kg ww)    |              | <0.020  | 0.091  | 0.070   |
|               | Zinc (Zn)-Total (mg/kg ww)       |              | 4.50  | 33.3   | 37.8  |
|               | Zirconium (Zr)-Total (mg/kg ww)  |              | <0.040  | <0.040   | <0.040  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## Reference Information

**QC Samples with Qualifiers & Comments:**

| QC Type Description | Parameter            | Qualifier | Applies to Sample Number(s) |
|---------------------|----------------------|-----------|-----------------------------|
| Duplicate           | Calcium (Ca)-Total   | DUP-H     | L1502423-1, -2, -3          |
| Duplicate           | Strontium (Sr)-Total | DUP-H     | L1502423-1, -2, -3          |

**Qualifiers for Individual Parameters Listed:**

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

**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

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.

**MET-WET-CCMS-VA**      Tissue      Metals in Tissue by CRC ICPMS (WET)      EPA 200.3/6020A

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).

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.

\*\* 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:**

10-385317

**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.*



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ALS Environmental  
ALS Group USA, Corp.  
1317 South 13<sup>th</sup> Avenue  
Kelso, WA 98626  
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F: +1 360 636 1068  
[www.alsglobal.com](http://www.alsglobal.com)

September 11, 2014

Analytical Report for Service Request No: K1408998  
Revised Service Request No: K1408998.01

██████████  
ALS Environmental - Canada  
8081 Lougheed Hwy  
Suite 100  
Burnaby, BC V5A 1W9

CANADA

**RE: Vancouver - As Spec/Burnaby/L1502423**

Dear ██████████

Enclosed is the revised report for the samples submitted to our laboratory on August 22, 2014. For your reference, these analyses have been assigned our service request number K1408998.

The results have been corrected to an "As Received" Basis as requested by the client.

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](http://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. ██████████ You may also contact me via Email at ██████████

Respectfully submitted,

**ALS Group USA Corp. dba ALS Environmental**

██████████  
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**

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



L1502423

VANCOUVER

Subcontract Request Form

K1408998

Subcontract To:

ALS ENVIRONMENTAL - KELSO, WASHINGTON, USA

1317 S. 13TH AVE
KELSO, WA 98626

NOTES: Please reference on final report and invoice: PO# L1502423
ALS requires QC data to be provided with your final results.

Please see enclosed 3 sample(s) in 3 Container(s)

Table with 5 columns: SAMPLE NUMBER, CLIENT ID, ANALYTICAL REQUIRED, DATE SAMPLED, DUE DATE, Priority Flag. Contains 3 rows of sample data.

Subcontract Info Contact:

Analysis and reporting info contact:

8081 LOUGHEED HWY
SUITE 100
BURNABY, BC V5A 1W9

Phone:

Please email confirmation of receipt to:

Shipped By: Date Shipped:

Received By: [Signature] Date Received: 8/22/14 09:30

Verified By: Date Verified:

Temperature:

Sample Integrity Issues:





### Cooler Receipt and Preservation Form

Client / Project: ALS (UNXCAU12) Service Request K14 8998  
 Received: 8-22-14 Opened: 8-22-14 By: BLO Unloaded: 8-22-14 By: bw

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 |
|-----------------|-----------------------|----------------|----------------------|--------------|----------------|---------------|----------------------|----|-------|
| <u>45.0</u>     | <u>-45.1</u>          |                |                      | <u>-1</u>    | <u>328</u>     | <u>NA</u>     | <u>539 1740 3410</u> |    |       |
|                 |                       |                |                      |              |                |               |                      |    |       |
|                 |                       |                |                      |              |                |               |                      |    |       |

4. Packing material: Inserts  Baggies  Bubble Wrap  Gel Packs  Wet Ice  Dry Ice  Sleeves BOX
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 |
|-----------|--------------|-------------|-------------|------------|-------|----|---------|--------------|--------------------|----------|------|
|           |              |             |             |            |       |    |         |              |                    |          |      |
|           |              |             |             |            |       |    |         |              |                    |          |      |
|           |              |             |             |            |       |    |         |              |                    |          |      |
|           |              |             |             |            |       |    |         |              |                    |          |      |

Notes, Discrepancies, & Resolutions: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal Tissue  
**Analysis Method:** Freeze Dry  
**Prep Method:** None

**Service Request:** K1408998  
**Date Collected:** 08/9/14  
**Date Received:** 08/22/14  
**Units:** Percent  
**Basis:** Wet

**Total Solids**

| Sample Name | Lab Code     | Result | MRL | Dil. | Date Analyzed  | Q |
|-------------|--------------|--------|-----|------|----------------|---|
| L1502423-1  | K1408998-001 | 28.5   | -   | 1    | 08/26/14 07:25 |   |
| L1502423-2  | K1408998-002 | 20.9   | -   | 1    | 08/26/14 07:25 |   |
| L1502423-3  | K1408998-003 | 41.1   | -   | 1    | 08/26/14 07:25 |   |

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal Tissue

**Service Request:** K1408998  
**Date Collected:** 08/09/14  
**Date Received:** 08/22/14  
**Date Analyzed:** 08/26/14

**Replicate Sample Summary**  
**Inorganic Parameters**

**Sample Name:** L1502423-1  
**Lab Code:** K1408998-001

**Units:** Percent  
**Basis:** Wet

| <u>Analyte Name</u> | <u>Analysis Method</u> | <u>MRL</u> | <u>Sample Result</u> | <u>Duplicate Sample K1408998-001DUP Result</u> | <u>Average</u> | <u>RPD</u> | <u>RPD Limit</u> |
|---------------------|------------------------|------------|----------------------|--|----------------|------------|------------------|
| Total Solids        | Freeze Dry             | -          | 28.5                 | 28.1   | 28.3           | 1          | 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:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** 08/09/14  
**Date Received:** 08/22/14

Total Metals

Sample Name: L1502423-1  
 Lab Code: K1408998-001  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL  | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|------|-----------------|----------------|---------------|--------|--------------|
| Arsenic (III)     | 1632A       | 1632A           | 0.01 | 1               | 09/04/14       | 09/05/14      | ND     |              |
| Arsenic (V)       | 1632A       | 1632A           | 0.02 | 1               | NA             | 09/06/14      | ND     |              |
| Inorganic Arsenic | 1632A       | 1632A           | 0.02 | 1               | 09/03/14       | 09/06/14      | ND     |              |

**ALS Group USA, Corp.**  
**dba ALS Environmental**  
**Analytical Report**

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:**  
**Date Received:** 08/22/14

Total Metals

Sample Name: L1502423-2  
 Lab Code: K1408998-002  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Arsenic (III)     | 1632A       | 1632A           | 0.008 | 1               | 09/04/14       | 09/05/14      | ND     |              |
| Arsenic (V)       | 1632A       | 1632A           | 0.008 | 1               | NA             | 09/06/14      | ND     |              |
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 1               | 09/02/14       | 09/06/14      | ND     |              |

**ALS Group USA, Corp.**  
**dba ALS Environmental**  
**Analytical Report**

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:**  
**Date Received:** 08/22/14

Total Metals

Sample Name: L1502423-3  
 Lab Code: K1408998-003  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Arsenic (III)     | 1632A       | 1632A           | 0.02  | 1               | 09/04/14       | 09/05/14      | ND     |              |
| Arsenic (V)       | 1632A       | 1632A           | 0.02  | 1               | NA             | 09/06/14      | ND     |              |
| Inorganic Arsenic | 1632A       | 1632A           | 0.008 | 1               | 09/02/14       | 09/06/14      | ND     |              |

**ALS Group USA, Corp.**  
**dba ALS Environmental**  
**Analytical Report**

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA

Total Metals

Sample Name: Method Blank 1  
 Lab Code: K1408998-MB1  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Arsenic (III)     | 1632A       | 1632A           | 0.008 | 1               | 09/04/14       | 09/05/14      | ND     |              |
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 1               | 09/02/14       | 09/06/14      | ND     |              |

**ALS Group USA, Corp.**  
 dba ALS Environmental  
 Analytical Report

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA

Total Metals

Sample Name: Method Blank 2  
 Lab Code: K1408998-MB2  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Arsenic (III)     | 1632A       | 1632A           | 0.008 | 1               | 09/04/14       | 09/05/14      | ND     |              |
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 1               | 09/02/14       | 09/06/14      | ND     |              |



**ALS Group USA, Corp.**  
**dba ALS Environmental**  
**Analytical Report**

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA

Total Metals

Sample Name: Method Blank 3  
 Lab Code: K1408998-MB3  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Arsenic (III)     | 1632A       | 1632A           | 0.008 | 1               | 09/04/14       | 09/05/14      | ND     |              |
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 1               | 09/02/14       | 09/06/14      | ND     |              |

ALS Group USA, Corp.  
dba ALS Environmental  
Analytical Report

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA

Total Metals

Sample Name: Method Blank 1  
Lab Code: K1408998-MB1  
Test Notes:

Units: ug/g  
Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 1               | 09/03/14       | 09/06/14      | ND     |              |

**ALS Group USA, Corp.**  
**dba ALS Environmental**  
**Analytical Report**

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA

Total Metals

Sample Name: Method Blank 2  
 Lab Code: K1408998-MB2  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 1               | 09/03/14       | 09/06/14      | ND     |              |

ALS Group USA, Corp.  
dba ALS Environmental  
Analytical Report

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA

Total Metals

Sample Name: Method Blank 3  
Lab Code: K1408998-MB3  
Test Notes:

Units: ug/g  
Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-------|-----------------|----------------|---------------|--------|--------------|
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 1               | 09/03/14       | 09/06/14      | ND     |              |

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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** 08/22/14  
**Date Extracted:** 09/03,09/04/14  
**Date Analyzed:** 09/05,09/06/14

Matrix Spike/Duplicate Matrix Spike Summary  
 Total Metals

Sample Name: L1502423-2  
 Lab Code: K1408998-002MS, K1408998-002MSD  
 Test Notes:

Units: ug/g  
 Basis: As Received

| Analyte           | Prep Method | Analysis Method | MRL   | Spike Level |       | Sample Result | Spike Result |       | Percent Recovery         |    |        |    | Relative Percent Difference | Result Notes |
|-------------------|-------------|-----------------|-------|-------------|-------|---------------|--------------|-------|--------------------------|----|--------|----|-----------------------------|--------------|
|                   |             |                 |       | MS          | DMS   |               | MS           | DMS   | Method Acceptance Limits |    | 86     | 84 |                             |              |
|                   |             |                 |       | MS          | DMS   |               | MS           | DMS   | Limits                   |    |        |    |                             |              |
| Arsenic (III)     | 1632A       | 1632A           | 0.008 | 0.387       | 0.410 | ND            | 0.332        | 0.344 | 86                       | 84 | 30-170 | 4  |                             |              |
| Inorganic Arsenic | 1632A       | 1632A           | 0.004 | 0.123       | 0.122 | ND            | 0.104        | 0.096 | 85                       | 79 | 50-150 | 8  |                             |              |

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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**Sample Matrix:** Animal tissue

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** 08/22/14  
**Date Extracted:** 09/03/14  
**Date Analyzed:** 09/06/14

Matrix Spike/Duplicate Matrix Spike Summary  
 Total Metals

Sample Name: Batch QC Units: ug/g  
 Lab Code: K1408995-003MS, K1408995-003MSD Basis: As Received  
 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           | 0.03 | 0.82        | 0.85 | ND            | 0.49         | 0.43 | 60               | 51  | 50-150                   | 14                          |              |

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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**LCS Matrix:** Water

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA  
**Date Extracted:** 09/02,09/04/14  
**Date Analyzed:** 09/05,09/06/14

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           | 2.00       | 1.51   | 76               | 30-170                             |              |
| Inorganic Arsenic | Method      | 1632A           | 0.200      | 0.162  | 81               | 50-150                             |              |

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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**LCS Matrix:** Water

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA  
**Date Extracted:** 09/03/14  
**Date Analyzed:** 09/06/14

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 |              |
| Inorganic Arsenic | Method      | 1632A           | 0.200      | 0.164  | 82               | 50-150                             |              |



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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**LCS Matrix:** Water

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA  
**Date Extracted:** NA  
**Date Analyzed:** 09/05,09/06/14

Calibration Verification (CALVER) Sample Summary  
 Total Metals

Sample Name: CALVER 1

Units: ug/L  
 Basis: NA

Test Notes:

| Analyte           | Prep Method | Analysis Method | True Value | Result | Percent Recovery | CAS                                | Result Notes |
|-------------------|-------------|-----------------|------------|--------|------------------|------------------------------------|--------------|
|                   |             |                 |            |        |                  | Percent Recovery Acceptance Limits |              |
| Arsenic (III)     | NA          | 1632A           | 0.20       | 0.211  | 106              | 70-130                             |              |
| Inorganic Arsenic | NA          | 1632A           | 0.20       | 0.189  | 94               | 80-120                             |              |

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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**LCS Matrix:** Water

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA  
**Date Extracted:** NA  
**Date Analyzed:** 09/05,09/06/14

Calibration Verification (CALVER) Sample Summary  
 Total Metals

Sample Name: CALVER 2

Units: ug/L  
 Basis: NA

Test Notes:

| Analyte           | Prep Method | Analysis Method | True Value | Result | Percent Recovery | CAS                                | Result Notes |
|-------------------|-------------|-----------------|------------|--------|------------------|------------------------------------|--------------|
|                   |             |                 |            |        |                  | Percent Recovery Acceptance Limits |              |
| Arsenic (III)     | NA          | 1632A           | 0.20       | 0.235  | 117              | 70-130                             |              |
| Inorganic Arsenic | NA          | 1632A           | 0.20       | 0.194  | 97               | 80-120                             |              |

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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**LCS Matrix:** Water

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA  
**Date Extracted:** NA  
**Date Analyzed:** 09/05,09/06/14

Calibration Verification (CALVER) Sample Summary  
 Total Metals

Sample Name: CALVER 3 Units: ug/L  
 Basis: NA

Test Notes:

| Analyte           | Prep Method | Analysis Method | True Value | Result | Percent Recovery | CAS                                | Result Notes |
|-------------------|-------------|-----------------|------------|--------|------------------|------------------------------------|--------------|
|                   |             |                 |            |        |                  | Percent Recovery Acceptance Limits |              |
| Arsenic (III)     | NA          | 1632A           | 0.20       | 0.184  | 92               | 70-130                             |              |
| Inorganic Arsenic | NA          | 1632A           | 0.20       | 0.191  | 96               | 80-120                             |              |

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

**Client:** ALS Environmental - Canada  
**Project:** Vancouver - As Spec/Burnaby/L1502423  
**LCS Matrix:** Water

**Service Request:** K1408998  
**Date Collected:** NA  
**Date Received:** NA  
**Date Extracted:** NA  
**Date Analyzed:** 09/05,09/06/14

Calibration Verification (CALVER) Sample Summary  
 Total Metals

Sample Name: CALVER 4

Units: ug/L  
 Basis: NA

Test Notes:

| Analyte           | Prep Method | Analysis Method | True Value | Result | Percent Recovery | CAS                                | Result Notes |
|-------------------|-------------|-----------------|------------|--------|------------------|------------------------------------|--------------|
|                   |             |                 |            |        |                  | Percent Recovery Acceptance Limits |              |
| Arsenic (III)     | NA          | 1632A           | 0.20       | 0.204  | 102              | 70-130                             |              |
| Inorganic Arsenic | NA          | 1632A           | 0.20       | 0.215  | 108              | 80-120                             |              |