



ENVIRONMENT, ENERGY, HEALTH & SAFETY CONSULTANTS

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November 14, 2013

Alaska Department of Environmental Conservation
Contaminated Sites Department
410 Willoughby Ave., Suite 303
Juneau, AK 99811-1800

ATTN: Denise Elston

RE: Addendum to Site Assessment Report – Thane Tissue Sampling

Dear Ms. Elston:

On August 6, 2013 **NORTECH** collected duplicate tissue samples along with ADEC representatives. Samples were collected from the Gastineau Channel at Decision Unit 6, which is located at the Sheep Creek outlet. A total of six samples were collected and sent to ALS Laboratories in Everett, WA for analysis. Samples were analyzed for Mercury, Arsenic, Barium, Cadmium, Chromium, Copper, Lead, and Selenium.

The associated analytical report is attached to this letter.

Sincerely,
NORTECH

A handwritten signature in black ink that reads "Cameron Sell".

Cameron Sell
Environmental Professional



September 27, 2013

Analytical Report for Service Request No: K1307905

Cameron Sell
Nortech Environmental & Engineering Consultants
2400 College Road
Fairbanks, AK 99709

RE: 13-1036

Dear Cameron:

Enclosed are the results of the samples submitted to our laboratory on August 08, 2013. For your reference, these analyses have been assigned our service request number K1307905.

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 3364. You may also contact me via Email at Howard.Holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Howard Holmes
Project Manager

HH/ln

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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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
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	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
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.caslab.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.

ALS ENVIRONMENTAL

Client: Nortech Environmental & Engineering Consultants **Service Request No.:** K1307905
Project: 13-0136 **Date Received:** 08/08/13
Sample Matrix: Animal Tissue

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), and Laboratory Control Sample (LCS).

Sample Receipt

Six animal tissue samples were received for analysis at ALS Environmental on 08/08/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored frozen at -20°C upon receipt at the laboratory.

Total Metals

Matrix Spike Recovery Exceptions:

The matrix spike recovery of Barium for sample GM3 was outside control criteria. However, the analyzed concentration in this sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by





ALS Laboratory Group
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 (206) 292-9059 Seattle
 (425) 356-2626 Fax
 http://www.alsenviro.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

11307905

Date 8/7/13 Page 1 Of 1

PROJECT ID: 13-1036					ANALYSIS REQUESTED												OTHER (Specify)	
REPORT TO COMPANY: NORTECH					NWTPH-HCID NWTPH-DX NWTPH-GX BTEX by EPA-8021 MTBE by EPA-8021 <input type="checkbox"/> EPA-8260 <input type="checkbox"/> Halogenated Volatiles by EPA 8260 Volatile Organic Compounds by EPA 8260 EDB / EDC by EPA 8260 SIM (water) EDB / EDC by EPA 8260 (soil) Semivolatile Organic Compounds by EPA 8270 Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM <input type="checkbox"/> PCB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8082 Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> Pri Pol <input type="checkbox"/> TAL <input type="checkbox"/> Metals Other (Specify) TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/>	ADDRESS: 2400 COLLEGE ROAD		6020A		NUMBER OF CONTAINERS		RECEIVED IN GOOD CONDITION?		1631				
PROJECT MANAGER: CAMERON SELL						FAIRBANKS, AK 99709												
PHONE: 907-586-6813 FAX: 907-586-6819						E-MAIL: csell@nortechng.com												
INVOICE TO COMPANY: NORTECH						ATTENTION:												
ADDRESS: 2400 COLLEGE RD						FAIRBANKS, AK 99709												
SAMPLE I.D.						DATE	TIME	TYPE	LAB#									
1.	GM1	8/6/13	0930	TISSUE														
2.	GM2		0945															
3.	GM3		1000															
4.	GM4		1015															
5.	GM5		1030															
6.	GM6	▼	1045	▼														
7.																		
8.																		
9.																		
10.																		

SPECIAL INSTRUCTIONS 6020A For Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Selenium

SIGNATURES (Name, Company, Date, Time)
 1. Relinquished By: Cameron Sell NORTECH 8/7/13 1200
 Received By: Kyle Smith ALS 8/8/13 0945
 2. Relinquished By: _____
 Received By: _____

TURNAROUND REQUESTED in Business Days*
 Organic, Metals & Inorganic Analysis
 10 Standard 5 3 2 1 SAME DAY
 Fuels & Hydrocarbon Analysis
 5 Standard 3 1 SAME DAY
 OTHER: _____
 Specify: _____

* Turnaround request less than standard may incur Rush Charges

LABORATORY COPY



PC HR

Cooler Receipt and Preservation Form

Client / Project: EURETT - ALS Service Request K13 7905

Received: Aug. 8, 2013 Opened: Aug. 8, 2013 By: SD Unloaded: Aug. 8, 2013 By: SD

- 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? 1-Front
- 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	Filed
<u>2.2</u>	<u>2.3</u>	<u>-</u>	<u>-</u>	<u>10.1</u>	<u>300</u>	<u>NA</u>		<u>NA</u>

- 4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____ KE
- 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: NO ANALYSES WERE MARKED ON CHAIN.

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
Sample Matrix: Tissue

Service Request: K1307905
Date Collected: 08/06/13
Date Received: 08/08/13

Solids, Total

Prep Method: NONE
Analysis Method: Freeze Dry
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Analyzed	Result	Result Notes
GM1	K1307905-001	09/11/13	24.8	
GM2	K1307905-002	09/11/13	14.7	
GM3	K1307905-003	09/11/13	21.2	
GM4	K1307905-004	09/11/13	21.2	
GM5	K1307905-005	09/11/13	13.4	
GM6	K1307905-006	09/11/13	14.1	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
Sample Matrix: Animal tissue

Service Request: K1307905
Date Collected: 08/06/13
Date Received: 08/08/13

Mercury, Total

Prep Method: METHOD
Analysis Method: 1631E
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
GM1	K1307905-001	5.0	100	09/25/13	09/26/13	54.2	
GM2	K1307905-002	22	100	09/25/13	09/26/13	183	
GM3	K1307905-003	5.0	100	09/25/13	09/26/13	37.7	
GM4	K1307905-004	4.5	100	09/25/13	09/26/13	53.3	
GM5	K1307905-005	5.7	100	09/25/13	09/26/13	122	
GM6	K1307905-006	5.0	100	09/25/13	09/26/13	94.3	
Method Blank	K1307905-MB1	1.0	20	09/25/13	09/26/13	ND	
Method Blank	K1307905-MB2	1.0	20	09/25/13	09/26/13	ND	
Method Blank	K1307905-MB3	1.0	20	09/25/13	09/26/13	ND	

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

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
Sample Matrix: Animal tissue

Service Request: K1307905
Date Collected: NA
Date Received: NA
Date Extracted: 09/25/13
Date Analyzed: 09/26/13

Matrix Spike/Duplicate Matrix Spike Summary
 Total Metals

Sample Name: Batch QC Units: ng/g
 Lab Code: E1301145-002MS, E1301145-002MSD Basis: Dry
 Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Mercury	METHOD	1631E	5.0	246	250	56.1	335	327	113	108	70-130	5	

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

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
LCS Matrix: Water

Service Request: K1307905
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 09/26/13

Ongoing Precision and Recovery (OPR) Sample Summary
 Total Metals

Sample Name: Ongoing Precision and Recovery (Initial) Units: ng/g
 Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Mercury	METHOD	1631E	5.00	5.67	113	70-130	

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

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
LCS Matrix: Water

Service Request: K1307905
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 09/26/13

Ongoing Precision and Recovery (OPR) Sample Summary
 Total Metals

Sample Name: Ongoing Precision and Recovery (Final) Units: ng/g
 Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Mercury	METHOD	1631E	5.00	5.64	113	70-130	

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

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
LCS Matrix: Animal tissue

Service Request: K1307905
Date Collected: NA
Date Received: NA
Date Extracted: 09/25/13
Date Analyzed: 09/26/13

Quality Control Sample (QCS) Summary
 Total Metals

Sample Name: Quality Control Sample
 Lab Code:
 Test Notes:

Units: ng/g
 Basis: Dry

Source: TORT-2

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Mercury	METHOD	1631E	270	318	118	70-130	

ALS Group USA, Corp.
dba ALS Environmental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Nortech Environmental & Engineering Consultants
Project Name: 13-1036
Project No.:

Service Request: K1307905

<u>Sample Name:</u>	<u>Lab Code:</u>
<u>GM1</u>	<u>K1307905-001</u>
<u>GM2</u>	<u>K1307905-002</u>
<u>GM3</u>	<u>K1307905-003</u>
<u>GM3D</u>	<u>K1307905-003D</u>
<u>GM3S</u>	<u>K1307905-003S</u>
<u>GM4</u>	<u>K1307905-004</u>
<u>GM5</u>	<u>K1307905-005</u>
<u>GM6</u>	<u>K1307905-006</u>
<u>Method Blank</u>	<u>K1307905-MB</u>

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Nortech Environmental & Engineer **Service Request:** K1307905
Project No.: NA **Date Collected:** 08/06/13
Project Name: 13-1036 **Date Received:** 08/08/13
Matrix: TISSUE **Units:** mg/Kg
Basis: DRY

Sample Name: GM1 **Lab Code:** K1307905-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	6020A	0.5	5.0	09/13/13	09/17/13	26.8		
Barium	6020A	0.05	5.0	09/13/13	09/17/13	516		N
Cadmium	6020A	0.02	5.0	09/13/13	09/17/13	2.22		
Chromium	6020A	0.2	5.0	09/13/13	09/17/13	35.0		
Copper	6020A	0.1	5.0	09/13/13	09/17/13	36.5		
Lead	6020A	0.02	5.0	09/13/13	09/17/13	32.8		
Selenium	6020A	1.0	5.0	09/13/13	09/17/13	3.2		

Comments:

Metals

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INORGANIC ANALYSIS DATA PACKAGE

Client: Nortech Environmental & Engineer **Service Request:** K1307905
Project No.: NA **Date Collected:** 08/06/13
Project Name: 13-1036 **Date Received:** 08/08/13
Matrix: TISSUE **Units:** mg/Kg
Basis: DRY

Sample Name: GM2 **Lab Code:** K1307905-002

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	6020A	1.0	5.0	09/13/13	09/17/13	23.6		
Barium	6020A	0.10	5.0	09/13/13	09/17/13	78.4		N
Cadmium	6020A	0.04	5.0	09/13/13	09/17/13	3.60		
Chromium	6020A	0.4	5.0	09/13/13	09/17/13	8.0		
Copper	6020A	0.2	5.0	09/13/13	09/17/13	20.9		
Lead	6020A	0.04	5.0	09/13/13	09/17/13	8.11		
Selenium	6020A	2.0	5.0	09/13/13	09/17/13	6.3		

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Nortech Environmental & Engineer **Service Request:** K1307905
Project No.: NA **Date Collected:** 08/06/13
Project Name: 13-1036 **Date Received:** 08/08/13
Matrix: TISSUE **Units:** mg/Kg
Basis: DRY

Sample Name: GM3 **Lab Code:** K1307905-003

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	6020A	0.5	5.0	09/13/13	09/17/13	14.1		
Barium	6020A	0.05	5.0	09/13/13	09/17/13	562		N
Cadmium	6020A	0.02	5.0	09/13/13	09/17/13	2.72		
Chromium	6020A	0.2	5.0	09/13/13	09/17/13	144		
Copper	6020A	0.1	5.0	09/13/13	09/17/13	18.2		
Lead	6020A	0.02	5.0	09/13/13	09/17/13	27.5		
Selenium	6020A	1.0	5.0	09/13/13	09/17/13	2.1		

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Nortech Environmental & Engineer **Service Request:** K1307905
Project No.: NA **Date Collected:** 08/06/13
Project Name: 13-1036 **Date Received:** 08/08/13
Matrix: TISSUE **Units:** mg/Kg
Basis: DRY

Sample Name: GM4 **Lab Code:** K1307905-004

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	6020A	1.0	5.0	09/13/13	09/17/13	16.8		
Barium	6020A	0.10	5.0	09/13/13	09/17/13	270		N
Cadmium	6020A	0.04	5.0	09/13/13	09/17/13	3.35		
Chromium	6020A	0.4	5.0	09/13/13	09/17/13	23.3		
Copper	6020A	0.2	5.0	09/13/13	09/17/13	21.4		
Lead	6020A	0.04	5.0	09/13/13	09/17/13	33.5		
Selenium	6020A	2.0	5.0	09/13/13	09/17/13	3.4		

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Nortech Environmental & Engineer **Service Request:** K1307905
Project No.: NA **Date Collected:** 08/06/13
Project Name: 13-1036 **Date Received:** 08/08/13
Matrix: TISSUE **Units:** mg/Kg
Basis: DRY

Sample Name: GM6 **Lab Code:** K1307905-006

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Arsenic	6020A	0.5	5.0	09/13/13	09/17/13	11.9		
Barium	6020A	0.05	5.0	09/13/13	09/17/13	34.2		N
Cadmium	6020A	0.02	5.0	09/13/13	09/17/13	2.76		
Chromium	6020A	0.2	5.0	09/13/13	09/17/13	13.9		
Copper	6020A	0.1	5.0	09/13/13	09/17/13	8.3		
Lead	6020A	0.02	5.0	09/13/13	09/17/13	2.90		
Selenium	6020A	1.0	5.0	09/13/13	09/17/13	3.5		

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Nortech Environmental & Engineer **Service Request:** K1307905
Project No.: NA **Units:** MG/KG
Project Name: 13-1036 **Basis:** DRY
Matrix: TISSUE

Sample Name: GM3S

Lab Code: K1307905-003S

Analyte	Control Limit %R	Spike Result C	Sample Result C	Spike Added	%R	Q	Method
Arsenic	75 - 125	41.4	14.1	24.8	110.1		6020A
Barium	75 - 125	659.05	562.16	198.12	48.9	N	6020A
Cadmium	75 - 125	7.76	2.72	4.95	101.8		6020A
Chromium		164.6	143.9	19.8	104.5		6020A
Copper	75 - 125	40.6	18.2	24.8	90.3		6020A
Lead	75 - 125	68.69	27.45	49.53	83.3		6020A
Selenium	75 - 125	30.2	2.1	24.8	113.3		6020A

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
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DUPLICATES

Client: Nortech Environmental & Engineer **Service Request:** K1307905
Project No.: NA **Units:** MG/KG
Project Name: 13-1036 **Basis:** DRY
Matrix: TISSUE

Sample Name: GM3D

Lab Code: K1307905-003D

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Arsenic	20	14.1	14.7	4.2		6020A
Barium	20	562.16	495.37	12.6		6020A
Cadmium	20	2.72	2.60	4.5		6020A
Chromium	20	143.9	142.0	1.3		6020A
Copper	20	18.2	19.9	8.9		6020A
Lead	20	27.45	26.00	5.4		6020A
Selenium		2.1	2.5	17.4		6020A

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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LABORATORY CONTROL SAMPLE

Client: Nortech Environmental & Engineer **Service Request:** K1307905

Project No.: NA

Project Name: 13-1036

Aqueous LCS Source: CAS MIXED

Solid LCS Source:

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Arsenic	250.0	247.7	99.1					
Barium	2000.0	1885.1	94.3					
Cadmium	50.0	43.6	87.2					
Chromium	200.0	175.1	87.6					
Copper	250.0	215.6	86.2					
Lead	500.0	453.5	90.7					
Selenium	250.0	248.3	99.3					

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

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
LCS Matrix: Tissue

Service Request: K1307905
Date Collected: NA
Date Received: NA
Date Extracted: 09/13/13
Date Analyzed: 09/17/13

Standard Reference Material Summary
 Total Metals

Sample Name: Standard Reference Material Units: mg/Kg (ppm)
 Lab Code: K1307905-SRM1 Basis: Dry
 Test Notes:

Source: N.R.C.C. Dorm-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Arsenic	PSEP Tissue	6020A	6.88	7.19	105	5.26 - 8.62	
Cadmium	PSEP Tissue	6020A	0.29	0.33	114	0.216 - 0.372	
Chromium	PSEP Tissue	6020A	1.89	1.65	87	1.38 - 2.47	
Copper	PSEP Tissue	6020A	15.5	15.1	97	11.9 - 19.4	
Lead	PSEP Tissue	6020A	0.395	0.38	96	0.276 - 0.534	

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

Client: Nortech Environmental & Engineering Consultants
Project: 13-1036
LCS Matrix: Tissue

Service Request: K1307905
Date Collected: NA
Date Received: NA
Date Extracted: 09/13/13
Date Analyzed: 09/17/13

Standard Reference Material Summary
 Total Metals

Sample Name: Standard Reference Material
 Lab Code: K1307905-SRM2
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Source: N.R.C.C. Tort-2

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Arsenic	PSEP Tissue	6020A	21.6	22.8	106	15.8-28.1	
Cadmium	PSEP Tissue	6020A	26.7	27.8	104	20.9-32.8	
Chromium	PSEP Tissue	6020A	0.77	0.77	100	0.5-1.1	
Copper	PSEP Tissue	6020A	106	101	95	77-139	
Lead	PSEP Tissue	6020A	0.35	0.36	103	0.18-0.58	
Selenium	PSEP Tissue	6020A	5.63	6.37	113	3.97-7.56	