

18103567 SEDIMENT SAMPLING LOG - GRAB *Melodine*

Project No: 15-1447-0183/2000

Project Title: ~~ShoalSQT~~ Marine Sediment InvestigationDate: ~~October~~ Sept 14 2013

Sampled by: AR, JS, DS, JG

Station Number (ID):

MBE-3

Sampling Method: Van Veen (Chemistry + Toxicity Samples)
~~Standard Ponar~~ (Benthic Samples)

Petit

Weather:

Mostly Sunny 6 knots WNW

Lat/Longitude:

15V 0546002
6963295

Water Depth:

22-24

Sieve Mesh Size:

500 micron 1 mm

Time of Collection:

17:30

Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)

Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);

Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt + clay; dull light brown
- no odor, sheen or stain
- compact; dense
- ~~no orgs. seen~~ polychaete

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1 ~~35~~ Grab 2 ~~45~~ Grab 3 ~~30~~

Benthic Grab 1 35+45 Grab 2 45+50 Grab 3 30%+30 +10

Attempts 2 2 3

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

photos taken @ beach / sieve

sieved for Rep 3 & 2, Rep 1 = silty/clay mass before + after

Sample Control Number (SCN):

Analysis for:

☐ Chemistry☐ Toxicity☒ Benthic Invertebrate Taxonomy

Grabs for Analysis (Chemistry and Toxicology):

NA

of Jars Per benthic Replicate Sample:

Rep 1 1 Rep 2 1 Rep 3 1

Notes:

Reviewed By: _____

Benthic

Page 1 of 1

SEDIMENT SAMPLING LOG - GRAB

Project No:

13103567 / 4000
13-1447-0183 / 2000

Project Title:

Shell SCT Marine Sediment Investigation

Date:

October 14 2018

Sampled by:

AR, JS, JS

Station Number (ID):

MBE-4

Sampling Method:

Van Veen (Chemistry - Toxicity Samples)
Standard Ponar (Benthic Samples)

Weather:

cloudy, wind NE 7kt

Lat/Longitude:

15V 0546113
6963260

Water Depth:

20 m

Sieve Mesh Size:

500 micron 1 mm

Time of Collection:

1330

Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)

Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated); Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt + clay, light brown over light grey
- compact dense
- poor penetration to 4cm max
- polychaets - lots, amphipods

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample :

Chemistry Grab 1

Grab 2

Grab 3

Benthic Grab 1

30% x 2

Grab 2

30 + 35%

Grab 3

35% + 35

Attempt: 3

2

2

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

☐ Chemistry☐ Toxicity☐ Benthic Invertebrate Taxonomy

Grabs for Analysis (Chemistry and Toxicology):

of Jars Per benthic Replicate Sample:

Rep 1

Rep 2

Rep 3

Notes:

Reviewed By: _____

Benthic

Page 1 of 1

SEDIMENT SAMPLING LOG - GRAB

Meliadise

Project No: 18103567
 Date: October 14 2018
 Station Number (ID): MBE - 5

Project Title: Shell SQT Marine Sediment Investigation
 Sampled by: AR, JS, SG
 Sampling Method: Van Veen (Chemistry + Toxicity Samples)
Standard Ponar (Benthic Samples) *Atit*

Weather: cloudy wind 10kt NLat/Longitude: 1Water Depth: 2/mSieve Mesh Size: 500 micron 1mmTime of Collection: 1030

Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)
 Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);
 Colour; Structure; Contaminants (staining/odour/shell); Other (wood, debris, organisms).

- silt + clay, dull light brown
- no odour, green or stain; compact; dense
- clam, polychaete, caprellid

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1	Grab 2	Grab 3
Benthic Grab 1 <u>40+30</u>	Grab 2 <u>35+35</u>	Grab 3 <u>50+40</u>
Attempts: <u>3</u>	<u>2</u>	<u>2</u>

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☐ Chemistry ☐ Toxicity ☒ Benthic Invertebrate Taxonomy# Grabs for Analysis (Chemistry and Toxicology): N/A# of Jars Per benthic Replicate Sample: 1Rep 1 1 Rep 2 1 Rep 3 1

Notes:

Reviewed By: *[Signature]*

18103567-4000

SEDIMENT SAMPLING LOG - GRAB

Project No: 13-1447-0183/2000

Project Title: Shell SQT Marine Sediment Investigation

Date: ~~October~~ Sept 16 2018

Sampled by: AR, JS, JS

Station Number (ID): MB Ref A site 1

Sampling Method: Van Veen (Chemistry + Toxicity Samples)
Standard Ponar (Benthic Samples) *Net it*

Weather: Full overcast; Wind 16 kts

Lat/Longitude: 0545068/6961511

Water Depth: 21M

Sieve Mesh Size: 500 micron / 1mm

Time of Collection: 15:04

Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt & clay light brown unconsolidated 1cm over
increasing density light grey. few darker inclusions
- penetration to 7cm firm, not dense like Itivia samples
- polychaete no odour, stain or sheen

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample: white crystalline unknown 1cm x 2mm cylinder

Chemistry Grab 1 65+65 Grab 2 25+20 Grab 3 20+20
Benthic Grab 1 65+65 Grab 2 25+20 Grab 3 20+20
Attempts 5 10 11

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☒ Chemistry ☒ Toxicity ☒ Benthic Invertebrate Taxonomy# Grabs for Analysis
(Chemistry and
Toxicology):# of Jars Per benthic
Replicate Sample:Rep 1 1 Rep 2 1 Rep 3 1

Notes:

Reviewed By: AR

Infurna

13103567/400

SEDIMENT SAMPLING LOG - GRAB

Project No: 13-1447-0183 / 2000

Project Title: Shell SQT Marine Sediment Investigation

Date: October 18 2013

Sampled by: AR, JS, DS 34

Station Number (ID): MBReg A-2

Sampling Method: Van Veen (Chemistry + Toxicity Samples)
Standard Ponar (Benthic Samples)

Weather: Cloudy wind 20kth

Lat/Longitude: 15V 0545028
6961609

Water Depth: 20m

Sieve Mesh Size: 500 micron 1mm

Time of Collection: 1715 - 1810

Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -, y, and); Inclusions (shells, organisms, other non-soil components)
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

Same as RepA Site
less dense than MBE sites

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample :

Chemistry Grab 1	Grab 2	Grab 3
30+55	45+55	30+50
5	2	7

Photograph Reference Number(s) :

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☒ Chemistry ☒ Toxicity ☒ Benthic Invertebrate Taxonomy

Grabs for Analysis (Chemistry and Toxicology): # of Jars Per benthic Replicate Sample:

Rep 1 Rep 2 Rep 3

Notes:

Reviewed By: AR

18103567-4000

SEDIMENT SAMPLING LOG - GRAB

Project No: 13-1447-0183 / 2000

Project Title: Shell SQT Marine Sediment Investigation

Date: Sept. 19 2013

Sampled by: AR, JS, DS

Station Number (ID): MB Ref A 3

Sampling Method: Van Veen (Chemistry + Toxicity Samples)
Standard Ponar (Benthic Samples)

Weather: Mostly sunny seas: 4m Wind 15 kts W-SE

Lat/Longitude: 43R

Water Depth: 21

Sieve Mesh Size: 500 micron 1mm

Time of Collection: 13:01

Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

silt & clay - brown over gray
penetration to 6cm
trace small gravel
Rep 3 algae + mussel
green bladed & laminaria

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1	Grab 2	Grab 3
40+30	25+40	50+
2	4	1

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☒ Chemistry ☒ Toxicity ☒ Benthic Invertebrate Taxonomy

Grabs for Analysis (Chemistry and Toxicology): _____ # of Jars Per benthic Replicate Sample: _____

Rep 1 _____ Rep 2 _____ Rep 3 _____

Notes:

Reviewed By: _____

APPENDIX E

Intertidal Survey Data Sheets

Location:

Date: Sept 14 2013

Start 15V 0546036
6963605

T1TOP

Meliadine - Diffuse
Subtidal Benthic Survey

Transect 1

Data Recorded

A. Ripp

	Bedrock Boulder	Cobble Gravel	Sand Silt + clay	Detritus (Y/N)	Fucus Grass	Filament Green string brown	green encrusting string WNA	Mussel Clam siphon	1. Horns limpet	Brown Filament			
Distance: 1440 Depth: 04W Time: 1440 Øm				Y (55%)	100								
Notes: Photo E, N, W, S detrital fucus @ 04W													
Distance: 1445 Depth: Time: 7m	80	2 18	4		6								
Notes:													
Distance: 1448 Depth: Time: 1448	4	36 59	1			1							
Notes: end of grass @ ~ 13m													
Distance: 21 Depth: Time: 1450	78	10 12											
Notes:													
Distance: 28 Depth: Time: 1455		12 87	1		3		30		4				
Notes:													
Distance: 35 Depth: Time: 1508	16	16 62	3 3	Y (21)									
Notes: anthropogenic - metal cable, bike, laminate sheeting													

Location:
Date:

Melakia

P32

Trans 1

Subtidal Bioal Survey

Data Recorded

ARipp

	Bull	Cob	Gr	sand	silt	shell	detritus	Fucus	Littorina	brown	cladophora						
Distance: Depth: Time: 42m 15°			5	48	10	2	Y										
Notes:	gavel/boulder ends e ~40m; fucus nearby																
Distance: Depth: Time: 49m 15°15			16	70	14	41											
Notes:	snail trail																
Distance: Depth: Time: 56m 15°23			2	64	11	2											
Notes:	standing H ₂ O; tide change e ~15°																
Distance: Depth: Time: 63 15°28			7	70	15	4		3	80	2							
Notes:	Littorina size range 2mm → 7mm Littorina sitkana?																
Distance: Depth: Time: 70 15°32			2	70	13	5			38	2							
Notes:	fucus 1% nearby; 2mm → 5mm																
Distance: Depth: Time: 77			12	65	9			55	33	5	7						
Notes:	snail 2mm → 6mm, mussel = 3.3cm																

Location:

Date:

Sept 11 2018 18103567

(Pg 3)

T1

3 of 3

Subtidal Biop

END

15V

0546131

6963519

Data Recorded E

AR

	Boulder	Cob	Gravel	Sand	Silt	Shell	detritus	Fucus	straggly	cladophora	filament	filament	littorine	unil	basidia	grass	small		
Distance:																			
Depth:																			
Time:																			
1540		8	7	65	20	<1		8		1	<1		8	3	1				
Notes: water mound, snail 2mm-bur, mussel 3cm → 5cm																			
Distance:																			
Depth:																			
Time:																			
1547	85	13	2	<1	<1			55					3						
Notes: waterline 16.9 + 84 = 100.9 @ 1547, difficult to determine substrate, cut. 96 for littorina = 2mm																			
Distance:																			
Depth:																			
Time:																			
1555		20	76	3	2	<1		16	<1			<1	12	2-6mm	mussel	9 3cm-4cm			
Notes: interstitial silt & sand abundant fauna @ 91m, mild organic decay odour when turning rocks																			
Distance:																			
Depth:																			
Time:																			
16:17	25	35	15	10				45%	40						15				
Notes: start 15V 0546037" 6963558 T2 TOP" substrate % incl. grass																			
Distance:																			
Depth:																			
Time:																			
7m	45	45	10													4	3		
Notes:																			
Distance:																			
Depth:																			
Time:																			
16:27	40	35	25														2		
Notes:																			

Increased mussel @ waterline

T2

Location:

Date:

Sept 14 2013

Meliadine

18103567/4000

Subtidal Biop

al Survey

Diffuser

T2

Data Recorded

ARIP

	Boulder	gravel	silt	shell	small	filament												
	cobble	sand			ever	grn												
Distance: Depth: Time: 21m 1632	32	40	2	26	12	2												
Notes:																		
Distance: Depth: Time: 28 1636	26	60	14															
Notes: silt veneer or substrate																		
Distance: Depth: Time: 35 1638	90	5	3	1	1	<1												
Notes:																		
Distance: Depth: Time: 42m 1640	3	10	88	1	<1					6								
Notes:																		
Distance: Depth: Time: 49m 1642	8	5	57	10	20					22								
Notes: small 2mm → 4mm; mostly small																		
Distance: Depth: Time:																		
Notes: waterline 52.7m @ 1645 ; abundant (5-10%) stringy brown in shallow subtidal																		

@ Diffuser

T2 END

ISV 0546054
6963507

Page 2 of 2 for T2

Data Reviewed By:

"TOP"
 T1 - Ref Start
 15V 0545395
 6963954
 "T1 Ref END"
 0545392
 69639223

Ref T1

Location: Moliadine 18/03567 - 4900
 Date: Sep 15 2013
 Ref 1 - west Itiva

Subtidal Bio, al Survey

A.R

	Bd co	Gr sand	SH shell	Moss grass soil complex	ENC. algae	Grass veg.	Detritus			
Distance: 0										
Depth: 0										
Time:	55	35	2	8		(10)	Y - focus + kelp stipe			
Notes: soil moss overlies (most likely) cobble/gravel mix										
Distance: 7										
Depth: 7										
Time:	50	15			2					
Notes: no algae or veg nearby										
Distance: 14										
Depth: 14										
Time:	70	30			6					
Notes: Large Gravel ENC. ALGAE in black, almost tar spot/lichenesque										
Distance: 21										
Depth: 21										
Time:	77	86	4							
Notes:										
Distance: 28										
Depth: 28										
Time: 16:10	Bd Cd 30	Gr 25 Sand 2	SH 2 L							
Notes: near waterline ~5% Fucus cover on large substrate (up to ~5m above)										
Distance:										
Depth:										
Time:										
Notes: some fucus (<5%) subtidal										
Notes: Waterline 16:10 @ 31.0m ; low tide @ ~15:55										

B03567-4000

Location:

T2 RET

Start 15V 0545 335

END

15V

0545326

Date:

Sept 15 2018

6963972

Subtidal Bic

al Survey

6963947

Data Recorded

ARI PP

	Bo cob	GRAVEL Sand	silt shell	detritus grass	soil grass complex	fucus blue encrust alg								
Distance: 0	30	25	5	Y(12)	10									
Depth:	25			5										
Time: 16 ⁵⁰														

Notes: moss in complex soil grass ; fucus ~2% within 10% waterline E+W

	30 15	55												
Distance: 7														
Depth:														
Time:														

Notes: boulder cobble zone from 0m → 7m

	2 70	26 2												
Distance: 14														
Depth:														
Time:														

Notes: large cobble ~1m

	35 10	5 45	3 2	Y										
Distance: 21														
Depth:														
Time:														

Notes:

	70	30												
Distance: 28														
Depth:														
Time: 17 ⁰⁰														

Notes: waterline 27.5m @ 17⁰⁰ ; low tide @ ~15⁵⁵

Distance: 35														
Depth:														
Time:														

Notes: fairly consistent grade overall w/ nearby flat sandy patches @ ~15m → 28m
steeper than exposed site

REF-72

APPENDIX F

Marine Water Quality Analytical Results



Agnico-Eagle - Meliadine Gold Project
ATTN: JENNIFER BROWN
PO Box 99
Rankin Inlet NU XOC OGO

Date Received: 21-SEP-18
Report Date: 19-OCT-18 14:03 (MT)
Version: FINAL

Client Phone: 819-759-7555

Certificate of Analysis

Lab Work Order #: L2168530
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 14-452765
Legal Site Desc:



Hua Wo
Chemistry Laboratory Manager

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

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-1 WW1S							
Sampled By: CLIENT on 17-SEP-18 @ 18:15							
Matrix: marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	55.5		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)							
Chloride (Cl)	16000		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)							
Sulfate (SO4)	2280		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0094		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	3.76		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	349		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.193		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	1000		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00073		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0117		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	332		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.103		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0021		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9190		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.41		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	740		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-1 WW1S							
Sampled By: CLIENT on 17-SEP-18 @ 18:15							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00295		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00117		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	4990		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0321		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0092		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	3.81		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	368		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000058		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.042		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.201		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1030		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00140		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0114		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00059		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	347		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.108		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0021		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9400		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.53		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	769		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	0.0053		0.0050	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-1 WW1S							
Sampled By: CLIENT on 17-SEP-18 @ 18:15							
Matrix: marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00308		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00130		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	46500		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0175		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.43		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.363		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.135		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.46		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	35400		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0248		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	2.0		2.0	mg/L		24-SEP-18	R4239893
pH	7.96		0.10	pH		26-SEP-18	R4245590
Salinity	30.5		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-2 WW1D							
Sampled By: CLIENT on 17-SEP-18 @ 18:15							
Matrix: marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	57.5		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)							
Chloride (Cl)	16800		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)							
Sulfate (SO4)	2390		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-2 WW1D							
Sampled By: CLIENT on 17-SEP-18 @ 18:15							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0099		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	4.11		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	358		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.206		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	1040		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00078		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0120		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	0.00054		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	343		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.111		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0033		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9380		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.43		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	770		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00310		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00129		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	5180		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0242		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0093		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	3.85		0.10	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-2 WW1D							
Sampled By: CLIENT on 17-SEP-18 @ 18:15							
Matrix: marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	357		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000087		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.035		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.197		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1040		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00128		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0115		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00066		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	333		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.106		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0028		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9210		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.55		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	775		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	0.0053		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00298		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00139		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	46000		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0177		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.38		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.346		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.132		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.45		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	34300		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0267		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	2.7		2.0	mg/L		24-SEP-18	R4239893
pH	7.97		0.10	pH		26-SEP-18	R4245590
Salinity	30.2		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-2	WW1D							
Sampled By: CLIENT on 17-SEP-18 @ 18:15								
Matrix: marine H2O								
Diss. Mercury in Seawater by CVAFS								
Dissolved Mercury Filtration Location		LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved		<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-3	MWE-1S							
Sampled By: CLIENT on 17-SEP-18 @ 18:45								
Matrix: marine H2O								
Alkalinity Species by Titration								
Alkalinity Spec by Titration (Seawater)								
Alkalinity, Bicarbonate (as CaCO3)		114		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)		<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)		<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)		114		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)								
Bromide by IC (seawater)								
Bromide (Br)		58.2		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)								
Chloride (Cl)		16800		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)								
Fluoride (F)		<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC								
Nitrate (as N)		<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC								
Nitrite (as N)		0.29		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)								
Sulfate (SO4)		2380		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater								
Diss. Metals in Seawater by HR-ICPMS								
Dissolved Metals Filtration Location		LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved		<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved		<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved		0.0085		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved		3.96		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved		<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved		358		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved		<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved		<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved		<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved		0.203		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved		997		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved		0.00071		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved		0.0114		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved		0.00063		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved		343		20	mg/L	01-OCT-18	18-OCT-18	R42

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-3 MWE-1S							
Sampled By: CLIENT on 17-SEP-18 @ 18:45							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Rubidium (Rb)-Dissolved	0.106		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0024		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9360		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.40		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	732		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00304		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00120		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	5000		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0309		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0090		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	3.95		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	359		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000064		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	0.00055		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.043		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	0.00048		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.205		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1030		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00137		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0114		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00066		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	346		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.106		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0024		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9420		1.0	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-3 MWE-1S Sampled By: CLIENT on 17-SEP-18 @ 18:45 Matrix: marine H2O Tot. Metals in Seawater by HR-ICPMS Strontium (Sr)-Total Sulfur (S)-Total Tellurium (Te)-Total Thallium (Tl)-Total Thorium (Th)-Total Tin (Sn)-Total Titanium (Ti)-Total Tungsten (W)-Total Uranium (U)-Total Vanadium (V)-Total Yttrium (Y)-Total Zinc (Zn)-Total Zirconium (Zr)-Total Miscellaneous Parameters Ammonia, Total (as N) Conductivity Orthophosphate-Dissolved (as P) Dissolved Organic Carbon Silicate (as SiO2) Total Kjeldahl Nitrogen Total Organic Carbon Total Dissolved Solids Mercury (Hg)-Total Phosphorus (P)-Total Total Suspended Solids pH Salinity Diss. Mercury in Seawater by CVAFS Dissolved Mercury Filtration Location Mercury (Hg)-Dissolved	5.34 746 <0.00050 <0.000050 <0.00050 <0.0010 <0.0050 <0.0010 0.00298 0.00133 <0.00050 <0.0030 <0.00050 <0.0050 45900 0.0177 1.36 0.347 0.123 1.43 34000 <0.000010 0.0234 <2.0 7.97 30.1 LAB <0.000010		0.010 5.0 0.00050 0.000050 0.00050 0.0010 0.0050 0.0010 0.000050 0.00050 0.00050 0.0030 0.00050 0.0050 2.0 0.0010 0.50 0.010 0.050 0.50 80 0.000010 0.0040 2.0 0.10 1.0 0.000010	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L uS/cm mg/L mg/L mg/L mg/L mg/L mg/L mg/L pH psu mg/L		18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 18-OCT-18 02-OCT-18 26-SEP-18 22-SEP-18 25-SEP-18 03-OCT-18 01-OCT-18 25-SEP-18 25-SEP-18 26-SEP-18 22-SEP-18 24-SEP-18 26-SEP-18 29-SEP-18 25-SEP-18 25-SEP-18	R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4286768 R4257962 R4245590 R4233408 R4245104 R4258600 R4254028 R4245103 R4247695 R4241691 R4233751 R4239893 R4245590 R4239017 R4238273
L2168530-4 MWE-1D Sampled By: CLIENT on 17-SEP-18 @ 18:45 Matrix: marine H2O Alkalinity Species by Titration Alkalinity Spec by Titration (Seawater) Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3) Alkalinity, Hydroxide (as CaCO3) Alkalinity, Total (as CaCO3) Anions by Ion Chromatography (seawater) Bromide by IC (seawater) Bromide (Br) Chloride by IC (seawater) Chloride (Cl) Fluoride by IC (seawater) Fluoride (F) Nitrate in Seawater by IC Nitrate (as N) Nitrite in Seawater by IC Nitrite (as N)	113 <1.0 <1.0 113 58.0 16800 <1.0 <0.50 <0.10		1.0 1.0 1.0 1.0 5.0 50 1.0 0.50 0.10	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L		26-SEP-18 26-SEP-18 26-SEP-18 26-SEP-18 25-SEP-18 25-SEP-18 25-SEP-18 25-SEP-18 25-SEP-18	R4245590 R4245590 R4245590 R4245590 R4243309 R4243309 R4243309 R4243309 R4243309

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-4 MWE-1D							
Sampled By: CLIENT on 17-SEP-18 @ 18:45							
Matrix: marine H2O							
Sulfate by IC (seawater)							
Sulfate (SO4)	2400		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0088		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	4.09		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	363		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.205		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	981		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00068		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0119		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	0.00055		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	334		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.108		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0024		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9130		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.30		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	723		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00302		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00132		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	4950		4.8	mg/L		19-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0255		0.0050	mg/L		19-OCT-18	R4288587
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-4 MWE-1D							
Sampled By: CLIENT on 17-SEP-18 @ 18:45							
Matrix: marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0098		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	4.29		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	364		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000058		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.041		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.215		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1040		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00138		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0123		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00056		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	346		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.112		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0024		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9340		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.38		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	750		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00309		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00126		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	45900		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0175		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.38		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.343		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.145		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.50		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	34100		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-4	MWE-1D							
Sampled By: CLIENT on 17-SEP-18 @ 18:45								
Matrix: marine H2O								
Phosphorus (P)-Total		0.0246		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids		2.2		2.0	mg/L		24-SEP-18	R4239893
pH		7.98		0.10	pH		26-SEP-18	R4245590
Salinity		30.1		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS								
Dissolved Mercury Filtration Location		LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved		<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-5	MWE-2S							
Sampled By: CLIENT on 17-SEP-18 @ 16:30								
Matrix: marine H2O								
Alkalinity Species by Titration								
Alkalinity Spec by Titration (Seawater)								
Alkalinity, Bicarbonate (as CaCO3)		112		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)		<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)		<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)		112		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)								
Bromide by IC (seawater)								
Bromide (Br)		59.8		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)								
Chloride (Cl)		17400		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)								
Fluoride (F)		<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC								
Nitrate (as N)		<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC								
Nitrite (as N)		<0.10		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)								
Sulfate (SO4)		2470		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater								
Diss. Metals in Seawater by HR-ICPMS								
Dissolved Metals Filtration Location		LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved		<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved		<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved		0.0098		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved		4.07		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved		<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved		361		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved		<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved		<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved		<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved		<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved		0.202		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved		1020		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved		0.00076		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved		0.0114		0.0020	mg/L	0		

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-5 MWE-2S							
Sampled By: CLIENT on 17-SEP-18 @ 16:30							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Nickel (Ni)-Dissolved	0.00057		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	340		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.105		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0024		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9350		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.39		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	744		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00302		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00113		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	5110		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0235		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0093		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	4.11		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	370		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	0.00058		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000051		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.037		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.203		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1020		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00132		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0115		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00055		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	351		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.106		0.0050	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-5 MWE-2S							
Sampled By: CLIENT on 17-SEP-18 @ 16:30							
Matrix: marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Selenium (Se)-Total	0.0024		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9740		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.65		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	739		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	0.0058		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00300		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00131		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	46200		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0174		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.36		0.50	mg/L		02-OCT-18	R4257979
Silicate (as SiO2)	0.345		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.149		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.79		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	35700		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0255		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	2.6		2.0	mg/L		24-SEP-18	R4239893
pH	7.98		0.10	pH		26-SEP-18	R4245590
Salinity	30.3		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-6 MWE-2D							
Sampled By: CLIENT on 17-SEP-18 @ 16:30							
Matrix: marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	58.9		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)							
Chloride (Cl)	17000		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		25-SEP-18	R4243309

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-6 MWE-2D							
Sampled By: CLIENT on 17-SEP-18 @ 16:30							
Matrix: marine H2O							
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)							
Sulfate (SO4)	2430		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0088		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	3.95		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	354		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.195		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	993		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00068		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0113		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	344		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.104		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0023		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9420		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.27		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	720		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00296		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00122		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-6 MWE-2D							
Sampled By: CLIENT on 17-SEP-18 @ 16:30							
Matrix: marine H2O							
Hardness							
Hardness (as CaCO3)	4970		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0232		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0090		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	4.10		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	348		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000050		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.029		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.206		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1030		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00119		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0118		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00063		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	334		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.109		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9240		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.38		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	757		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00302		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00146		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	45500		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0174		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.43		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.344		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.139		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-6 MWE-2D Sampled By: CLIENT on 17-SEP-18 @ 16:30 Matrix: marine H2O							
Total Organic Carbon	1.54		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	36000		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0247		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	<2.0		2.0	mg/L		24-SEP-18	R4239893
pH	7.98		0.10	pH		26-SEP-18	R4245590
Salinity	29.8		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-7 MWREFA-2S Sampled By: CLIENT on 17-SEP-18 @ 17:45 Matrix: marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	114		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)	114		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	54.5		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)							
Chloride (Cl)	16000		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC							
Nitrite (as N)	0.11		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)							
Sulfate (SO4)	2260		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0088		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	3.99		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	341		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.201		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-7 MWREFA-2S							
Sampled By: CLIENT on 17-SEP-18 @ 17:45							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Magnesium (Mg)-Dissolved	1020		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00062		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0117		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	0.00051		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	331		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.106		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0021		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9060		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.20		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	747		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00291		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00140		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	5030		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0069		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0090		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	4.26		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	0.000058		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	355		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	<0.010		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.212		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	994		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00079		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0121		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00050		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-7 MWREFA-2S							
Sampled By: CLIENT on 17-SEP-18 @ 17:45							
Matrix: marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Potassium (K)-Total	335		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.111		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0029		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9370		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.43		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	727		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00309		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00128		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	45700		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0178		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.40		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.317		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.127		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.32		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	33300		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0248		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	<2.0		2.0	mg/L		24-SEP-18	R4239893
pH	7.97		0.10	pH		26-SEP-18	R4245590
Salinity	30.0		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-8 MWREFA-2D							
Sampled By: CLIENT on 17-SEP-18 @ 17:45							
Matrix: marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	57.4		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-8 MWREFA-2D							
Sampled By: CLIENT on 17-SEP-18 @ 17:45							
Matrix: marine H2O							
Chloride by IC (seawater)							
Chloride (Cl)	16900		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)							
Sulfate (SO4)	2400		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0091		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	4.29		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	350		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.212		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	993		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00065		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0122		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	0.00053		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	326		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.111		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0024		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9140		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.27		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	730		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00303		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00122		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-8 MWREFA-2D							
Sampled By: CLIENT on 17-SEP-18 @ 17:45							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	4960		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0245		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0091		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	4.06		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	351		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	0.00068		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000060		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	0.00070		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.035		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.201		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1010		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00120		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0115		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00061		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	328		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.107		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0022		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9080		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.34		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	734		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	0.0052		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00298		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00143		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	45500		2.0	uS/cm		26-SEP-18	R4245590

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-8 MWREFA-2D							
Sampled By: CLIENT on 17-SEP-18 @ 17:45							
Matrix: marine H2O							
Orthophosphate-Dissolved (as P)	0.0169		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.42		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.316		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.139		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.39		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	35200		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0299		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	3.0		2.0	mg/L		24-SEP-18	R4239893
pH	7.98		0.10	pH		26-SEP-18	R4245590
Salinity	29.8		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-9 MWREFA-1S							
Sampled By: CLIENT on 17-SEP-18 @ 17:10							
Matrix: marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	114		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Total (as CaCO3)	114		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	54.3		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)							
Chloride (Cl)	15900		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)							
Sulfate (SO4)	2260		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0091		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	3.85		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	362		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-9 MWREFA-1S							
Sampled By: CLIENT on 17-SEP-18 @ 17:10							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.196		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	988		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00065		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0111		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	0.00054		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	338		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.103		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9290		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.24		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	721		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00298		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00131		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	4970		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0234		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0099		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	3.84		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	370		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	0.00057		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	0.00051		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.030		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.199		0.020	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-9 MWREFA-1S							
Sampled By: CLIENT on 17-SEP-18 @ 17:10							
Matrix: marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Magnesium (Mg)-Total	1040		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00122		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0114		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00068		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	343		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.106		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0025		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9580		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.52		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	762		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00306		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00146		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	45400		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0167		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.40		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.313		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.127		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.25		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	35200		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0233		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	2.6		2.0	mg/L		24-SEP-18	R4239893
pH	7.98		0.10	pH		26-SEP-18	R4245590
Salinity	29.7		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273
L2168530-10 MWREFA-1D							
Sampled By: CLIENT on 17-SEP-18 @ 17:10							
Matrix: marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		26-SEP-18	R4245590

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-10 MWREFA-1D							
Sampled By: CLIENT on 17-SEP-18 @ 17:10							
Matrix: marine H2O							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Total (as CaCO3)	113		1.0	mg/L		26-SEP-18	R4245590
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	57.5		5.0	mg/L		25-SEP-18	R4243309
Chloride by IC (seawater)							
Chloride (Cl)	16800		50	mg/L		25-SEP-18	R4243309
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		25-SEP-18	R4243309
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		25-SEP-18	R4243309
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		25-SEP-18	R4243309
Sulfate by IC (seawater)							
Sulfate (SO4)	2350		30	mg/L		25-SEP-18	R4243309
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					01-OCT-18	R4254272
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Barium (Ba)-Dissolved	0.0084		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Boron (B)-Dissolved	3.94		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	357		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.196		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	986		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00076		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0114		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	340		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.103		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0023		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9260		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.17		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	716		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-10 MWREFA-1D							
Sampled By: CLIENT on 17-SEP-18 @ 17:10							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00290		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00127		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	4950		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0142		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0094		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	4.17		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	356		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Cobalt (Co)-Total	0.000054		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	<0.010		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.212		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	999		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00091		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0118		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	339		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.110		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0021		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9310		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.44		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	726		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00309		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00140		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-11 DUP A							
Sampled By: CLIENT on 17-SEP-18 @ 16:30							
Matrix: marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Boron (B)-Dissolved	4.09		0.10	mg/L	01-OCT-18	18-OCT-18	R4286768
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Calcium (Ca)-Dissolved	354		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Copper (Cu)-Dissolved	0.00065		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	01-OCT-18	18-OCT-18	R4286768
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	01-OCT-18	18-OCT-18	R4286768
Lithium (Li)-Dissolved	0.206		0.020	mg/L	01-OCT-18	18-OCT-18	R4286768
Magnesium (Mg)-Dissolved	972		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Manganese (Mn)-Dissolved	0.00074		0.00020	mg/L	01-OCT-18	18-OCT-18	R4286768
Molybdenum (Mo)-Dissolved	0.0119		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Nickel (Ni)-Dissolved	0.00055		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Potassium (K)-Dissolved	333		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Rubidium (Rb)-Dissolved	0.106		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Selenium (Se)-Dissolved	0.0024		0.0020	mg/L	01-OCT-18	18-OCT-18	R4286768
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	01-OCT-18	18-OCT-18	R4286768
Sodium (Na)-Dissolved	9330		20	mg/L	01-OCT-18	18-OCT-18	R4286768
Strontium (Sr)-Dissolved	5.25		0.050	mg/L	01-OCT-18	18-OCT-18	R4286768
Sulfur (S)-Dissolved	711		5.0	mg/L	01-OCT-18	18-OCT-18	R4286768
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	01-OCT-18	18-OCT-18	R4286768
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	01-OCT-18	18-OCT-18	R4286768
Uranium (U)-Dissolved	0.00307		0.000050	mg/L	01-OCT-18	18-OCT-18	R4286768
Vanadium (V)-Dissolved	0.00135		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	01-OCT-18	18-OCT-18	R4286768
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	01-OCT-18	18-OCT-18	R4286768
Total ICPOES & HR-ICPMS in Seawater							
Hardness							
Hardness (as CaCO3)	4890		4.8	mg/L		18-OCT-18	
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0230		0.0050	mg/L		18-OCT-18	R4286768
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Arsenic (As)-Total	<0.0020		0.0020	mg/L		18-OCT-18	R4286768
Barium (Ba)-Total	0.0088		0.0010	mg/L		18-OCT-18	R4286768
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Boron (B)-Total	4.00		0.10	mg/L		18-OCT-18	R4286768
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Calcium (Ca)-Total	363		1.0	mg/L		18-OCT-18	R4286768
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2168530-11 DUP A							
Sampled By: CLIENT on 17-SEP-18 @ 16:30							
Matrix: marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Cobalt (Co)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Copper (Cu)-Total	0.00101		0.00050	mg/L		18-OCT-18	R4286768
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Iron (Fe)-Total	0.022		0.010	mg/L		18-OCT-18	R4286768
Lead (Pb)-Total	<0.00030		0.00030	mg/L		18-OCT-18	R4286768
Lithium (Li)-Total	0.206		0.020	mg/L		18-OCT-18	R4286768
Magnesium (Mg)-Total	1040		1.0	mg/L		18-OCT-18	R4286768
Manganese (Mn)-Total	0.00111		0.00020	mg/L		18-OCT-18	R4286768
Molybdenum (Mo)-Total	0.0117		0.0020	mg/L		18-OCT-18	R4286768
Nickel (Ni)-Total	0.00062		0.00050	mg/L		18-OCT-18	R4286768
Phosphorus (P)-Total	<0.050		0.050	mg/L		18-OCT-18	R4286768
Potassium (K)-Total	335		1.0	mg/L		18-OCT-18	R4286768
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Rubidium (Rb)-Total	0.107		0.0050	mg/L		18-OCT-18	R4286768
Selenium (Se)-Total	0.0027		0.0020	mg/L		18-OCT-18	R4286768
Silicon (Si)-Total	<1.0		1.0	mg/L		18-OCT-18	R4286768
Silver (Ag)-Total	<0.00010		0.00010	mg/L		18-OCT-18	R4286768
Sodium (Na)-Total	9090		1.0	mg/L		18-OCT-18	R4286768
Strontium (Sr)-Total	5.44		0.010	mg/L		18-OCT-18	R4286768
Sulfur (S)-Total	761		5.0	mg/L		18-OCT-18	R4286768
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		18-OCT-18	R4286768
Thorium (Th)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Tin (Sn)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		18-OCT-18	R4286768
Tungsten (W)-Total	<0.0010		0.0010	mg/L		18-OCT-18	R4286768
Uranium (U)-Total	0.00312		0.000050	mg/L		18-OCT-18	R4286768
Vanadium (V)-Total	0.00146		0.00050	mg/L		18-OCT-18	R4286768
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		18-OCT-18	R4286768
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		18-OCT-18	R4286768
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		02-OCT-18	R4257962
Conductivity	45500		2.0	uS/cm		26-SEP-18	R4245590
Orthophosphate-Dissolved (as P)	0.0176		0.0010	mg/L		22-SEP-18	R4233408
Dissolved Organic Carbon	1.42		0.50	mg/L		25-SEP-18	R4245104
Silicate (as SiO2)	0.333		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.134		0.050	mg/L	28-SEP-18	01-OCT-18	R4254028
Total Organic Carbon	1.34		0.50	mg/L		25-SEP-18	R4245103
Total Dissolved Solids	33300		80	mg/L		25-SEP-18	R4247695
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		26-SEP-18	R4241691
Phosphorus (P)-Total	0.0243		0.0040	mg/L		22-SEP-18	R4233751
Total Suspended Solids	3.8		2.0	mg/L		24-SEP-18	R4239893
pH	7.97		0.10	pH		26-SEP-18	R4245590
Salinity	29.8		1.0	psu		29-SEP-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					25-SEP-18	R4239017
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	25-SEP-18	25-SEP-18	R4238273

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Seawater	Alkalinity Spec by Titration (Seawater)	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-C-BR-IC-VA	Seawater	Bromide by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-C-CL-IC-VA	Seawater	Chloride by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-C-F-IC-VA	Seawater	Fluoride by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-C-NO2-IC-VA	Seawater	Nitrite in Seawater by IC	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
ANIONS-C-NO3-IC-VA	Seawater	Nitrate in Seawater by IC	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
ANIONS-C-SO4-IC-VA	Seawater	Sulfate by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-C-DOC-VA	Seawater	DOC by combustion (seawater)	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-C-TOC-VA	Seawater	TOC by combustion (seawater)	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
EC-C-PCT-VA	Seawater	Conductivity (Automated) (seawater)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-DIS-C-CVAFS-VA	Seawater	Diss. Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7
This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).			
HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7
This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).			
MET-D-L-HRMS-VA	Seawater	Diss. Metals in Seawater by HR-ICPMS	EPA 200.8
Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve laboratory sample filtration based on APHA Method 3030B.			
MET-T-L-HRMS-VA	Seawater	Tot. Metals in Seawater by HR-ICPMS	EPA 200.8
Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve preliminary sample treatment by acid digestion based on APHA Method 3030E.			
NH3-F-VA	Seawater	Ammonia in Seawater by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
al.			
P-T-COL-VA	Seawater	Total P in Seawater by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.			
PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.			
It is recommended that this analysis be conducted in the field.			
PO4-DO-COL-VA	Seawater	D-Orthophosphate in Seawater by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SALINITY-CALC-VA	Seawater	Salinity by conductivity meter	APHA 2520B
Salinity is determined by the APHA 2520B Electrical Conductivity Method. Salinity is a unitless parameter that is roughly equivalent to grams per Litre. ALS applies the unit of psu (practical salinity unit) to indicate that salinity values are derived from the Practical Salinity Scale.			
SIO2-L-COL-VA	Seawater	Low Level Silicate by Colourimetric	APHA 4500-SiO2 E.
This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.			
TDS-VA	Seawater	Total Dissolved Solids by Gravimetric	APHA 2540 Gravimetric
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TKN-C-F-VA	Seawater	TKN in Seawater by Fluorescence	APHA 4500-NORG D.
This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.			
TSS-C-VA	Seawater	Total Suspended Solids by Gravimetric	APHA 2540 D
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) is determined by filtering a sample through a glass fibre filter. TSS is determined by drying the filter at 104 degrees celsius.			

** 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:

14-452765

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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.

Quality Control Report

Workorder: L2168530

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Client: Agnico-Eagle - Meliadine Gold Project

PO Box 99

Rankin Inlet NU X0C 0G0

Contact: JENNIFER BROWN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-VA Seawater								
Batch	R4245590							
WG2884434-3 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			101.1		%		85-115	26-SEP-18
WG2884434-6 DUP		L2168530-5						
Alkalinity, Total (as CaCO ₃)		112	110		mg/L	1.8	20	26-SEP-18
WG2884434-1 MB								
Alkalinity, Total (as CaCO ₃)			<1.0		mg/L		1	26-SEP-18
ANIONS-C-BR-IC-VA Seawater								
Batch	R4243309							
WG2884506-3 DUP		L2168530-1						
Bromide (Br)		55.5	57.6		mg/L	3.7	20	25-SEP-18
WG2884506-2 LCS								
Bromide (Br)			101.4		%		85-115	25-SEP-18
WG2884506-1 MB								
Bromide (Br)			<5.0		mg/L		5	25-SEP-18
ANIONS-C-CL-IC-VA Seawater								
Batch	R4243309							
WG2884506-3 DUP		L2168530-1						
Chloride (Cl)		16000	16600		mg/L	4.0	20	25-SEP-18
WG2884506-2 LCS								
Chloride (Cl)			99.95		%		90-110	25-SEP-18
WG2884506-1 MB								
Chloride (Cl)			<50		mg/L		50	25-SEP-18
ANIONS-C-F-IC-VA Seawater								
Batch	R4243309							
WG2884506-3 DUP		L2168530-1						
Fluoride (F)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-SEP-18
WG2884506-2 LCS								
Fluoride (F)			99.97		%		90-110	25-SEP-18
WG2884506-1 MB								
Fluoride (F)			<1.0		mg/L		1	25-SEP-18
ANIONS-C-NO2-IC-VA Seawater								
Batch	R4243309							
WG2884506-3 DUP		L2168530-1						
Nitrite (as N)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-SEP-18
WG2884506-2 LCS								
Nitrite (as N)			100.8		%		90-110	25-SEP-18
WG2884506-1 MB								



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
ANIONS-C-NO2-IC-VA		Seawater							
Batch	R4243309								
WG2884506-1	MB								
Nitrite (as N)			<0.10		mg/L		0.1	25-SEP-18	
ANIONS-C-NO3-IC-VA		Seawater							
Batch	R4243309								
WG2884506-3	DUP	L2168530-1							
Nitrate (as N)			<0.50	<0.50	RPD-NA	mg/L	N/A	20	25-SEP-18
WG2884506-2	LCS								
Nitrate (as N)				99.0		%		90-110	25-SEP-18
WG2884506-1	MB								
Nitrate (as N)			<0.50		mg/L		0.5		25-SEP-18
ANIONS-C-SO4-IC-VA		Seawater							
Batch	R4243309								
WG2884506-3	DUP	L2168530-1							
Sulfate (SO4)			2280	2360		mg/L	3.7	20	25-SEP-18
WG2884506-2	LCS								
Sulfate (SO4)				100.5		%		90-110	25-SEP-18
WG2884506-1	MB								
Sulfate (SO4)			<30		mg/L		30		25-SEP-18
CARBONS-C-DOC-VA		Seawater							
Batch	R4245104								
WG2886063-1	DUP	L2168530-1							
Dissolved Organic Carbon			1.43	1.48		mg/L	3.4	20	25-SEP-18
WG2886063-4	LCS								
Dissolved Organic Carbon				101.0		%		80-120	25-SEP-18
WG2886063-3	MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5		25-SEP-18
WG2886063-2	MS	L2168530-2							
Dissolved Organic Carbon				93.9		%		70-130	25-SEP-18
Batch	R4257979								
WG2892697-4	LCS								
Dissolved Organic Carbon				96.8		%		80-120	02-OCT-18
WG2892697-3	MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5		02-OCT-18
CARBONS-C-TOC-VA		Seawater							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-C-TOC-VA		Seawater						
Batch	R4245103							
WG2886062-1	DUP	L2168530-1						
Total Organic Carbon		1.46	1.39		mg/L	4.5	20	25-SEP-18
WG2886062-4	LCS							
Total Organic Carbon			102.2		%		80-120	25-SEP-18
WG2886062-3	MB							
Total Organic Carbon			<0.50		mg/L		0.5	25-SEP-18
WG2886062-2	MS	L2168530-2						
Total Organic Carbon			97.4		%		70-130	25-SEP-18
EC-C-PCT-VA		Seawater						
Batch	R4245590							
WG2884434-4	CRM	VA-EC-PCT-CONTROL						
Conductivity			103.7		%		90-110	26-SEP-18
WG2884434-6	DUP	L2168530-5						
Conductivity		46200	45900		uS/cm	0.7	10	26-SEP-18
WG2884434-1	MB							
Conductivity			<2.0		uS/cm		2	26-SEP-18
HG-DIS-C-CVAFS-VA		Seawater						
Batch	R4238273							
WG2885957-2	LCS							
Mercury (Hg)-Dissolved			100.3		%		80-120	25-SEP-18
WG2885957-1	MB	LF						
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	25-SEP-18
HG-TOT-C-CVAFS-VA		Seawater						
Batch	R4241691							
WG2886918-2	LCS							
Mercury (Hg)-Total			99.4		%		80-120	26-SEP-18
WG2886918-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	26-SEP-18
MET-D-L-HRMS-VA		Seawater						
Batch	R4286768							
WG2891785-3	DUP	L2168530-2						
Aluminum (Al)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	18-OCT-18
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Arsenic (As)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	18-OCT-18
Barium (Ba)-Dissolved		0.0099	0.0090		mg/L	9.4	20	18-OCT-18
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Bismuth (Bi)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286768							
WG2891785-3	DUP	L2168530-2						
Boron (B)-Dissolved		4.11	3.98		mg/L	3.3	20	18-OCT-18
Cadmium (Cd)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-OCT-18
Calcium (Ca)-Dissolved		358	361		mg/L	0.8	20	18-OCT-18
Cesium (Cs)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Chromium (Cr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Cobalt (Co)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-OCT-18
Copper (Cu)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Gallium (Ga)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Iron (Fe)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-OCT-18
Lead (Pb)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	18-OCT-18
Lithium (Li)-Dissolved		0.206	0.203		mg/L	1.7	20	18-OCT-18
Magnesium (Mg)-Dissolved		1040	1000		mg/L	4.0	20	18-OCT-18
Manganese (Mn)-Dissolved		0.00078	0.00073		mg/L	6.4	20	18-OCT-18
Molybdenum (Mo)-Dissolved		0.0120	0.0119		mg/L	0.8	20	18-OCT-18
Nickel (Ni)-Dissolved		0.00054	0.00058		mg/L	6.6	20	18-OCT-18
Phosphorus (P)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	18-OCT-18
Potassium (K)-Dissolved		343	335		mg/L	2.4	20	18-OCT-18
Rhenium (Re)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Rubidium (Rb)-Dissolved		0.111	0.107		mg/L	3.9	20	18-OCT-18
Selenium (Se)-Dissolved		0.0033	0.0024	J	mg/L	0.0009	0.004	18-OCT-18
Silicon (Si)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	18-OCT-18
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-OCT-18
Sodium (Na)-Dissolved		9380	9330		mg/L	0.5	20	18-OCT-18
Strontium (Sr)-Dissolved		5.43	5.25		mg/L	3.4	20	18-OCT-18
Sulfur (S)-Dissolved		770	731		mg/L	5.3	20	18-OCT-18
Tellurium (Te)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-OCT-18
Thorium (Th)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Tin (Sn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-OCT-18
Titanium (Ti)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	18-OCT-18
Tungsten (W)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-OCT-18
Uranium (U)-Dissolved		0.00310	0.00300		mg/L	3.2	20	18-OCT-18
Vanadium (V)-Dissolved		0.00129	0.00115		mg/L	11	20	18-OCT-18
Yttrium (Y)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286768							
WG2891785-3	DUP	L2168530-2						
Zinc (Zn)-Dissolved		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	18-OCT-18
Zirconium (Zr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
WG2891785-4	MS	L2168530-1						
Aluminum (Al)-Dissolved			106.8		%		70-130	18-OCT-18
Antimony (Sb)-Dissolved			102.8		%		70-130	18-OCT-18
Arsenic (As)-Dissolved			95.2		%		70-130	18-OCT-18
Barium (Ba)-Dissolved			104.8		%		70-130	18-OCT-18
Beryllium (Be)-Dissolved			98.5		%		70-130	18-OCT-18
Bismuth (Bi)-Dissolved			97.9		%		70-130	18-OCT-18
Boron (B)-Dissolved			101.0		%		70-130	18-OCT-18
Cadmium (Cd)-Dissolved			91.0		%		70-130	18-OCT-18
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	18-OCT-18
Cesium (Cs)-Dissolved			104.2		%		70-130	18-OCT-18
Chromium (Cr)-Dissolved			94.9		%		70-130	18-OCT-18
Cobalt (Co)-Dissolved			90.4		%		70-130	18-OCT-18
Copper (Cu)-Dissolved			85.7		%		70-130	18-OCT-18
Gallium (Ga)-Dissolved			91.4		%		70-130	18-OCT-18
Iron (Fe)-Dissolved			88.6		%		70-130	18-OCT-18
Lead (Pb)-Dissolved			89.7		%		70-130	18-OCT-18
Lithium (Li)-Dissolved			101.0		%		70-130	18-OCT-18
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	18-OCT-18
Manganese (Mn)-Dissolved			94.3		%		70-130	18-OCT-18
Molybdenum (Mo)-Dissolved			101.7		%		70-130	18-OCT-18
Nickel (Ni)-Dissolved			86.8		%		70-130	18-OCT-18
Phosphorus (P)-Dissolved			94.0		%		70-130	18-OCT-18
Potassium (K)-Dissolved			N/A	MS-B	%		-	18-OCT-18
Rhenium (Re)-Dissolved			100.2		%		70-130	18-OCT-18
Rubidium (Rb)-Dissolved			N/A	MS-B	%		-	18-OCT-18
Selenium (Se)-Dissolved			95.2		%		70-130	18-OCT-18
Silver (Ag)-Dissolved			93.8		%		70-130	18-OCT-18
Sodium (Na)-Dissolved			N/A	MS-B	%		-	18-OCT-18
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	18-OCT-18
Tellurium (Te)-Dissolved			98.9		%		70-130	18-OCT-18
Thallium (Tl)-Dissolved			97.2		%		70-130	18-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286768							
WG2891785-4 MS		L2168530-1						
Thorium (Th)-Dissolved			95.0		%		70-130	18-OCT-18
Tin (Sn)-Dissolved			102.0		%		70-130	18-OCT-18
Titanium (Ti)-Dissolved			96.9		%		70-130	18-OCT-18
Tungsten (W)-Dissolved			101.5		%		70-130	18-OCT-18
Uranium (U)-Dissolved			100.9		%		70-130	18-OCT-18
Vanadium (V)-Dissolved			94.7		%		70-130	18-OCT-18
Yttrium (Y)-Dissolved			103.8		%		70-130	18-OCT-18
Zinc (Zn)-Dissolved			84.1		%		70-130	18-OCT-18
Zirconium (Zr)-Dissolved			108.0		%		70-130	18-OCT-18
Batch	R4286967							
WG2891785-2 LCS								
Aluminum (Al)-Dissolved			89.6		%		80-120	15-OCT-18
Antimony (Sb)-Dissolved			89.1		%		80-120	15-OCT-18
Arsenic (As)-Dissolved			92.5		%		80-120	15-OCT-18
Barium (Ba)-Dissolved			98.4		%		80-120	15-OCT-18
Beryllium (Be)-Dissolved			93.6		%		80-120	15-OCT-18
Bismuth (Bi)-Dissolved			90.3		%		80-120	15-OCT-18
Boron (B)-Dissolved			106.7		%		80-120	15-OCT-18
Cadmium (Cd)-Dissolved			99.3		%		80-120	15-OCT-18
Calcium (Ca)-Dissolved			97.0		%		80-120	15-OCT-18
Cesium (Cs)-Dissolved			101.8		%		80-120	15-OCT-18
Chromium (Cr)-Dissolved			95.6		%		80-120	15-OCT-18
Cobalt (Co)-Dissolved			94.0		%		80-120	15-OCT-18
Copper (Cu)-Dissolved			92.8		%		80-120	15-OCT-18
Gallium (Ga)-Dissolved			94.8		%		80-120	15-OCT-18
Iron (Fe)-Dissolved			95.7		%		80-120	15-OCT-18
Lead (Pb)-Dissolved			105.6		%		80-120	15-OCT-18
Lithium (Li)-Dissolved			94.9		%		80-120	15-OCT-18
Magnesium (Mg)-Dissolved			98.6		%		80-120	15-OCT-18
Manganese (Mn)-Dissolved			105.2		%		80-120	15-OCT-18
Molybdenum (Mo)-Dissolved			103.2		%		80-120	15-OCT-18
Nickel (Ni)-Dissolved			95.0		%		80-120	15-OCT-18
Phosphorus (P)-Dissolved			101.3		%		80-120	15-OCT-18
Potassium (K)-Dissolved			94.5		%		80-120	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA	Seawater							
Batch	R4286967							
WG2891785-2	LCS							
Rhenium (Re)-Dissolved			102.0		%		80-120	15-OCT-18
Rubidium (Rb)-Dissolved			101.7		%		80-120	15-OCT-18
Selenium (Se)-Dissolved			102.6		%		80-120	15-OCT-18
Silicon (Si)-Dissolved			96.0		%		80-120	15-OCT-18
Silver (Ag)-Dissolved			97.5		%		80-120	15-OCT-18
Sodium (Na)-Dissolved			109.6		%		80-120	15-OCT-18
Strontium (Sr)-Dissolved			96.8		%		80-120	15-OCT-18
Sulfur (S)-Dissolved			102.8		%		80-120	15-OCT-18
Tellurium (Te)-Dissolved			102.0		%		80-120	15-OCT-18
Thallium (Tl)-Dissolved			94.3		%		80-120	15-OCT-18
Thorium (Th)-Dissolved			107.5		%		80-120	15-OCT-18
Tin (Sn)-Dissolved			102.6		%		80-120	15-OCT-18
Titanium (Ti)-Dissolved			95.6		%		80-120	15-OCT-18
Tungsten (W)-Dissolved			101.0		%		80-120	15-OCT-18
Uranium (U)-Dissolved			108.8		%		80-120	15-OCT-18
Vanadium (V)-Dissolved			95.2		%		80-120	15-OCT-18
Yttrium (Y)-Dissolved			107.0		%		80-120	15-OCT-18
Zinc (Zn)-Dissolved			96.4		%		80-120	15-OCT-18
Zirconium (Zr)-Dissolved			103.0		%		80-120	15-OCT-18
WG2891785-1	MB	LF						
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	15-OCT-18
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Arsenic (As)-Dissolved			<0.0020		mg/L		0.002	15-OCT-18
Barium (Ba)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Bismuth (Bi)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Boron (B)-Dissolved			<0.10		mg/L		0.1	15-OCT-18
Cadmium (Cd)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Calcium (Ca)-Dissolved			<1.0		mg/L		1	15-OCT-18
Cesium (Cs)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Chromium (Cr)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Cobalt (Co)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Copper (Cu)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Gallium (Ga)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch R4286967								
WG2891785-1 MB		LF						
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	15-OCT-18
Lead (Pb)-Dissolved			<0.00030		mg/L		0.0003	15-OCT-18
Lithium (Li)-Dissolved			<0.020		mg/L		0.02	15-OCT-18
Magnesium (Mg)-Dissolved			<1.0		mg/L		1	15-OCT-18
Manganese (Mn)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-18
Molybdenum (Mo)-Dissolved			<0.0020		mg/L		0.002	15-OCT-18
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	15-OCT-18
Potassium (K)-Dissolved			<1.0		mg/L		1	15-OCT-18
Rhenium (Re)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Rubidium (Rb)-Dissolved			<0.0050		mg/L		0.005	15-OCT-18
Selenium (Se)-Dissolved			<0.0020		mg/L		0.002	15-OCT-18
Silicon (Si)-Dissolved			<1.0		mg/L		1	15-OCT-18
Silver (Ag)-Dissolved			<0.00010		mg/L		0.0001	15-OCT-18
Strontium (Sr)-Dissolved			<0.010		mg/L		0.01	15-OCT-18
Sulfur (S)-Dissolved			<5.0		mg/L		5	15-OCT-18
Tellurium (Te)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Thorium (Th)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Tin (Sn)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Titanium (Ti)-Dissolved			<0.0050		mg/L		0.005	15-OCT-18
Tungsten (W)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Uranium (U)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Yttrium (Y)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Zinc (Zn)-Dissolved			<0.0030		mg/L		0.003	15-OCT-18
Zirconium (Zr)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Batch R4288587								
WG2891785-1 MB		LF						
Sodium (Na)-Dissolved			<1.0		mg/L		1	19-OCT-18

MET-T-L-HRMS-VA **Seawater**

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch	R4263147							
WG2888262-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	04-OCT-18
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Arsenic (As)-Total			<0.0020		mg/L		0.002	04-OCT-18
Barium (Ba)-Total			<0.0010		mg/L		0.001	04-OCT-18
Beryllium (Be)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Bismuth (Bi)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Boron (B)-Total			<0.10		mg/L		0.1	04-OCT-18
Cadmium (Cd)-Total			<0.000050		mg/L		0.00005	04-OCT-18
Calcium (Ca)-Total			<1.0		mg/L		1	04-OCT-18
Cesium (Cs)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Chromium (Cr)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Cobalt (Co)-Total			<0.000050		mg/L		0.00005	04-OCT-18
Copper (Cu)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Gallium (Ga)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Iron (Fe)-Total			<0.010		mg/L		0.01	04-OCT-18
Lead (Pb)-Total			<0.00030		mg/L		0.0003	04-OCT-18
Lithium (Li)-Total			<0.020		mg/L		0.02	04-OCT-18
Magnesium (Mg)-Total			<1.0		mg/L		1	04-OCT-18
Manganese (Mn)-Total			<0.00020		mg/L		0.0002	04-OCT-18
Molybdenum (Mo)-Total			<0.0020		mg/L		0.002	04-OCT-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Phosphorus (P)-Total			<0.050		mg/L		0.05	04-OCT-18
Potassium (K)-Total			<1.0		mg/L		1	04-OCT-18
Rhenium (Re)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Rubidium (Rb)-Total			<0.0050		mg/L		0.005	04-OCT-18
Selenium (Se)-Total			<0.0020		mg/L		0.002	04-OCT-18
Silicon (Si)-Total			<1.0		mg/L		1	04-OCT-18
Silver (Ag)-Total			<0.00010		mg/L		0.0001	04-OCT-18
Sodium (Na)-Total			<1.0		mg/L		1	04-OCT-18
Strontium (Sr)-Total			<0.010		mg/L		0.01	04-OCT-18
Sulfur (S)-Total			<5.0		mg/L		5	04-OCT-18
Tellurium (Te)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Thallium (Tl)-Total			<0.000050		mg/L		0.00005	04-OCT-18
Thorium (Th)-Total			<0.00050		mg/L		0.0005	04-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch R4263147								
WG2888262-1 MB								
Tin (Sn)-Total			<0.0010		mg/L		0.001	04-OCT-18
Titanium (Ti)-Total			<0.0050		mg/L		0.005	04-OCT-18
Tungsten (W)-Total			<0.0010		mg/L		0.001	04-OCT-18
Uranium (U)-Total			<0.000050		mg/L		0.00005	04-OCT-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Yttrium (Y)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	04-OCT-18
Zirconium (Zr)-Total			<0.00050		mg/L		0.0005	04-OCT-18
Batch R4265391								
WG2888262-2 LCS								
Aluminum (Al)-Total			96.5		%		80-120	09-OCT-18
Antimony (Sb)-Total			100.0		%		80-120	09-OCT-18
Arsenic (As)-Total			103.0		%		80-120	09-OCT-18
Barium (Ba)-Total			93.4		%		80-120	09-OCT-18
Beryllium (Be)-Total			94.0		%		80-120	09-OCT-18
Bismuth (Bi)-Total			101.0		%		80-120	09-OCT-18
Boron (B)-Total			94.2		%		80-120	09-OCT-18
Cadmium (Cd)-Total			98.5		%		80-120	09-OCT-18
Calcium (Ca)-Total			89.7		%		80-120	09-OCT-18
Cesium (Cs)-Total			92.0		%		80-120	09-OCT-18
Chromium (Cr)-Total			111.0		%		80-120	09-OCT-18
Cobalt (Co)-Total			95.0		%		80-120	09-OCT-18
Copper (Cu)-Total			92.8		%		80-120	09-OCT-18
Gallium (Ga)-Total			98.0		%		80-120	09-OCT-18
Iron (Fe)-Total			116.5		%		80-120	09-OCT-18
Lead (Pb)-Total			109.0		%		80-120	09-OCT-18
Lithium (Li)-Total			88.8		%		80-120	09-OCT-18
Magnesium (Mg)-Total			98.0		%		80-120	09-OCT-18
Manganese (Mn)-Total			104.4		%		80-120	09-OCT-18
Molybdenum (Mo)-Total			90.4		%		80-120	09-OCT-18
Nickel (Ni)-Total			97.0		%		80-120	09-OCT-18
Phosphorus (P)-Total			99.5		%		80-120	09-OCT-18
Potassium (K)-Total			103.1		%		80-120	09-OCT-18
Rhenium (Re)-Total			98.0		%		80-120	09-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch R4265391								
WG2888262-2 LCS								
Rubidium (Rb)-Total			95.0		%		80-120	09-OCT-18
Selenium (Se)-Total			96.5		%		80-120	09-OCT-18
Silicon (Si)-Total			112.0		%		80-120	09-OCT-18
Silver (Ag)-Total			93.5		%		80-120	09-OCT-18
Sodium (Na)-Total			107.4		%		80-120	09-OCT-18
Strontium (Sr)-Total			89.8		%		80-120	09-OCT-18
Sulfur (S)-Total			106.4		%		70-130	09-OCT-18
Tellurium (Te)-Total			100.5		%		80-120	09-OCT-18
Thallium (Tl)-Total			99.0		%		80-120	09-OCT-18
Thorium (Th)-Total			103.2		%		80-120	09-OCT-18
Tin (Sn)-Total			94.2		%		80-120	09-OCT-18
Titanium (Ti)-Total			96.8		%		80-120	09-OCT-18
Tungsten (W)-Total			99.5		%		80-120	09-OCT-18
Uranium (U)-Total			105.0		%		80-120	09-OCT-18
Vanadium (V)-Total			94.8		%		80-120	09-OCT-18
Yttrium (Y)-Total			97.5		%		80-120	09-OCT-18
Zinc (Zn)-Total			100.0		%		80-120	09-OCT-18
Zirconium (Zr)-Total			93.0		%		80-120	09-OCT-18
Batch R4273148								
WG2892233-2 LCS								
Aluminum (Al)-Total			89.2		%		80-120	10-OCT-18
Antimony (Sb)-Total			99.2		%		80-120	10-OCT-18
Arsenic (As)-Total			95.7		%		80-120	10-OCT-18
Barium (Ba)-Total			101.2		%		80-120	10-OCT-18
Beryllium (Be)-Total			93.3		%		80-120	10-OCT-18
Bismuth (Bi)-Total			102.9		%		80-120	10-OCT-18
Boron (B)-Total			108.0		%		80-120	10-OCT-18
Cadmium (Cd)-Total			102.0		%		80-120	10-OCT-18
Calcium (Ca)-Total			101.1		%		80-120	10-OCT-18
Cesium (Cs)-Total			103.8		%		80-120	10-OCT-18
Chromium (Cr)-Total			101.2		%		80-120	10-OCT-18
Cobalt (Co)-Total			94.8		%		80-120	10-OCT-18
Copper (Cu)-Total			92.8		%		80-120	10-OCT-18
Gallium (Ga)-Total			97.2		%		80-120	10-OCT-18

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MET-T-L-HRMS-VA		Seawater						
Batch	R4273148							
WG2892233-2	LCS							
Iron (Fe)-Total			95.7		%		80-120	10-OCT-18
Lead (Pb)-Total			111.0		%		80-120	10-OCT-18
Lithium (Li)-Total			102.7		%		80-120	10-OCT-18
Magnesium (Mg)-Total			94.8		%		80-120	10-OCT-18
Manganese (Mn)-Total			104.4		%		80-120	10-OCT-18
Molybdenum (Mo)-Total			103.2		%		80-120	10-OCT-18
Nickel (Ni)-Total			91.8		%		80-120	10-OCT-18
Phosphorus (P)-Total			98.0		%		80-120	10-OCT-18
Potassium (K)-Total			94.2		%		80-120	10-OCT-18
Rhenium (Re)-Total			105.0		%		80-120	10-OCT-18
Rubidium (Rb)-Total			105.9		%		80-120	10-OCT-18
Selenium (Se)-Total			107.2		%		80-120	10-OCT-18
Silicon (Si)-Total			96.5		%		80-120	10-OCT-18
Silver (Ag)-Total			99.7		%		80-120	10-OCT-18
Sodium (Na)-Total			114.0		%		80-120	10-OCT-18
Strontium (Sr)-Total			98.4		%		80-120	10-OCT-18
Sulfur (S)-Total			102.3		%		70-130	10-OCT-18
Tellurium (Te)-Total			101.0		%		80-120	10-OCT-18
Thallium (Tl)-Total			98.3		%		80-120	10-OCT-18
Thorium (Th)-Total			113.6		%		80-120	10-OCT-18
Tin (Sn)-Total			112.2		%		80-120	10-OCT-18
Titanium (Ti)-Total			95.2		%		80-120	10-OCT-18
Tungsten (W)-Total			104.0		%		80-120	10-OCT-18
Uranium (U)-Total			109.8		%		80-120	10-OCT-18
Vanadium (V)-Total			96.2		%		80-120	10-OCT-18
Yttrium (Y)-Total			107.0		%		80-120	10-OCT-18
Zinc (Zn)-Total			93.2		%		80-120	10-OCT-18
Zirconium (Zr)-Total			103.0		%		80-120	10-OCT-18
WG2892233-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	10-OCT-18
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Arsenic (As)-Total			<0.0020		mg/L		0.002	10-OCT-18
Barium (Ba)-Total			<0.0010		mg/L		0.001	10-OCT-18
Beryllium (Be)-Total			<0.00050		mg/L		0.0005	10-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch	R4273148							
WG2892233-1 MB								
Bismuth (Bi)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Boron (B)-Total			<0.10		mg/L		0.1	10-OCT-18
Cadmium (Cd)-Total			<0.000050		mg/L		0.00005	10-OCT-18
Calcium (Ca)-Total			<1.0		mg/L		1	10-OCT-18
Cesium (Cs)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Chromium (Cr)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Cobalt (Co)-Total			<0.000050		mg/L		0.00005	10-OCT-18
Copper (Cu)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Gallium (Ga)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Iron (Fe)-Total			<0.010		mg/L		0.01	10-OCT-18
Lead (Pb)-Total			<0.00030		mg/L		0.0003	10-OCT-18
Lithium (Li)-Total			<0.020		mg/L		0.02	10-OCT-18
Magnesium (Mg)-Total			<1.0		mg/L		1	10-OCT-18
Manganese (Mn)-Total			<0.00020		mg/L		0.0002	10-OCT-18
Molybdenum (Mo)-Total			<0.0020		mg/L		0.002	10-OCT-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Phosphorus (P)-Total			<0.050		mg/L		0.05	10-OCT-18
Potassium (K)-Total			<1.0		mg/L		1	10-OCT-18
Rhenium (Re)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Rubidium (Rb)-Total			<0.0050		mg/L		0.005	10-OCT-18
Selenium (Se)-Total			<0.0020		mg/L		0.002	10-OCT-18
Silicon (Si)-Total			<1.0		mg/L		1	10-OCT-18
Silver (Ag)-Total			<0.00010		mg/L		0.0001	10-OCT-18
Sodium (Na)-Total			<1.0		mg/L		1	10-OCT-18
Strontium (Sr)-Total			<0.010		mg/L		0.01	10-OCT-18
Sulfur (S)-Total			<5.0		mg/L		5	10-OCT-18
Tellurium (Te)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Thallium (Tl)-Total			<0.000050		mg/L		0.00005	10-OCT-18
Thorium (Th)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Tin (Sn)-Total			<0.0010		mg/L		0.001	10-OCT-18
Titanium (Ti)-Total			<0.0050		mg/L		0.005	10-OCT-18
Tungsten (W)-Total			<0.0010		mg/L		0.001	10-OCT-18
Uranium (U)-Total			<0.000050		mg/L		0.00005	10-OCT-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	10-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch R4273148								
WG2892233-1 MB								
Yttrium (Y)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	10-OCT-18
Zirconium (Zr)-Total			<0.00050		mg/L		0.0005	10-OCT-18
Batch R4286768								
WG2892233-3 DUP		L2168530-4						
Antimony (Sb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Arsenic (As)-Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	18-OCT-18
Barium (Ba)-Total		0.0098	0.0090		mg/L	8.8	20	18-OCT-18
Beryllium (Be)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Bismuth (Bi)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Boron (B)-Total		4.29	3.99		mg/L	7.1	20	18-OCT-18
Cadmium (Cd)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-OCT-18
Calcium (Ca)-Total		364	355		mg/L	2.6	20	18-OCT-18
Cesium (Cs)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Chromium (Cr)-Total		<0.00050	0.00063	RPD-NA	mg/L	N/A	20	18-OCT-18
Cobalt (Co)-Total		0.000058	0.000055		mg/L	5.6	20	18-OCT-18
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Gallium (Ga)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Iron (Fe)-Total		0.041	0.052	J	mg/L	0.012	0.02	18-OCT-18
Lead (Pb)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	18-OCT-18
Lithium (Li)-Total		0.215	0.204		mg/L	5.4	20	18-OCT-18
Magnesium (Mg)-Total		1040	1140		mg/L	9.0	20	18-OCT-18
Manganese (Mn)-Total		0.00138	0.00159		mg/L	14	20	18-OCT-18
Molybdenum (Mo)-Total		0.0123	0.0119		mg/L	3.3	20	18-OCT-18
Nickel (Ni)-Total		0.00056	0.00082	J	mg/L	0.00026	0.001	18-OCT-18
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	18-OCT-18
Potassium (K)-Total		346	338		mg/L	2.3	20	18-OCT-18
Rhenium (Re)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Rubidium (Rb)-Total		0.112	0.108		mg/L	3.8	20	18-OCT-18
Selenium (Se)-Total		0.0024	0.0023		mg/L	3.9	20	18-OCT-18
Silicon (Si)-Total		<1.0	<1.0	RPD-NA	mg/L	N/A	25	18-OCT-18
Silver (Ag)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-OCT-18
Sodium (Na)-Total		9340	9430		mg/L	1.0	20	18-OCT-18
Strontium (Sr)-Total		5.38	5.75		mg/L	6.7	20	18-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch	R4286768							
WG2892233-3 DUP		L2168530-4						
Sulfur (S)-Total		750	845		mg/L	12	25	18-OCT-18
Tellurium (Te)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Thallium (Tl)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-OCT-18
Thorium (Th)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Tin (Sn)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-OCT-18
Titanium (Ti)-Total		<0.0050	0.0059	RPD-NA	mg/L	N/A	20	18-OCT-18
Tungsten (W)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-OCT-18
Uranium (U)-Total		0.00309	0.00300		mg/L	2.9	20	18-OCT-18
Vanadium (V)-Total		0.00126	0.00165	J	mg/L	0.00039	0.001	18-OCT-18
Yttrium (Y)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
Zinc (Zn)-Total		<0.0030	0.0042	RPD-NA	mg/L	N/A	20	18-OCT-18
Zirconium (Zr)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-OCT-18
WG2892233-4 MS		L2168530-1						
Aluminum (Al)-Total			107.3		%		70-130	18-OCT-18
Antimony (Sb)-Total			100.7		%		70-130	18-OCT-18
Arsenic (As)-Total			93.7		%		70-130	18-OCT-18
Barium (Ba)-Total			104.9		%		70-130	18-OCT-18
Beryllium (Be)-Total			98.0		%		70-130	18-OCT-18
Bismuth (Bi)-Total			97.0		%		70-130	18-OCT-18
Boron (B)-Total			96.7		%		70-130	18-OCT-18
Cadmium (Cd)-Total			90.0		%		70-130	18-OCT-18
Calcium (Ca)-Total			N/A	MS-B	%		-	18-OCT-18
Cesium (Cs)-Total			104.1		%		70-130	18-OCT-18
Chromium (Cr)-Total			93.9		%		70-130	18-OCT-18
Cobalt (Co)-Total			92.6		%		70-130	18-OCT-18
Copper (Cu)-Total			86.5		%		70-130	18-OCT-18
Gallium (Ga)-Total			93.6		%		70-130	18-OCT-18
Iron (Fe)-Total			91.0		%		70-130	18-OCT-18
Lead (Pb)-Total			89.1		%		70-130	18-OCT-18
Lithium (Li)-Total			101.8		%		70-130	18-OCT-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	18-OCT-18
Manganese (Mn)-Total			94.5		%		70-130	18-OCT-18
Molybdenum (Mo)-Total			101.3		%		70-130	18-OCT-18
Nickel (Ni)-Total			88.2		%		70-130	18-OCT-18



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch	R4286768							
WG2892233-4	MS	L2168530-1						
Phosphorus (P)-Total			93.7		%		70-130	18-OCT-18
Potassium (K)-Total			N/A	MS-B	%		-	18-OCT-18
Rhenium (Re)-Total			98.0		%		70-130	18-OCT-18
Rubidium (Rb)-Total			N/A	MS-B	%		-	18-OCT-18
Selenium (Se)-Total			93.0		%		70-130	18-OCT-18
Silver (Ag)-Total			92.2		%		70-130	18-OCT-18
Sodium (Na)-Total			N/A	MS-B	%		-	18-OCT-18
Strontium (Sr)-Total			N/A	MS-B	%		-	18-OCT-18
Tellurium (Te)-Total			97.1		%		70-130	18-OCT-18
Thallium (Tl)-Total			95.9		%		70-130	18-OCT-18
Thorium (Th)-Total			94.6		%		70-130	18-OCT-18
Tin (Sn)-Total			102.9		%		70-130	18-OCT-18
Titanium (Ti)-Total			96.5		%		70-130	18-OCT-18
Tungsten (W)-Total			97.8		%		70-130	18-OCT-18
Uranium (U)-Total			98.9		%		70-130	18-OCT-18
Vanadium (V)-Total			95.9		%		70-130	18-OCT-18
Yttrium (Y)-Total			102.9		%		70-130	18-OCT-18
Zinc (Zn)-Total			84.5		%		70-130	18-OCT-18
Zirconium (Zr)-Total			106.0		%		70-130	18-OCT-18
Batch	R4288587							
WG2892233-3	DUP	L2168530-4						
Aluminum (Al)-Total		0.0255	0.0323	J	mg/L	0.0068	0.01	19-OCT-18
NH3-F-VA		Seawater						
Batch	R4257962							
WG2892382-3	DUP	L2168530-11						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	02-OCT-18
WG2892382-2	LCS		102.8		%		85-115	02-OCT-18
WG2892382-1	MB		<0.0050		mg/L		0.005	02-OCT-18
WG2892382-4	MS	L2168530-11	103.3		%		75-125	02-OCT-18
P-T-COL-VA		Seawater						

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-C-F-VA		Seawater						
Batch	R4254028							
WG2889252-3	DUP	L2168530-1						
Total Kjeldahl Nitrogen		0.135	0.130		mg/L	3.7	20	01-OCT-18
WG2889252-2	LCS							
Total Kjeldahl Nitrogen			80.2		%		75-125	01-OCT-18
WG2889252-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	01-OCT-18
WG2889252-4	MS	L2168530-2						
Total Kjeldahl Nitrogen			118.4		%		70-130	01-OCT-18
TSS-C-VA		Seawater						
Batch	R4239893							
WG2884830-6	LCS							
Total Suspended Solids			89.7		%		85-115	24-SEP-18
WG2884830-5	MB							
Total Suspended Solids			<2.0		mg/L		2	24-SEP-18

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Total Dissolved Solids by Gravimetric							
	1	17-SEP-18 18:15	25-SEP-18 23:59	7	8	days	EHT
	2	17-SEP-18 18:15	25-SEP-18 23:59	7	8	days	EHT
	3	17-SEP-18 18:45	25-SEP-18 23:59	7	8	days	EHT
	4	17-SEP-18 18:45	25-SEP-18 23:59	7	8	days	EHT
	5	17-SEP-18 16:30	25-SEP-18 23:59	7	8	days	EHT
	6	17-SEP-18 16:30	25-SEP-18 23:59	7	8	days	EHT
	7	17-SEP-18 17:45	25-SEP-18 23:59	7	8	days	EHT
	8	17-SEP-18 17:45	25-SEP-18 23:59	7	8	days	EHT
	9	17-SEP-18 17:10	25-SEP-18 23:59	7	8	days	EHT
	10	17-SEP-18 17:10	25-SEP-18 23:59	7	8	days	EHT
	11	17-SEP-18 16:30	25-SEP-18 23:59	7	8	days	EHT
pH by Meter (Automated) (seawater)							
	1	17-SEP-18 18:15	26-SEP-18 07:47	0.25	205	hours	EHTR-FM
	2	17-SEP-18 18:15	26-SEP-18 07:47	0.25	205	hours	EHTR-FM
	3	17-SEP-18 18:45	26-SEP-18 07:47	0.25	205	hours	EHTR-FM
	4	17-SEP-18 18:45	26-SEP-18 07:47	0.25	205	hours	EHTR-FM
	5	17-SEP-18 16:30	26-SEP-18 07:47	0.25	207	hours	EHTR-FM
	6	17-SEP-18 16:30	26-SEP-18 07:47	0.25	207	hours	EHTR-FM
	7	17-SEP-18 17:45	26-SEP-18 07:47	0.25	206	hours	EHTR-FM
	8	17-SEP-18 17:45	26-SEP-18 07:47	0.25	206	hours	EHTR-FM
	9	17-SEP-18 17:10	26-SEP-18 07:47	0.25	207	hours	EHTR-FM
	10	17-SEP-18 17:10	26-SEP-18 07:47	0.25	207	hours	EHTR-FM
	11	17-SEP-18 16:30	26-SEP-18 07:47	0.25	207	hours	EHTR-FM
Anions and Nutrients							
D-Orthophosphate in Seawater by Colour							
	1	17-SEP-18 18:15	22-SEP-18 06:59	3	5	days	EHTR
	2	17-SEP-18 18:15	22-SEP-18 06:59	3	5	days	EHTR
	3	17-SEP-18 18:45	22-SEP-18 06:59	3	5	days	EHTR
	4	17-SEP-18 18:45	22-SEP-18 07:01	3	5	days	EHTR
	5	17-SEP-18 16:30	22-SEP-18 07:03	3	5	days	EHTR
	6	17-SEP-18 16:30	22-SEP-18 07:03	3	5	days	EHTR
	7	17-SEP-18 17:45	22-SEP-18 07:03	3	5	days	EHTR
	8	17-SEP-18 17:45	22-SEP-18 07:04	3	5	days	EHTR
	9	17-SEP-18 17:10	22-SEP-18 07:04	3	5	days	EHTR
	10	17-SEP-18 17:10	22-SEP-18 07:06	3	5	days	EHTR
	11	17-SEP-18 16:30	22-SEP-18 07:06	3	5	days	EHTR
Nitrate in Seawater by IC							
	1	17-SEP-18 18:15	25-SEP-18 07:25	3	8	days	EHTR
	2	17-SEP-18 18:15	25-SEP-18 07:25	3	8	days	EHTR
	3	17-SEP-18 18:45	25-SEP-18 07:25	3	8	days	EHTR
	4	17-SEP-18 18:45	25-SEP-18 07:25	3	8	days	EHTR
	5	17-SEP-18 16:30	25-SEP-18 07:25	3	8	days	EHTR
	6	17-SEP-18 16:30	25-SEP-18 07:25	3	8	days	EHTR
	7	17-SEP-18 17:45	25-SEP-18 07:25	3	8	days	EHTR
	8	17-SEP-18 17:45	25-SEP-18 07:25	3	8	days	EHTR
	9	17-SEP-18 17:10	25-SEP-18 07:25	3	8	days	EHTR
	10	17-SEP-18 17:10	25-SEP-18 07:25	3	8	days	EHTR
	11	17-SEP-18 16:30	25-SEP-18 07:25	3	8	days	EHTR
Nitrite in Seawater by IC							
	1	17-SEP-18 18:15	25-SEP-18 07:25	3	8	days	EHTR
	2	17-SEP-18 18:15	25-SEP-18 07:25	3	8	days	EHTR
	3	17-SEP-18 18:45	25-SEP-18 07:25	3	8	days	EHTR
	4	17-SEP-18 18:45	25-SEP-18 07:25	3	8	days	EHTR
	5	17-SEP-18 16:30	25-SEP-18 07:25	3	8	days	EHTR
	6	17-SEP-18 16:30	25-SEP-18 07:25	3	8	days	EHTR
	7	17-SEP-18 17:45	25-SEP-18 07:25	3	8	days	EHTR

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Nitrite in Seawater by IC	8	17-SEP-18 17:45	25-SEP-18 07:25	3	8	days	EHTR
	9	17-SEP-18 17:10	25-SEP-18 07:25	3	8	days	EHTR
	10	17-SEP-18 17:10	25-SEP-18 07:25	3	8	days	EHTR
	11	17-SEP-18 16:30	25-SEP-18 07:25	3	8	days	EHTR
Total P in Seawater by Colour	1	17-SEP-18 18:15	22-SEP-18 04:05	3	4	days	EHTR
	2	17-SEP-18 18:15	22-SEP-18 04:05	3	4	days	EHTR
	3	17-SEP-18 18:45	22-SEP-18 04:05	3	4	days	EHTR
	4	17-SEP-18 18:45	22-SEP-18 04:05	3	4	days	EHTR
	5	17-SEP-18 16:30	22-SEP-18 04:05	3	4	days	EHTR
	6	17-SEP-18 16:30	22-SEP-18 04:05	3	4	days	EHTR
	7	17-SEP-18 17:45	22-SEP-18 04:05	3	4	days	EHTR
	8	17-SEP-18 17:45	22-SEP-18 04:05	3	4	days	EHTR
	9	17-SEP-18 17:10	22-SEP-18 04:05	3	4	days	EHTR
	10	17-SEP-18 17:10	22-SEP-18 04:05	3	4	days	EHTR
	11	17-SEP-18 16:30	22-SEP-18 04:05	3	4	days	EHTR

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2168530 were received on 21-SEP-18 08:35.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2168530-COFC

COC Number: 14 - 452765

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Report To Company: <u>Agnico Eagle Mines</u> Contact: <u>Jennifer Brown</u> Address: <u>Meliadine, Rankin Inlet, NU XOC DGO</u> Phone: <u>1-819-759-7555 ext 4603996</u>			Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>arman-ospan@golder.com</u> Email 2: <u>erichard@golder.com</u>			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm) P <input type="checkbox"/> Priority (2-4 business days if received by 3pm) E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm) E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge. Specify Date Required for E2, E or P:																																																											
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Company: <u>Agnico Eagle & Golder</u> Contact:			Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>invoices.meliadine@agnico-eagle.com</u> Email 2: <u>carolina-leseigneurtorres@golder.com</u>			Analysis Request Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																											
Project Information ALS Quote #: <u>Q 69808</u> Job #: PO / AFE: LSD:			Oil and Gas Required Fields (client use) Approver ID: GL Account: Activity Code: Location:			<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <th>Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</th> <th>PH</th> <th>Hardness</th> <th>alkalinity</th> <th>conductivity</th> <th>DOC (lab filter)</th> <th>Total Metals</th> <th>Dissolved Metals</th> <th>Nutrients</th> <th>Salinity</th> <th>Routine Parameters</th> <th>Total + Diss. Hg</th> <th>PSA (downstream)</th> <th>TOC, TKN</th> <th>TDS, TSS</th> <th>Number of Containers</th> </tr> <tr> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> </table>			Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	PH	Hardness	alkalinity	conductivity	DOC (lab filter)	Total Metals	Dissolved Metals	Nutrients	Salinity	Routine Parameters	Total + Diss. Hg	PSA (downstream)	TOC, TKN	TDS, TSS	Number of Containers		X	X	X	X	X	X	X	X	X	X	X	X	X	X																										
Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	PH	Hardness	alkalinity	conductivity	DOC (lab filter)				Total Metals	Dissolved Metals	Nutrients	Salinity	Routine Parameters	Total + Diss. Hg	PSA (downstream)	TOC, TKN	TDS, TSS	Number of Containers																																															
	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																																			
ALS Lab Work Order # (lab use only)			ALS Contact: Sampler:																																																														
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>ALS Sample # (lab use only)</th> <th>Sample Identification and/or Coordinates (This description will appear on the report)</th> <th>Date (dd-mm-yy)</th> <th>Time (hh:mm)</th> <th>Sample Type</th> </tr> </thead> <tbody> <tr> <td></td> <td>WW 1 S</td> <td>Sept 17</td> <td>18:15</td> <td>marine</td> </tr> <tr> <td></td> <td>WW 1 D</td> <td>2018</td> <td>18:15</td> <td>H₂O</td> </tr> <tr> <td></td> <td>MWE-1S</td> <td></td> <td>18:45</td> <td></td> </tr> <tr> <td></td> <td>MWE-1D</td> <td></td> <td>18:45</td> <td></td> </tr> <tr> <td></td> <td>MWE-2S</td> <td></td> <td>16:30</td> <td></td> </tr> <tr> <td></td> <td>MWE-2D</td> <td></td> <td>16:30</td> <td></td> </tr> <tr> <td></td> <td>MWR₆A-2S</td> <td></td> <td>17:45</td> <td></td> </tr> <tr> <td></td> <td>MWR₆A-2D</td> <td></td> <td>17:45</td> <td></td> </tr> <tr> <td></td> <td>MWR₆A-1S</td> <td></td> <td>17:10</td> <td></td> </tr> <tr> <td></td> <td>MWR₆A-1D</td> <td></td> <td>17:10</td> <td></td> </tr> <tr> <td></td> <td>DUP A</td> <td></td> <td>16:30</td> <td></td> </tr> </tbody> </table>			ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)				Time (hh:mm)	Sample Type		WW 1 S	Sept 17	18:15	marine		WW 1 D	2018	18:15	H ₂ O		MWE-1S		18:45			MWE-1D		18:45			MWE-2S		16:30			MWE-2D		16:30			MWR ₆ A-2S		17:45			MWR ₆ A-2D		17:45			MWR ₆ A-1S		17:10			MWR ₆ A-1D		17:10			DUP A		16:30	
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	DUP A		16:30																																																														
Drinking Water (DW) Samples (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Special Instructions / Specify Criteria to add on report (client use) <u>CCNE criteria ; contact erichard@golder.com</u> <u>agnico-equis@golder.com</u> <u>report to: carolina-leseigneurtorres@golder.com</u>			SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: <u>10</u>																																																											
SHIPMENT RELEASE (client use) Released by: <u>Andrew Rippington</u> Date: <u>Sept 18</u> Time: <u>07:30</u>			INITIAL SHIPMENT RECEPTION (lab use only) Received by: _____ Date: _____ Time: _____			FINAL SHIPMENT RECEPTION (lab use only) Received by: <u>JC</u> Date: <u>9/21/18</u> Time: <u>8:35AM</u>																																																											

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-336a v08 Form03 October 2013

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

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

Appendix F-2. Water Quality QA/QC results

Sample ID			MWE-2D	DUP A	
Parameter	Detection Limit	Units	Seawater	Seawater	RPD (%)
Physical Tests (Seawater)					
Conductivity	2.0	uS/cm	45500	45500	0.0
Hardness (as CaCO ₃)	4.8	mg/L	4970	4890	1.6
pH	0.10	pH	7.98	7.97	0.1
Salinity	1.0	psu	29.8	29.8	0.0
Total Suspended Solids	2.0	mg/L	<2.0	3.8	<DL*5
Total Dissolved Solids	80	mg/L	36000	33300	7.8
Anions and Nutrients (Seawater)					
Alkalinity, Bicarbonate (as CaCO ₃)	1.0	mg/L	113	114	0.9
Alkalinity, Carbonate (as CaCO ₃)	1.0	mg/L	<1.0	<1.0	<DL*5
Alkalinity, Hydroxide (as CaCO ₃)	1.0	mg/L	<1.0	<1.0	<DL*5
Alkalinity, Total (as CaCO ₃)	1.0	mg/L	113	114	0.9
Ammonia, Total (as N)	0.0050	mg/L	<0.0050	<0.0050	<DL*5
Bromide (Br)	5.0	mg/L	58.9	57.3	2.8
Chloride (Cl)	50	mg/L	17000	16800	1.2
Fluoride (F)	1.0	mg/L	<1.0	<1.0	<DL*5
Nitrate (as N)	0.50	mg/L	<0.50	<0.50	<DL*5
Nitrite (as N)	0.10	mg/L	<0.10	<0.10	<DL*5
Total Kjeldahl Nitrogen	0.050	mg/L	0.139	0.134	<DL*5
Orthophosphate-Dissolved (as P)	0.0010	mg/L	0.0174	0.0176	1.1
Phosphorus (P)-Total	0.0040	mg/L	0.0247	0.0243	1.6
Silicate (as SiO ₂)	0.010	mg/L	0.344	0.333	3.2
Sulfate (SO ₄)	30	mg/L	2430	2390	1.7
Organic / Inorganic Carbon (Seawater)					
Dissolved Organic Carbon	0.50	mg/L	1.43	1.42	<DL*5
Total Organic Carbon	0.50	mg/L	1.54	1.34	<DL*5
Total Metals (Seawater)					
Aluminum (Al)-Total	0.0050	mg/L	0.0232	0.0230	<DL*5
Antimony (Sb)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Arsenic (As)-Total	0.0020	mg/L	<0.0020	<0.0020	<DL*5
Barium (Ba)-Total	0.0010	mg/L	0.0090	0.0088	2.2
Beryllium (Be)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Bismuth (Bi)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Boron (B)-Total	0.10	mg/L	4.10	4.00	2.5
Cadmium (Cd)-Total	0.000050	mg/L	<0.000050	<0.000050	<DL*5
Calcium (Ca)-Total	1.0	mg/L	348	363	4.2
Cesium (Cs)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Chromium (Cr)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Cobalt (Co)-Total	0.000050	mg/L	0.000050	<0.000050	<DL*5
Copper (Cu)-Total	0.00050	mg/L	<0.00050	0.00101	<DL*5
Gallium (Ga)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Iron (Fe)-Total	0.010	mg/L	0.029	0.022	<DL*5
Lead (Pb)-Total	0.00030	mg/L	<0.00030	<0.00030	<DL*5
Lithium (Li)-Total	0.020	mg/L	0.206	0.206	0.0
Magnesium (Mg)-Total	1.0	mg/L	1030	1040	1.0
Manganese (Mn)-Total	0.00020	mg/L	0.00119	0.00111	7.0
Mercury (Hg)-Total	0.000010	mg/L	<0.000010	<0.000010	<DL*5
Molybdenum (Mo)-Total	0.0020	mg/L	0.0118	0.0117	0.9
Nickel (Ni)-Total	0.00050	mg/L	0.00063	0.00062	<DL*5
Phosphorus (P)-Total	0.050	mg/L	<0.050	<0.050	<DL*5
Potassium (K)-Total	1.0	mg/L	334	335	0.3
Rhenium (Re)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Rubidium (Rb)-Total	0.0050	mg/L	0.109	0.107	1.9
Selenium (Se)-Total	0.0020	mg/L	<0.0020	0.0027	<DL*5
Silicon (Si)-Total	1.0	mg/L	<1.0	<1.0	<DL*5
Silver (Ag)-Total	0.00010	mg/L	<0.00010	<0.00010	<DL*5
Sodium (Na)-Total	1.0	mg/L	9240	9090	1.6
Strontium (Sr)-Total	0.010	mg/L	5.38	5.44	1.1
Sulfur (S)-Total	5.0	mg/L	757	761	0.5
Tellurium (Te)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Thallium (Tl)-Total	0.000050	mg/L	<0.000050	<0.000050	<DL*5
Thorium (Th)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Tin (Sn)-Total	0.0010	mg/L	<0.0010	<0.0010	<DL*5
Titanium (Ti)-Total	0.0050	mg/L	<0.0050	<0.0050	<DL*5
Tungsten (W)-Total	0.0010	mg/L	<0.0010	<0.0010	<DL*5
Uranium (U)-Total	0.000050	mg/L	0.00302	0.00312	3.3
Vanadium (V)-Total	0.00050	mg/L	0.00146	0.00146	<DL*5
Yttrium (Y)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Zinc (Zn)-Total	0.0030	mg/L	<0.0030	<0.0030	<DL*5
Zirconium (Zr)-Total	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Dissolved Metals (Seawater)					
Aluminum (Al)-Dissolved	0.0050	mg/L	<0.0050	<0.0050	<DL*5
Antimony (Sb)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Arsenic (As)-Dissolved	0.0020	mg/L	<0.0020	<0.0020	<DL*5
Barium (Ba)-Dissolved	0.0010	mg/L	0.0088	0.0092	4.4
Beryllium (Be)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Bismuth (Bi)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Boron (B)-Dissolved	0.10	mg/L	3.95	4.09	3.5
Cadmium (Cd)-Dissolved	0.000050	mg/L	<0.000050	<0.000050	<DL*5
Calcium (Ca)-Dissolved	1.0	mg/L	354	354	0.0
Cesium (Cs)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Chromium (Cr)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Cobalt (Co)-Dissolved	0.000050	mg/L	<0.000050	<0.000050	<DL*5
Copper (Cu)-Dissolved	0.00050	mg/L	<0.00050	0.00065	<DL*5
Gallium (Ga)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Iron (Fe)-Dissolved	0.010	mg/L	<0.010	<0.010	<DL*5
Lead (Pb)-Dissolved	0.00030	mg/L	<0.00030	<0.00030	<DL*5
Lithium (Li)-Dissolved	0.020	mg/L	0.195	0.206	5.5
Magnesium (Mg)-Dissolved	1.0	mg/L	993	972	2.1

Appendix F-2. Water Quality QA/QC results

Sample ID			MWE-2D	DUP A	RPD (%)
Parameter	Detection Limit	Units	Seawater	Seawater	
Manganese (Mn)-Dissolved	0.00020	mg/L	0.00068	0.00074	<DL*5
Mercury (Hg)-Dissolved	0.000010	mg/L	<0.000010	<0.000010	<DL*5
Molybdenum (Mo)-Dissolved	0.0020	mg/L	0.0113	0.0119	5.2
Nickel (Ni)-Dissolved	0.00050	mg/L	<0.00050	0.00055	<DL*5
Phosphorus (P)-Dissolved	0.050	mg/L	<0.050	<0.050	<DL*5
Potassium (K)-Dissolved	20	mg/L	344	333	3.2
Rhenium (Re)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Rubidium (Rb)-Dissolved	0.0050	mg/L	0.104	0.106	1.9
Selenium (Se)-Dissolved	0.0020	mg/L	0.0023	0.0024	<DL*5
Silicon (Si)-Dissolved	1.0	mg/L	<1.0	<1.0	<DL*5
Silver (Ag)-Dissolved	0.00010	mg/L	<0.00010	<0.00010	<DL*5
Sodium (Na)-Dissolved	20	mg/L	9420	9330	1.0
Strontium (Sr)-Dissolved	0.050	mg/L	5.27	5.25	0.4
Sulfur (S)-Dissolved	5.0	mg/L	720	711	1.3
Tellurium (Te)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Thallium (Tl)-Dissolved	0.000050	mg/L	<0.000050	<0.000050	<DL*5
Thorium (Th)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Tin (Sn)-Dissolved	0.0010	mg/L	<0.0010	<0.0010	<DL*5
Titanium (Ti)-Dissolved	0.0050	mg/L	<0.0050	<0.0050	<DL*5
Tungsten (W)-Dissolved	0.0010	mg/L	<0.0010	<0.0010	<DL*5
Uranium (U)-Dissolved	0.000050	mg/L	0.00296	0.00307	3.6
Vanadium (V)-Dissolved	0.00050	mg/L	0.00122	0.00135	<DL*5
Yttrium (Y)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5
Zinc (Zn)-Dissolved	0.0030	mg/L	<0.0030	<0.0030	<DL*5
Zirconium (Zr)-Dissolved	0.00050	mg/L	<0.00050	<0.00050	<DL*5

Notes:

RPD - relative percent difference

<DL*5 - values are less than 5 times detection limit (DL)

Bold values - indicate RPDs greater than 20%

APPENDIX G

**Marine Sediment and Water Quality
Analytical Results**



Agnico-Eagle - Meliadine Gold Project
ATTN: Jennifer Brown
PO Box 99
Rankin Inlet NU XOC OGO

Date Received: 26-SEP-18
Report Date: 19-OCT-18 15:32 (MT)
Version: FINAL

Client Phone: 819-759-7555

Certificate of Analysis

Lab Work Order #: L2170896
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 14-452766, 14-452767, 14-452768
Legal Site Desc:

Amber Springer, B.Sc
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
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-1 MBE-1 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 17:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.83		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.64		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.100		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.541		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0108		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.065		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	8080		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	6.34		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	49.8		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	14.8		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5710		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	40.5		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	4.43		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	8.80		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	14400		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.14		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	11.0		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	7320		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	153		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.55		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	16.4		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	924		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2230		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6090		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	27.7		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.085		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	595		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.700		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	32.7		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	25.8		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.2		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-2 MBE-1 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 17:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-2 MBE-1 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 17:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	1.16		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.80		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.139		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.661		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0114		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.069		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7800		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	0.11		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	5.95		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	49.4		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.16		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	16.1		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	6210		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	39.9		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	4.47		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	9.23		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	14400		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.65		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	13.0		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	7260		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	151		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.60		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	16.1		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	854		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2270		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6770		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	30.5		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.094		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	595		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.801		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	32.9		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	26.0		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.8		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-3 MBE-1 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 17:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-3 MBE-1 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 17:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.81		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.63		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.097		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.530		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0095		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.057		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7250		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.99		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	45.8		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	14.3		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5490		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	57.0		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	4.40		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	9.08		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	13200		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.10		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	11.6		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	7010		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	146		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	2.19		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	26.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	815		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2110		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6000		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	25.4		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.086		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	559		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.743		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	31.1		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	24.4		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.2		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-4 MBE-2 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 16:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-4 MBE-2 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 16:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.79		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.65		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.095		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.552		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0101		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.055		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6860		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	5.44		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	43.7		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.14		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	13.5		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5430		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	36.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	4.05		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	7.91		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	13200		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.21		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	10.9		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6560		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	137		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.58		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	15.0		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	857		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2070		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	0.21		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6210		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	24.7		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.083		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	1.2		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	510		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.702		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	29.4		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	24.3		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	3.9		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-5 MBE-2 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 16:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-5 MBE-2 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 16:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.72		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.60		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.087		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.511		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0095		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.054		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7450		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.75		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	45.0		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	13.4		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5520		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	38.8		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	4.25		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	8.06		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	13300		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.10		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	11.1		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	7010		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	146		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.61		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	15.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	860		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2140		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6220		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	24.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.075		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	608		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.741		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	31.2		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	23.7		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	5.2		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-6 MBE-2 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 16:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-6 MBE-2 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 16:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.74		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.57		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.088		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.483		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0098		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.054		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6860		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.31		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	42.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	13.5		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	6230		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	35.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.88		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	7.53		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	12400		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.13		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	11.7		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6220		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	135		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.60		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	14.1		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	799		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	1900		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6020		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	28.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.081		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	533		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.731		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	28.3		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	22.3		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.5		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-7 MBE-3 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 15:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-7 MBE-3 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 15:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.70		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.56		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.084		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.480		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0097		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.046		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6780		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.72		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	42.6		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	13.4		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5470		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	35.9		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.97		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	7.51		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	12800		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	2.95		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	10.8		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6500		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	135		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.57		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	14.1		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	831		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	1950		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	5470		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	24.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.074		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	554		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.732		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	28.8		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	22.2		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.6		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-8 MBE-3 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 15:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-8 MBE-3 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 15:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.91		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.61		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.109		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.502		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0099		0.0050	mg/kg	09-OCT-18	18-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.055		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7570		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	5.55		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	48.9		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	14.1		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	7260		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	40.6		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	4.43		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	8.43		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	13900		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.18		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	10.9		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	7150		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	152		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.61		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	16.4		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	928		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2180		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6010		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	32.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.077		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	623		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.751		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	32.5		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	24.8		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.5		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-9 MBE-3 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 15:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-9 MBE-3 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 15:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.74		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.59		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.089		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.499		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0100		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.055		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7120		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.91		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	42.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	14.2		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5460		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	35.7		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.96		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	7.49		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	12700		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.12		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	11.0		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6260		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	135		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.58		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	14.6		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	794		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2000		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	5550		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	25.8		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.079		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	549		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.730		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	29.1		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	22.2		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.6		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-10 MBE-4 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 14:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-10 MBE-4 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 14:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.66		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.56		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.079		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.479		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0093		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.051		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6610		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.35		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	39.1		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.14		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	12.7		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5090		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	33.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.72		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	6.99		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	11900		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	2.78		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	10.8		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	5940		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	127		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.52		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	13.6		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	794		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	1810		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	5780		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	23.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.069		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	502		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.687		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	26.6		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	23.1		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	3.9		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-11 MBE-4 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 14:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-11 MBE-4 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 14:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.67		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.57		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.080		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.493		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0109		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.054		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6260		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.38		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	42.0		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	14.2		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5490		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	33.5		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.72		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	7.29		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	11800		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.11		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	11.1		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6300		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	124		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.58		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	14.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	728		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	1880		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6890		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	24.8		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.079		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	476		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.692		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	26.5		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	21.4		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-12 MBE-4 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 14:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-12 MBE-4 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 14:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.68		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.58		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.081		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.496		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0099		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.053		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6660		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	4.80		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	41.9		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.13		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	13.0		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	4940		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	35.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.84		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	7.94		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	12100		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.28		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	10.7		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6290		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	129		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.53		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	14.5		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	710		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	1890		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	6280		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	22.8		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.078		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	487		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.682		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	27.3		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	66.4		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	3.8		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-13 MBE-5 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 12:20							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-13 MBE-5 REP 1							
Sampled By: CLIENT on 13-SEP-18 @ 12:20							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.90		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.62		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.109		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.513		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0092		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.053		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7080		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	5.64		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	44.5		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.14		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	13.9		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5820		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	35.6		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.99		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	8.57		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	12900		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	2.93		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	10.6		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6650		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	135		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.66		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	15.0		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	799		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2060		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	7210		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	26.4		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.081		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	512		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.692		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	28.4		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	23.6		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.2		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-14 MBE-5 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 12:20							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-14 MBE-5 REP 2							
Sampled By: CLIENT on 13-SEP-18 @ 12:20							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.75		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.64		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.090		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.554		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0101		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.064		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6810		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	6.55		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	45.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.15		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	16.2		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5580		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	36.2		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	4.04		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	10.3		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	13500		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	3.20		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	11.6		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6610		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	135		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.65		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	15.0		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	848		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	2070		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	7550		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	27.9		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.082		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	515		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.711		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	29.3		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	22.4		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.1		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-15 MBE-5 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 12:20							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-15 MBE-5 REP 3							
Sampled By: CLIENT on 13-SEP-18 @ 12:20							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.74		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.60		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.089		0.050	%		11-OCT-18	R4271167
Total Organic Carbon Calculation							
Total Organic Carbon	0.508		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0095		0.0050	mg/kg	09-OCT-18	09-OCT-18	R4268284
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.056		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6640		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Antimony (Sb)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Arsenic (As)	5.06		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Barium (Ba)	41.5		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Beryllium (Be)	0.14		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Boron (B)	13.8		5.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Bismuth (Bi)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cadmium (Cd)	<0.020		0.020	mg/kg	09-OCT-18	10-OCT-18	R4268336
Calcium (Ca)	5340		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Chromium (Cr)	34.0		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Cobalt (Co)	3.75		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Copper (Cu)	7.46		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Iron (Fe)	12300		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lead (Pb)	2.99		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Lithium (Li)	10.7		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Magnesium (Mg)	6040		20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Manganese (Mn)	128		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Molybdenum (Mo)	0.53		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Nickel (Ni)	13.9		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Phosphorus (P)	797		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Potassium (K)	1860		100	mg/kg	09-OCT-18	10-OCT-18	R4268336
Selenium (Se)	<0.20		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Silver (Ag)	<0.10		0.10	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sodium (Na)	5400		50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Strontium (Sr)	24.4		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Sulfur (S)	<1000		1000	mg/kg	09-OCT-18	10-OCT-18	R4268336
Thallium (Tl)	0.078		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tin (Sn)	<1.0		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Titanium (Ti)	499		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Tungsten (W)	<0.50		0.50	mg/kg	09-OCT-18	10-OCT-18	R4268336
Uranium (U)	0.719		0.050	mg/kg	09-OCT-18	10-OCT-18	R4268336
Vanadium (V)	27.5		0.20	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zinc (Zn)	22.2		2.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
Zirconium (Zr)	4.1		1.0	mg/kg	09-OCT-18	10-OCT-18	R4268336
L2170896-16 MB REF A1 REP 1							
Sampled By: CLIENT on 19-SEP-18 @ 08:30							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-16 MB REF A1 REP 1							
Sampled By: CLIENT on 19-SEP-18 @ 08:30							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.65		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.63		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.078		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.547		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0126		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.059		0.020	%	10-OCT-18	17-OCT-18	R4283767
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7180		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	4.64		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	39.1		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.16		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	17.4		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	6050		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	29.9		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.81		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	6.76		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	12500		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.38		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	10.1		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	6690		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	137		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.77		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	12.8		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	848		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	2240		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	10700		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	28.3		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	1200		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.088		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	543		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.906		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	28.1		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	23.1		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	5.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-17 MB REF A1 REP 2							
Sampled By: CLIENT on 19-SEP-18 @ 08:30							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-17 MB REF A1 REP 2							
Sampled By: CLIENT on 19-SEP-18 @ 08:30							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.71		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.58		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.085		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.499		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0118		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.066		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	5980		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	4.56		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	37.1		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.15		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	15.0		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5560		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	26.2		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.38		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	5.56		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	11300		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.16		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	9.4		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	5570		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	122		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.65		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	11.1		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	767		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	1830		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	6650		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	24.0		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.083		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	468		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.830		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	24.8		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	20.5		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.6		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-18 MB REF A1 REP 3							
Sampled By: CLIENT on 19-SEP-18 @ 08:30							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-18 MB REF A1 REP 3							
Sampled By: CLIENT on 19-SEP-18 @ 08:30							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.68		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.61		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.082		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.525		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0123		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.065		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6400		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	4.67		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	36.1		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.15		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	15.1		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5480		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	27.0		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.49		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	6.15		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	11300		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.17		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	9.3		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	5920		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	124		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.62		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	11.6		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	799		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	1930		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	7410		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	25.9		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.081		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	492		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.810		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	25.5		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	21.1		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.5		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-19 MB REF A2 REP 1							
Sampled By: CLIENT on 19-SEP-18 @ 09:30							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-19 MB REF A2 REP 1							
Sampled By: CLIENT on 19-SEP-18 @ 09:30							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.70		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.66		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.085		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.577		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0127		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.069		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6380		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	4.49		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	35.0		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.16		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	16.3		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5740		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	27.3		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.51		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	5.94		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	11500		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.24		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	10.5		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	5810		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	124		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.65		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	11.6		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	741		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	1960		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	6960		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	25.8		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.083		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	470		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.822		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	25.4		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	20.6		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.7		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-20 MB REF A2 REP 2							
Sampled By: CLIENT on 19-SEP-18 @ 09:30							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-20 MB REF A2 REP 2							
Sampled By: CLIENT on 19-SEP-18 @ 09:30							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.72		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.69		0.05	%	05-OCT-18	05-OCT-18	R4263371
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.087		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.603		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0135		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	16-OCT-18	R4281910
Total Kjeldahl Nitrogen	0.074		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6630		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	4.96		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	38.0		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.14		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	16.5		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5660		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	27.7		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.65		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	6.40		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	12100		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.24		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	9.6		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	6040		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	128		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.63		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	11.7		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	799		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	2070		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	8050		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	26.9		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.083		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	477		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.813		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	26.2		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	21.8		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.3		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-21 MB REF A2 REP 3							
Sampled By: CLIENT on 19-SEP-18 @ 09:30							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-21 MB REF A2 REP 3							
Sampled By: CLIENT on 19-SEP-18 @ 09:30							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.76		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.74		0.05	%	10-OCT-18	10-OCT-18	R4270350
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.092		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.651		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0133		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	15-OCT-18	R4281568
Total Kjeldahl Nitrogen	0.069		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6740		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	5.06		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	38.5		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.15		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	16.9		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5850		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	29.4		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.80		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	6.72		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	12600		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.34		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	10.9		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	6200		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	134		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.66		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	13.3		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	834		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	2090		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	0.21		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	7050		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	25.4		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.089		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	498		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.856		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	27.5		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	22.7		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.5		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-22 MB REF A3 REP 1							
Sampled By: CLIENT on 19-SEP-18 @ 12:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-22 MB REF A3 REP 1							
Sampled By: CLIENT on 19-SEP-18 @ 12:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.76		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.85		0.05	%	10-OCT-18	10-OCT-18	R4270350
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.091		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.755		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0144		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	15-OCT-18	R4281568
Total Kjeldahl Nitrogen	0.085		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7660		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	5.66		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	43.0		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.17		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	20.8		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5820		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	31.7		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	4.03		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	6.84		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	13300		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.79		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	11.4		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	7000		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	140		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.78		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	13.4		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	730		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	2490		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	10500		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	30.0		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	1200		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.096		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	517		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.868		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	29.9		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	24.6		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.8		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-23 MB REF A3 REP 2							
Sampled By: CLIENT on 19-SEP-18 @ 12:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-23 MB REF A3 REP 2							
Sampled By: CLIENT on 19-SEP-18 @ 12:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.78		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.71		0.05	%	10-OCT-18	10-OCT-18	R4270350
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.093		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.613		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0127		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	15-OCT-18	R4281568
Total Kjeldahl Nitrogen	0.071		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7750		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	6.17		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	45.5		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.17		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	17.1		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5420		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	32.9		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	4.43		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	7.14		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	13800		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.72		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	10.4		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	6780		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	149		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.66		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	13.7		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	836		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	2390		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	0.22		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	7140		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	26.4		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.093		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	571		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.886		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	31.1		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	25.6		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.7		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-24 MB REF A3 REP 3							
Sampled By: CLIENT on 19-SEP-18 @ 12:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-24 MB REF A3 REP 3							
Sampled By: CLIENT on 19-SEP-18 @ 12:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.63		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.59		0.05	%	10-OCT-18	10-OCT-18	R4270350
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.075		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.511		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0096		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	15-OCT-18	R4281568
Total Kjeldahl Nitrogen	0.058		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6050		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	4.51		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	35.4		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.14		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	14.8		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5260		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	26.7		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.35		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	6.09		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	10900		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.06		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	9.0		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	5480		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	118		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.63		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	10.9		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	695		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	1910		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	7990		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	25.2		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.078		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	455		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.716		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	24.4		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	20.2		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.1		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-25 MB REF 1							
Sampled By: CLIENT on 19-SEP-18 @ 15:30							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-25 MB REF 1							
Sampled By: CLIENT on 19-SEP-18 @ 15:30							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.70		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.52		0.05	%	10-OCT-18	10-OCT-18	R4270350
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.083		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.440		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0094		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	15-OCT-18	R4281568
Total Kjeldahl Nitrogen	0.052		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6150		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	5.68		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	31.6		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.14		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	14.6		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	5120		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	34.2		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	3.39		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	5.49		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	12100		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.11		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	9.2		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	5950		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	127		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.75		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	12.6		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	575		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	1850		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	7840		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	25.5		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.103		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	382		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.649		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	27.4		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	20.5		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	3.2		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-26 DUP A							
Sampled By: CLIENT on 13-SEP-18 @ 17:00							
Matrix: Marine Sediment							
Total Carbon, TOC and TIC in soil							
Inorganic Carbon as CaCO3 Equivalent							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-26 DUP A							
Sampled By: CLIENT on 13-SEP-18 @ 17:00							
Matrix: Marine Sediment							
Inorganic Carbon as CaCO3 Equivalent							
Inorganic Carbon (as CaCO3 Equivalent)	0.74		0.40	%		11-OCT-18	
Total Carbon by combustion method							
Total Carbon by Combustion	0.64		0.05	%	10-OCT-18	10-OCT-18	R4270350
Total Inorganic Carbon in Soil							
Inorganic Carbon	0.089		0.050	%		11-OCT-18	R4270928
Total Organic Carbon Calculation							
Total Organic Carbon	0.551		0.050	%		11-OCT-18	
Miscellaneous Parameters							
Mercury (Hg)	0.0109		0.0050	mg/kg	11-OCT-18	12-OCT-18	R4276967
Special Request	See Attached				12-OCT-18	15-OCT-18	R4281568
Total Kjeldahl Nitrogen	0.058		0.020	%	12-OCT-18	15-OCT-18	R4280989
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7380		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Antimony (Sb)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Arsenic (As)	4.70		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Barium (Ba)	40.1		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Beryllium (Be)	0.15		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Boron (B)	14.9		5.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Bismuth (Bi)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cadmium (Cd)	<0.020		0.020	mg/kg	11-OCT-18	15-OCT-18	R4278629
Calcium (Ca)	6140		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Chromium (Cr)	36.9		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Cobalt (Co)	4.11		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Copper (Cu)	7.77		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Iron (Fe)	12200		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lead (Pb)	3.51		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Lithium (Li)	10.5		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Magnesium (Mg)	6500		20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Manganese (Mn)	139		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Molybdenum (Mo)	0.63		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Nickel (Ni)	15.1		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Phosphorus (P)	765		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Potassium (K)	1960		100	mg/kg	11-OCT-18	15-OCT-18	R4278629
Selenium (Se)	<0.20		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Silver (Ag)	<0.10		0.10	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sodium (Na)	5920		50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Strontium (Sr)	27.4		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Sulfur (S)	<1000		1000	mg/kg	11-OCT-18	15-OCT-18	R4278629
Thallium (Tl)	0.089		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tin (Sn)	<1.0		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Titanium (Ti)	500		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Tungsten (W)	<0.50		0.50	mg/kg	11-OCT-18	15-OCT-18	R4278629
Uranium (U)	0.838		0.050	mg/kg	11-OCT-18	15-OCT-18	R4278629
Vanadium (V)	28.8		0.20	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zinc (Zn)	22.9		2.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
Zirconium (Zr)	4.6		1.0	mg/kg	11-OCT-18	15-OCT-18	R4278629
L2170896-27 MW REF A3 D							
Sampled By: CLIENT on 20-SEP-18 @ 11:00							
Matrix: Marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-27 MW REF A3 D							
Sampled By: CLIENT on 20-SEP-18 @ 11:00							
Matrix: Marine H2O							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	114		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Total (as CaCO3)	114		1.0	mg/L		02-OCT-18	R4257666
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	60.4		5.0	mg/L		02-OCT-18	R4258739
Chloride by IC (seawater)							
Chloride (Cl)	17400		50	mg/L		02-OCT-18	R4258739
Fluoride by IC (seawater)							
Fluoride (F)	1.0		1.0	mg/L		02-OCT-18	R4258739
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		02-OCT-18	R4258739
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		02-OCT-18	R4258739
Sulfate by IC (seawater)							
Sulfate (SO4)	2450		30	mg/L		02-OCT-18	R4258739
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					08-OCT-18	R4263895
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Barium (Ba)-Dissolved	0.0105		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Boron (B)-Dissolved	4.16		0.10	mg/L	08-OCT-18	19-OCT-18	R4288587
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Calcium (Ca)-Dissolved	336		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Copper (Cu)-Dissolved	0.00126		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	08-OCT-18	19-OCT-18	R4288587
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-18	19-OCT-18	R4288587
Lithium (Li)-Dissolved	0.190		0.020	mg/L	08-OCT-18	19-OCT-18	R4288587
Magnesium (Mg)-Dissolved	1010		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Manganese (Mn)-Dissolved	0.00082		0.00020	mg/L	08-OCT-18	19-OCT-18	R4288587
Molybdenum (Mo)-Dissolved	0.0124		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	08-OCT-18	19-OCT-18	R4288587
Potassium (K)-Dissolved	327		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Rubidium (Rb)-Dissolved	0.113		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Selenium (Se)-Dissolved	<0.0020		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-18	19-OCT-18	R4288587
Sodium (Na)-Dissolved	8710		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Strontium (Sr)-Dissolved	5.60		0.050	mg/L	08-OCT-18	19-OCT-18	R4288587
Sulfur (S)-Dissolved	746		5.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-27 MW REF A3 D							
Sampled By: CLIENT on 20-SEP-18 @ 11:00							
Matrix: Marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Uranium (U)-Dissolved	0.00308		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Vanadium (V)-Dissolved	0.00135		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	08-OCT-18	19-OCT-18	R4288587
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Hardness							
Hardness (as CaCO3)	5000		4.8	mg/L		19-OCT-18	
Total ICPOES & HR-ICPMS in Seawater							
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0304		0.0050	mg/L		19-OCT-18	R4288587
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Arsenic (As)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Barium (Ba)-Total	0.0107		0.0010	mg/L		19-OCT-18	R4288587
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Boron (B)-Total	4.08		0.10	mg/L		19-OCT-18	R4288587
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Calcium (Ca)-Total	338		1.0	mg/L		19-OCT-18	R4288587
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Chromium (Cr)-Total	0.00075		0.00050	mg/L		19-OCT-18	R4288587
Cobalt (Co)-Total	0.000080		0.000050	mg/L		19-OCT-18	R4288587
Copper (Cu)-Total	0.00121		0.00050	mg/L		19-OCT-18	R4288587
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Iron (Fe)-Total	0.053		0.010	mg/L		19-OCT-18	R4288587
Lead (Pb)-Total	<0.00030		0.00030	mg/L		19-OCT-18	R4288587
Lithium (Li)-Total	0.194		0.020	mg/L		19-OCT-18	R4288587
Magnesium (Mg)-Total	1020		1.0	mg/L		19-OCT-18	R4288587
Manganese (Mn)-Total	0.00161		0.00020	mg/L		19-OCT-18	R4288587
Molybdenum (Mo)-Total	0.0122		0.0020	mg/L		19-OCT-18	R4288587
Nickel (Ni)-Total	0.00052		0.00050	mg/L		19-OCT-18	R4288587
Phosphorus (P)-Total	<0.050		0.050	mg/L		19-OCT-18	R4288587
Potassium (K)-Total	337		1.0	mg/L		19-OCT-18	R4288587
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Rubidium (Rb)-Total	0.113		0.0050	mg/L		19-OCT-18	R4288587
Selenium (Se)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Silicon (Si)-Total	<1.0		1.0	mg/L		19-OCT-18	R4288587
Silver (Ag)-Total	<0.00010		0.00010	mg/L		19-OCT-18	R4288587
Sodium (Na)-Total	8910		1.0	mg/L		19-OCT-18	R4288587
Strontium (Sr)-Total	5.52		0.010	mg/L		19-OCT-18	R4288587
Sulfur (S)-Total	739		5.0	mg/L		19-OCT-18	R4288587
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Thorium (Th)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Tin (Sn)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		19-OCT-18	R4288587
Tungsten (W)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-27 MW REF A3 D							
Sampled By: CLIENT on 20-SEP-18 @ 11:00							
Matrix: Marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Uranium (U)-Total	0.00289		0.000050	mg/L		19-OCT-18	R4288587
Vanadium (V)-Total	0.00162		0.00050	mg/L		19-OCT-18	R4288587
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		19-OCT-18	R4288587
Zirconium (Zr)-Total	0.00092		0.00050	mg/L		19-OCT-18	R4288587
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		16-OCT-18	R4282102
Conductivity	46700		2.0	uS/cm		02-OCT-18	R4257666
Orthophosphate-Dissolved (as P)	0.0187		0.0010	mg/L		29-SEP-18	R4252115
Dissolved Organic Carbon	0.99		0.50	mg/L		02-OCT-18	R4257979
Silicate (as SiO2)	0.295		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.127		0.050	mg/L	10-OCT-18	11-OCT-18	R4272089
Total Organic Carbon	1.16		0.50	mg/L		02-OCT-18	R4257978
Total Dissolved Solids	35400		80	mg/L		29-SEP-18	R4253115
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		06-OCT-18	R4263241
Phosphorus (P)-Total	0.0273		0.0040	mg/L		01-OCT-18	R4255689
Total Suspended Solids	2.4		2.0	mg/L		29-SEP-18	R4253121
pH	7.99		0.10	pH		02-OCT-18	R4257666
Salinity	30.9		1.0	psu		03-OCT-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					15-OCT-18	R4278475
Dissolved Mercury Filtration Location	LAB					11-OCT-18	R4269591
Dissolved Mercury Filtration Location	LAB					14-OCT-18	R4277474
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	15-OCT-18	16-OCT-18	R4280190
L2170896-28 MW REF A3 S							
Sampled By: CLIENT on 20-SEP-18 @ 11:00							
Matrix: Marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	113		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Total (as CaCO3)	113		1.0	mg/L		02-OCT-18	R4257666
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	65.2		5.0	mg/L		02-OCT-18	R4258739
Chloride by IC (seawater)							
Chloride (Cl)	18800		50	mg/L		02-OCT-18	R4258739
Fluoride by IC (seawater)							
Fluoride (F)	1.1		1.0	mg/L		02-OCT-18	R4258739
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		02-OCT-18	R4258739
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		02-OCT-18	R4258739
Sulfate by IC (seawater)							
Sulfate (SO4)	2660		30	mg/L		02-OCT-18	R4258739
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					08-OCT-18	R4263895
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-28 MW REF A3 S							
Sampled By: CLIENT on 20-SEP-18 @ 11:00							
Matrix: Marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Barium (Ba)-Dissolved	0.0103		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Boron (B)-Dissolved	4.14		0.10	mg/L	08-OCT-18	19-OCT-18	R4288587
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Calcium (Ca)-Dissolved	329		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	08-OCT-18	19-OCT-18	R4288587
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-18	19-OCT-18	R4288587
Lithium (Li)-Dissolved	0.205		0.020	mg/L	08-OCT-18	19-OCT-18	R4288587
Magnesium (Mg)-Dissolved	1000		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Manganese (Mn)-Dissolved	0.00044		0.00020	mg/L	08-OCT-18	19-OCT-18	R4288587
Molybdenum (Mo)-Dissolved	0.0127		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Nickel (Ni)-Dissolved	0.00055		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	08-OCT-18	19-OCT-18	R4288587
Potassium (K)-Dissolved	337		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Rubidium (Rb)-Dissolved	0.114		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Selenium (Se)-Dissolved	<0.0020		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-18	19-OCT-18	R4288587
Sodium (Na)-Dissolved	8850		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Strontium (Sr)-Dissolved	5.54		0.050	mg/L	08-OCT-18	19-OCT-18	R4288587
Sulfur (S)-Dissolved	739		5.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Uranium (U)-Dissolved	0.00291		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Vanadium (V)-Dissolved	0.00133		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	08-OCT-18	19-OCT-18	R4288587
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Hardness							
Hardness (as CaCO3)	4940		4.8	mg/L		19-OCT-18	
Total ICPOES & HR-ICPMS in Seawater							
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0147		0.0050	mg/L		19-OCT-18	R4288587
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Arsenic (As)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Barium (Ba)-Total	0.0105		0.0010	mg/L		19-OCT-18	R4288587
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-28 MW REF A3 S							
Sampled By: CLIENT on 20-SEP-18 @ 11:00							
Matrix: Marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Boron (B)-Total	4.22		0.10	mg/L		19-OCT-18	R4288587
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Calcium (Ca)-Total	340		1.0	mg/L		19-OCT-18	R4288587
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Chromium (Cr)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Cobalt (Co)-Total	0.000058		0.000050	mg/L		19-OCT-18	R4288587
Copper (Cu)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Iron (Fe)-Total	0.028		0.010	mg/L		19-OCT-18	R4288587
Lead (Pb)-Total	<0.00030		0.00030	mg/L		19-OCT-18	R4288587
Lithium (Li)-Total	0.206		0.020	mg/L		19-OCT-18	R4288587
Magnesium (Mg)-Total	960		1.0	mg/L		19-OCT-18	R4288587
Manganese (Mn)-Total	0.00091		0.00020	mg/L		19-OCT-18	R4288587
Molybdenum (Mo)-Total	0.0127		0.0020	mg/L		19-OCT-18	R4288587
Nickel (Ni)-Total	0.00053		0.00050	mg/L		19-OCT-18	R4288587
Phosphorus (P)-Total	<0.050		0.050	mg/L		19-OCT-18	R4288587
Potassium (K)-Total	349		1.0	mg/L		19-OCT-18	R4288587
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Rubidium (Rb)-Total	0.118		0.0050	mg/L		19-OCT-18	R4288587
Selenium (Se)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Silicon (Si)-Total	<1.0		1.0	mg/L		19-OCT-18	R4288587
Silver (Ag)-Total	<0.00010		0.00010	mg/L		19-OCT-18	R4288587
Sodium (Na)-Total	8870		1.0	mg/L		19-OCT-18	R4288587
Strontium (Sr)-Total	5.51		0.010	mg/L		19-OCT-18	R4288587
Sulfur (S)-Total	721		5.0	mg/L		19-OCT-18	R4288587
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Thorium (Th)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Tin (Sn)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		19-OCT-18	R4288587
Tungsten (W)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587
Uranium (U)-Total	0.00304		0.000050	mg/L		19-OCT-18	R4288587
Vanadium (V)-Total	0.00140		0.00050	mg/L		19-OCT-18	R4288587
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		19-OCT-18	R4288587
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		16-OCT-18	R4282102
Conductivity	46800		2.0	uS/cm		02-OCT-18	R4257666
Orthophosphate-Dissolved (as P)	0.0181		0.0010	mg/L		29-SEP-18	R4252115
Dissolved Organic Carbon	0.97		0.50	mg/L		02-OCT-18	R4257979
Silicate (as SiO2)	0.308		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.128		0.050	mg/L	10-OCT-18	11-OCT-18	R4272089
Total Organic Carbon	1.01		0.50	mg/L		02-OCT-18	R4257978
Total Dissolved Solids	35400		80	mg/L		29-SEP-18	R4253115
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		06-OCT-18	R4263241
Phosphorus (P)-Total	0.0248		0.0040	mg/L		01-OCT-18	R4255689
Total Suspended Solids	<2.0		2.0	mg/L		29-SEP-18	R4253121
pH	7.99		0.10	pH		02-OCT-18	R4257666
Salinity	31.0		1.0	psu		03-OCT-18	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-29 MW REF B1 D							
Sampled By: CLIENT on 20-SEP-18 @ 12:00							
Matrix: Marine H2O							
Diss. Metals in Seawater by HR-ICPMS							
Potassium (K)-Dissolved	321		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Rubidium (Rb)-Dissolved	0.118		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Selenium (Se)-Dissolved	<0.0020		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-18	19-OCT-18	R4288587
Sodium (Na)-Dissolved	8680		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Strontium (Sr)-Dissolved	5.40		0.050	mg/L	08-OCT-18	19-OCT-18	R4288587
Sulfur (S)-Dissolved	716		5.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Uranium (U)-Dissolved	0.00301		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Vanadium (V)-Dissolved	0.00120		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	08-OCT-18	19-OCT-18	R4288587
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Hardness							
Hardness (as CaCO3)	4780		4.8	mg/L		19-OCT-18	
Total ICPOES & HR-ICPMS in Seawater							
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0125		0.0050	mg/L		19-OCT-18	R4288587
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Arsenic (As)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Barium (Ba)-Total	0.0101		0.0010	mg/L		19-OCT-18	R4288587
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Boron (B)-Total	4.10		0.10	mg/L		19-OCT-18	R4288587
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Calcium (Ca)-Total	334		1.0	mg/L		19-OCT-18	R4288587
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Chromium (Cr)-Total	0.00051		0.00050	mg/L		19-OCT-18	R4288587
Cobalt (Co)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Copper (Cu)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Iron (Fe)-Total	0.028		0.010	mg/L		19-OCT-18	R4288587
Lead (Pb)-Total	<0.00030		0.00030	mg/L		19-OCT-18	R4288587
Lithium (Li)-Total	0.196		0.020	mg/L		19-OCT-18	R4288587
Magnesium (Mg)-Total	972		1.0	mg/L		19-OCT-18	R4288587
Manganese (Mn)-Total	0.00094		0.00020	mg/L		19-OCT-18	R4288587
Molybdenum (Mo)-Total	0.0127		0.0020	mg/L		19-OCT-18	R4288587
Nickel (Ni)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Phosphorus (P)-Total	<0.050		0.050	mg/L		19-OCT-18	R4288587
Potassium (K)-Total	333		1.0	mg/L		19-OCT-18	R4288587
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Rubidium (Rb)-Total	0.115		0.0050	mg/L		19-OCT-18	R4288587
Selenium (Se)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Silicon (Si)-Total	<1.0		1.0	mg/L		19-OCT-18	R4288587

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-29 MW REF B1 D							
Sampled By: CLIENT on 20-SEP-18 @ 12:00							
Matrix: Marine H2O							
Tot. Metals in Seawater by HR-ICPMS							
Silver (Ag)-Total	<0.00010		0.00010	mg/L		19-OCT-18	R4288587
Sodium (Na)-Total	8670		1.0	mg/L		19-OCT-18	R4288587
Strontium (Sr)-Total	5.47		0.010	mg/L		19-OCT-18	R4288587
Sulfur (S)-Total	716		5.0	mg/L		19-OCT-18	R4288587
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Thorium (Th)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Tin (Sn)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		19-OCT-18	R4288587
Tungsten (W)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587
Uranium (U)-Total	0.00294		0.000050	mg/L		19-OCT-18	R4288587
Vanadium (V)-Total	0.00129		0.00050	mg/L		19-OCT-18	R4288587
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		19-OCT-18	R4288587
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		16-OCT-18	R4282102
Conductivity	46900		2.0	uS/cm		02-OCT-18	R4257666
Orthophosphate-Dissolved (as P)	0.0175		0.0010	mg/L		29-SEP-18	R4252115
Dissolved Organic Carbon	1.02		0.50	mg/L		02-OCT-18	R4257979
Silicate (as SiO2)	0.308		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.133		0.050	mg/L	10-OCT-18	11-OCT-18	R4272089
Total Organic Carbon	1.11		0.50	mg/L		04-OCT-18	R4263002
Total Dissolved Solids	35500		80	mg/L		29-SEP-18	R4253115
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		06-OCT-18	R4263241
Phosphorus (P)-Total	0.0253		0.0040	mg/L		01-OCT-18	R4255689
Total Suspended Solids	2.9		2.0	mg/L		29-SEP-18	R4253121
pH	7.98		0.10	pH		02-OCT-18	R4257666
Salinity	31.0		1.0	psu		03-OCT-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					15-OCT-18	R4278475
Dissolved Mercury Filtration Location	LAB					14-OCT-18	R4277474
Dissolved Mercury Filtration Location	LAB					11-OCT-18	R4269591
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	15-OCT-18	16-OCT-18	R4280190
L2170896-30 MW REF B1 S							
Sampled By: CLIENT on 20-SEP-18 @ 12:00							
Matrix: Marine H2O							
Alkalinity Species by Titration							
Alkalinity Spec by Titration (Seawater)							
Alkalinity, Bicarbonate (as CaCO3)	115		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Carbonate (as CaCO3)	<1.0		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Hydroxide (as CaCO3)	<1.0		1.0	mg/L		02-OCT-18	R4257666
Alkalinity, Total (as CaCO3)	115		1.0	mg/L		02-OCT-18	R4257666
Anions by Ion Chromatography (seawater)							
Bromide by IC (seawater)							
Bromide (Br)	58.6		5.0	mg/L		02-OCT-18	R4258739
Chloride by IC (seawater)							
Chloride (Cl)	17000		50	mg/L		02-OCT-18	R4258739
Fluoride by IC (seawater)							
Fluoride (F)	<1.0		1.0	mg/L		02-OCT-18	R4258739

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-30 MW REF B1 S							
Sampled By: CLIENT on 20-SEP-18 @ 12:00							
Matrix: Marine H2O							
Nitrate in Seawater by IC							
Nitrate (as N)	<0.50		0.50	mg/L		02-OCT-18	R4258739
Nitrite in Seawater by IC							
Nitrite (as N)	<0.10		0.10	mg/L		02-OCT-18	R4258739
Sulfate by IC (seawater)							
Sulfate (SO4)	2400		30	mg/L		02-OCT-18	R4258739
Dissolved ICPOES & HR-ICPMS in Seawater							
Diss. Metals in Seawater by HR-ICPMS							
Dissolved Metals Filtration Location	LAB					08-OCT-18	R4263895
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Arsenic (As)-Dissolved	<0.0020		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Barium (Ba)-Dissolved	0.0102		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Boron (B)-Dissolved	3.89		0.10	mg/L	08-OCT-18	19-OCT-18	R4288587
Cadmium (Cd)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Calcium (Ca)-Dissolved	331		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Chromium (Cr)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Cobalt (Co)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Copper (Cu)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Gallium (Ga)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	08-OCT-18	19-OCT-18	R4288587
Lead (Pb)-Dissolved	<0.00030		0.00030	mg/L	08-OCT-18	19-OCT-18	R4288587
Lithium (Li)-Dissolved	0.192		0.020	mg/L	08-OCT-18	19-OCT-18	R4288587
Magnesium (Mg)-Dissolved	978		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Manganese (Mn)-Dissolved	0.00032		0.00020	mg/L	08-OCT-18	19-OCT-18	R4288587
Molybdenum (Mo)-Dissolved	0.0120		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Nickel (Ni)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L	08-OCT-18	19-OCT-18	R4288587
Potassium (K)-Dissolved	322		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Rhenium (Re)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Rubidium (Rb)-Dissolved	0.111		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Selenium (Se)-Dissolved	<0.0020		0.0020	mg/L	08-OCT-18	19-OCT-18	R4288587
Silicon (Si)-Dissolved	<1.0		1.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	08-OCT-18	19-OCT-18	R4288587
Sodium (Na)-Dissolved	8620		20	mg/L	08-OCT-18	19-OCT-18	R4288587
Strontium (Sr)-Dissolved	5.45		0.050	mg/L	08-OCT-18	19-OCT-18	R4288587
Sulfur (S)-Dissolved	721		5.0	mg/L	08-OCT-18	19-OCT-18	R4288587
Tellurium (Te)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Thorium (Th)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tin (Sn)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Titanium (Ti)-Dissolved	<0.0050		0.0050	mg/L	08-OCT-18	19-OCT-18	R4288587
Tungsten (W)-Dissolved	<0.0010		0.0010	mg/L	08-OCT-18	19-OCT-18	R4288587
Uranium (U)-Dissolved	0.00295		0.000050	mg/L	08-OCT-18	19-OCT-18	R4288587
Vanadium (V)-Dissolved	0.00128		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Yttrium (Y)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L	08-OCT-18	19-OCT-18	R4288587
Zirconium (Zr)-Dissolved	<0.00050		0.00050	mg/L	08-OCT-18	19-OCT-18	R4288587
Hardness							
Hardness (as CaCO3)	4860		4.8	mg/L		19-OCT-18	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-30 MW REF B1 S							
Sampled By: CLIENT on 20-SEP-18 @ 12:00							
Matrix: Marine H2O							
Total ICPOES & HR-ICPMS in Seawater							
Tot. Metals in Seawater by HR-ICPMS							
Aluminum (Al)-Total	0.0137		0.0050	mg/L		19-OCT-18	R4288587
Antimony (Sb)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Arsenic (As)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Barium (Ba)-Total	0.0099		0.0010	mg/L		19-OCT-18	R4288587
Beryllium (Be)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Boron (B)-Total	3.83		0.10	mg/L		19-OCT-18	R4288587
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Calcium (Ca)-Total	339		1.0	mg/L		19-OCT-18	R4288587
Cesium (Cs)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Chromium (Cr)-Total	0.00085		0.00050	mg/L		19-OCT-18	R4288587
Cobalt (Co)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Copper (Cu)-Total	0.00061		0.00050	mg/L		19-OCT-18	R4288587
Gallium (Ga)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Iron (Fe)-Total	0.031		0.010	mg/L		19-OCT-18	R4288587
Lead (Pb)-Total	<0.00030		0.00030	mg/L		19-OCT-18	R4288587
Lithium (Li)-Total	0.193		0.020	mg/L		19-OCT-18	R4288587
Magnesium (Mg)-Total	976		1.0	mg/L		19-OCT-18	R4288587
Manganese (Mn)-Total	0.00102		0.00020	mg/L		19-OCT-18	R4288587
Molybdenum (Mo)-Total	0.0119		0.0020	mg/L		19-OCT-18	R4288587
Nickel (Ni)-Total	0.00064		0.00050	mg/L		19-OCT-18	R4288587
Phosphorus (P)-Total	<0.050		0.050	mg/L		19-OCT-18	R4288587
Potassium (K)-Total	335		1.0	mg/L		19-OCT-18	R4288587
Rhenium (Re)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Rubidium (Rb)-Total	0.110		0.0050	mg/L		19-OCT-18	R4288587
Selenium (Se)-Total	<0.0020		0.0020	mg/L		19-OCT-18	R4288587
Silicon (Si)-Total	<1.0		1.0	mg/L		19-OCT-18	R4288587
Silver (Ag)-Total	<0.00010		0.00010	mg/L		19-OCT-18	R4288587
Sodium (Na)-Total	8640		1.0	mg/L		19-OCT-18	R4288587
Strontium (Sr)-Total	5.60		0.010	mg/L		19-OCT-18	R4288587
Sulfur (S)-Total	719		5.0	mg/L		19-OCT-18	R4288587
Tellurium (Te)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Thallium (Tl)-Total	<0.000050		0.000050	mg/L		19-OCT-18	R4288587
Thorium (Th)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Tin (Sn)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587
Titanium (Ti)-Total	<0.0050		0.0050	mg/L		19-OCT-18	R4288587
Tungsten (W)-Total	<0.0010		0.0010	mg/L		19-OCT-18	R4288587
Uranium (U)-Total	0.00295		0.000050	mg/L		19-OCT-18	R4288587
Vanadium (V)-Total	0.00129		0.00050	mg/L		19-OCT-18	R4288587
Yttrium (Y)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		19-OCT-18	R4288587
Zirconium (Zr)-Total	<0.00050		0.00050	mg/L		19-OCT-18	R4288587
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.0050		0.0050	mg/L		16-OCT-18	R4282102
Conductivity	47300		2.0	uS/cm		02-OCT-18	R4257666
Orthophosphate-Dissolved (as P)	0.0171		0.0010	mg/L		29-SEP-18	R4252115
Dissolved Organic Carbon	0.97		0.50	mg/L		02-OCT-18	R4257979
Silicate (as SiO2)	0.305		0.010	mg/L		03-OCT-18	R4258600
Total Kjeldahl Nitrogen	0.136		0.050	mg/L	10-OCT-18	11-OCT-18	R4272089
Total Organic Carbon	1.15		0.50	mg/L		02-OCT-18	R4257978

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2170896-30 MW REF B1 S							
Sampled By: CLIENT on 20-SEP-18 @ 12:00							
Matrix: Marine H2O							
Total Dissolved Solids	35700		80	mg/L		29-SEP-18	R4253115
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		06-OCT-18	R4263241
Phosphorus (P)-Total	0.0251		0.0040	mg/L		01-OCT-18	R4255689
Total Suspended Solids	2.5		2.0	mg/L		29-SEP-18	R4253121
pH	8.00		0.10	pH		02-OCT-18	R4257666
Salinity	31.3		1.0	psu		03-OCT-18	
Diss. Mercury in Seawater by CVAFS							
Dissolved Mercury Filtration Location	LAB					14-OCT-18	R4277474
Dissolved Mercury Filtration Location	LAB					15-OCT-18	R4278475
Dissolved Mercury Filtration Location	LAB					11-OCT-18	R4269591
Mercury (Hg)-Dissolved	<0.000010		0.000010	mg/L	15-OCT-18	16-OCT-18	R4280190

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Seawater	Alkalinity Spec by Titration (Seawater)	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-C-BR-IC-VA	Seawater	Bromide by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-C-CL-IC-VA	Seawater	Chloride by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-C-F-IC-VA	Seawater	Fluoride by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-C-NO2-IC-VA	Seawater	Nitrite in Seawater by IC	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
ANIONS-C-NO3-IC-VA	Seawater	Nitrate in Seawater by IC	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
ANIONS-C-SO4-IC-VA	Seawater	Sulfate by IC (seawater)	EPA 300.1 (mod)
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
C-TIC-PCT-SK	Soil	Total Inorganic Carbon in Soil	CSSS (2008) P216-217
A known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.			
C-TOC-CALC-SK	Soil	Total Organic Carbon Calculation	CSSS (2008) 21.2
Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon. (TIC)			
C-TOT-LECO-SK	Soil	Total Carbon by combustion method	CSSS (2008) 21.2
The sample is ignited in a combustion analyzer where carbon in the reduced CO2 gas is determined using a thermal conductivity detector.			
CARBONS-C-DOC-VA	Seawater	DOC by combustion (seawater)	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-C-TOC-VA	Seawater	TOC by combustion (seawater)	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
EC-C-PCT-VA	Seawater	Conductivity (Automated) (seawater)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-200.2-CVAA-SK	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.			
HG-DIS-C-CVAFS-VA	Seawater	Diss. Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7
This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).			
HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7
This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).			
IC-CACO3-CALC-SK	Soil	Inorganic Carbon as CaCO3 Equivalent	Calculation
MET-200.2-CCMS-SK	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.			
Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.			
MET-D-L-HRMS-VA	Seawater	Diss. Metals in Seawater by HR-ICPMS	EPA 200.8
Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve laboratory sample filtration based on APHA Method 3030B.			
MET-T-L-HRMS-VA	Seawater	Tot. Metals in Seawater by HR-ICPMS	EPA 200.8
Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve preliminary sample treatment by acid digestion based on APHA Method 3030E.			
N-TOTKJ-COL-SK	Soil	Total Kjeldahl Nitrogen	CSSS (2008) 22.2.3
The soil is digested with sulfuric acid in the presence of CuSO4 and K2SO4 catalysts. Ammonia in the soil extract is determined colorimetrically at 660 nm.			
NH3-F-VA	Seawater	Ammonia in Seawater by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
P-T-COL-VA	Seawater	Total P in Seawater by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colorimetrically after persulphate digestion of the sample.			
PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.			
It is recommended that this analysis be conducted in the field.			
PO4-DO-COL-VA	Seawater	D-Orthophosphate in Seawater by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colorimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SALINITY-CALC-VA	Seawater	Salinity by conductivity meter	APHA 2520B
Salinity is determined by the APHA 2520B Electrical Conductivity Method. Salinity is a unitless parameter that is roughly equivalent to grams per Litre. ALS applies the unit of psu (practical salinity unit) to indicate that salinity values are derived from the Practical Salinity Scale.			
SIO2-L-COL-VA	Seawater	Low Level Silicate by Colourimetric	APHA 4500-SiO2 E.
This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colorimetric method.			
SPECIAL REQUEST-SK	Misc.	Special Request Sask Lab	SEE SUBLET LAB RESULTS
TDS-VA	Seawater	Total Dissolved Solids by Gravimetric	APHA 2540 Gravimetric
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TKN-C-F-VA	Seawater	TKN in Seawater by Fluorescence	APHA 4500-NORG D.
This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.			
TSS-C-VA	Seawater	Total Suspended Solids by Gravimetric	APHA 2540 D
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) is determined by filtering a sample through a glass fibre filter. TSS is determined by drying the filter at 104 degrees celsius.			

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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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
SK	ALS ENVIRONMENTAL - SASKATOON, SASKATCHEWAN, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

14-452766	14-452767	14-452768
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GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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

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

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

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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.

Quality Control Report

Workorder: L2170896

Report Date: 19-OCT-18

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Client: Agnico-Eagle - Meliadine Gold Project

PO Box 99

Rankin Inlet NU X0C 0G0

Contact: Jennifer Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-TIC-PCT-SK		Soil						
Batch	R4270928							
WG2893808-1	DUP	L2170896-20						
Inorganic Carbon		0.087	0.088		%	1.4	20	11-OCT-18
WG2893808-2	LCS							
Inorganic Carbon			95.8		%		80-120	11-OCT-18
WG2893808-3	MB							
Inorganic Carbon			<0.050		%		0.05	11-OCT-18
Batch	R4271167							
WG2893800-2	LCS							
Inorganic Carbon			95.4		%		80-120	11-OCT-18
WG2893800-3	MB							
Inorganic Carbon			<0.050		%		0.05	11-OCT-18
C-TOT-LECO-SK		Soil						
Batch	R4263371							
WG2894570-1	DUP	L2170896-10						
Total Carbon by Combustion		0.56	0.55		%	2.0	20	05-OCT-18
WG2894570-2	IRM	08-109_SOIL						
Total Carbon by Combustion			93.7		%		80-120	05-OCT-18
WG2894570-4	LCS	SULFADIAZINE						
Total Carbon by Combustion			100.2		%		90-110	05-OCT-18
WG2894570-3	MB							
Total Carbon by Combustion			<0.05		%		0.05	05-OCT-18
Batch	R4270350							
WG2895151-2	IRM	08-109_SOIL						
Total Carbon by Combustion			93.5		%		80-120	10-OCT-18
WG2895151-4	LCS	SULFADIAZINE						
Total Carbon by Combustion			100.7		%		90-110	10-OCT-18
WG2895151-3	MB							
Total Carbon by Combustion			<0.05		%		0.05	10-OCT-18
HG-200.2-CVAA-SK		Soil						
Batch	R4268284							
WG2894269-3	CRM	TILL-1						
Mercury (Hg)			93.0		%		70-130	09-OCT-18
WG2894269-2	DUP	L2170896-4						
Mercury (Hg)		0.0101	0.0100		mg/kg	0.9	40	09-OCT-18
WG2894269-4	LCS							
Mercury (Hg)			97.2		%		80-120	09-OCT-18
WG2894269-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	09-OCT-18

Quality Control Report

Workorder: L2170896

Report Date: 19-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-SK		Soil						
Batch	R4276967							
WG2894273-3	CRM	TILL-1						
Mercury (Hg)			93.3		%		70-130	12-OCT-18
WG2894273-2	DUP	L2170896-21						
Mercury (Hg)		0.0133	0.0125		mg/kg	6.0	40	12-OCT-18
WG2894273-4	LCS							
Mercury (Hg)			98.9		%		80-120	12-OCT-18
WG2894273-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	12-OCT-18
MET-200.2-CCMS-SK		Soil						
Batch	R4268336							
WG2894269-3	CRM	TILL-1						
Aluminum (Al)			94.1		%		70-130	10-OCT-18
Antimony (Sb)			99.6		%		70-130	10-OCT-18
Arsenic (As)			92.3		%		70-130	10-OCT-18
Barium (Ba)			99.8		%		70-130	10-OCT-18
Beryllium (Be)			97.2		%		70-130	10-OCT-18
Boron (B)			2.9		mg/kg		0-8.2	10-OCT-18
Bismuth (Bi)			88.9		%		70-130	10-OCT-18
Cadmium (Cd)			89.6		%		70-130	10-OCT-18
Calcium (Ca)			95.0		%		70-130	10-OCT-18
Chromium (Cr)			92.6		%		70-130	10-OCT-18
Cobalt (Co)			87.6		%		70-130	10-OCT-18
Copper (Cu)			91.7		%		70-130	10-OCT-18
Iron (Fe)			92.1		%		70-130	10-OCT-18
Lead (Pb)			93.6		%		70-130	10-OCT-18
Lithium (Li)			91.6		%		70-130	10-OCT-18
Magnesium (Mg)			86.8		%		70-130	10-OCT-18
Manganese (Mn)			90.5		%		70-130	10-OCT-18
Molybdenum (Mo)			92.4		%		70-130	10-OCT-18
Nickel (Ni)			90.7		%		70-130	10-OCT-18
Phosphorus (P)			95.7		%		70-130	10-OCT-18
Potassium (K)			108.6		%		70-130	10-OCT-18
Selenium (Se)			0.27		mg/kg		0.11-0.51	10-OCT-18
Silver (Ag)			0.23		mg/kg		0.13-0.33	10-OCT-18
Sodium (Na)			105.5		%		70-130	10-OCT-18
Strontium (Sr)			91.2		%		70-130	10-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-SK		Soil						
Batch	R4268336							
WG2894269-3	CRM	TILL-1						
Thallium (Tl)			0.113		mg/kg		0.077-0.18	10-OCT-18
Tin (Sn)			0.9		mg/kg		0-3.1	10-OCT-18
Titanium (Ti)			81.3		%		70-130	10-OCT-18
Tungsten (W)			0.13		mg/kg		0-0.66	10-OCT-18
Uranium (U)			88.0		%		70-130	10-OCT-18
Vanadium (V)			90.3		%		70-130	10-OCT-18
Zinc (Zn)			90.4		%		70-130	10-OCT-18
Zirconium (Zr)			1.0		mg/kg		0-1.8	10-OCT-18
WG2894269-2	DUP	L2170896-4						
Aluminum (Al)		6860	8410		mg/kg	20	40	10-OCT-18
Antimony (Sb)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	10-OCT-18
Arsenic (As)		5.44	6.23		mg/kg	14	30	10-OCT-18
Barium (Ba)		43.7	51.7		mg/kg	17	40	10-OCT-18
Beryllium (Be)		0.14	0.15		mg/kg	1.5	30	10-OCT-18
Boron (B)		13.5	14.2		mg/kg	4.8	30	10-OCT-18
Bismuth (Bi)		<0.20	<0.20	RPD-NA	mg/kg	N/A	30	10-OCT-18
Cadmium (Cd)		<0.020	<0.020	RPD-NA	mg/kg	N/A	30	10-OCT-18
Calcium (Ca)		5430	5680		mg/kg	4.4	30	10-OCT-18
Chromium (Cr)		36.3	42.7		mg/kg	16	30	10-OCT-18
Cobalt (Co)		4.05	4.74		mg/kg	16	30	10-OCT-18
Copper (Cu)		7.91	9.07		mg/kg	14	30	10-OCT-18
Iron (Fe)		13200	14400		mg/kg	9.2	30	10-OCT-18
Lead (Pb)		3.21	3.30		mg/kg	2.9	40	10-OCT-18
Lithium (Li)		10.9	11.5		mg/kg	5.9	30	10-OCT-18
Magnesium (Mg)		6560	7490		mg/kg	13	30	10-OCT-18
Manganese (Mn)		137	160		mg/kg	16	30	10-OCT-18
Molybdenum (Mo)		0.58	0.58		mg/kg	0.0	40	10-OCT-18
Nickel (Ni)		15.0	17.2		mg/kg	14	30	10-OCT-18
Phosphorus (P)		857	1030		mg/kg	19	30	10-OCT-18
Potassium (K)		2070	2370		mg/kg	14	40	10-OCT-18
Selenium (Se)		0.21	0.22		mg/kg	1.0	30	10-OCT-18
Silver (Ag)		<0.10	<0.10	RPD-NA	mg/kg	N/A	40	10-OCT-18
Sodium (Na)		6210	6960		mg/kg	11	40	10-OCT-18
Strontium (Sr)		24.7	26.3		mg/kg	6.1	40	10-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-SK		Soil						
Batch	R4268336							
WG2894269-2	DUP	L2170896-4						
Sulfur (S)		<1000	<1000	RPD-NA	mg/kg	N/A	30	10-OCT-18
Thallium (Tl)		0.083	0.083		mg/kg	0.1	30	10-OCT-18
Tin (Sn)		1.2	<1.0	RPD-NA	mg/kg	N/A	40	10-OCT-18
Titanium (Ti)		510	650		mg/kg	24	40	10-OCT-18
Tungsten (W)		<0.50	<0.50	RPD-NA	mg/kg	N/A	30	10-OCT-18
Uranium (U)		0.702	0.752		mg/kg	6.9	30	10-OCT-18
Vanadium (V)		29.4	34.5		mg/kg	16	30	10-OCT-18
Zinc (Zn)		24.3	27.3		mg/kg	12	30	10-OCT-18
Zirconium (Zr)		3.9	4.4		mg/kg	11	30	10-OCT-18
WG2894269-4	LCS							
Aluminum (Al)			106.8		%		80-120	10-OCT-18
Antimony (Sb)			105.6		%		80-120	10-OCT-18
Arsenic (As)			104.0		%		80-120	10-OCT-18
Barium (Ba)			108.9		%		80-120	10-OCT-18
Beryllium (Be)			101.4		%		80-120	10-OCT-18
Boron (B)			95.8		%		80-120	10-OCT-18
Bismuth (Bi)			91.3		%		80-120	10-OCT-18
Cadmium (Cd)			95.2		%		80-120	10-OCT-18
Calcium (Ca)			102.2		%		80-120	10-OCT-18
Chromium (Cr)			105.8		%		80-120	10-OCT-18
Cobalt (Co)			96.9		%		80-120	10-OCT-18
Copper (Cu)			99.9		%		80-120	10-OCT-18
Iron (Fe)			112.2		%		80-120	10-OCT-18
Lead (Pb)			94.4		%		80-120	10-OCT-18
Lithium (Li)			101.6		%		80-120	10-OCT-18
Magnesium (Mg)			98.8		%		80-120	10-OCT-18
Manganese (Mn)			104.2		%		80-120	10-OCT-18
Molybdenum (Mo)			97.8		%		80-120	10-OCT-18
Nickel (Ni)			100.7		%		80-120	10-OCT-18
Phosphorus (P)			108.2		%		80-120	10-OCT-18
Potassium (K)			104.2		%		80-120	10-OCT-18
Selenium (Se)			104.8		%		80-120	10-OCT-18
Silver (Ag)			99.2		%		80-120	10-OCT-18
Sodium (Na)			99.8		%		80-120	10-OCT-18

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MET-200.2-CCMS-SK		Soil						
Batch	R4268336							
WG2894269-4	LCS							
Strontium (Sr)			103.8		%		80-120	10-OCT-18
Sulfur (S)			98.6		%		80-120	10-OCT-18
Thallium (Tl)			92.5		%		80-120	10-OCT-18
Tin (Sn)			95.9		%		80-120	10-OCT-18
Titanium (Ti)			100.7		%		80-120	10-OCT-18
Tungsten (W)			96.3		%		80-120	10-OCT-18
Uranium (U)			95.8		%		80-120	10-OCT-18
Vanadium (V)			105.5		%		80-120	10-OCT-18
Zinc (Zn)			106.5		%		80-120	10-OCT-18
Zirconium (Zr)			100.5		%		80-120	10-OCT-18
WG2894269-1	MB							
Aluminum (Al)			<50		mg/kg		50	10-OCT-18
Antimony (Sb)			<0.10		mg/kg		0.1	10-OCT-18
Arsenic (As)			<0.10		mg/kg		0.1	10-OCT-18
Barium (Ba)			<0.50		mg/kg		0.5	10-OCT-18
Beryllium (Be)			<0.10		mg/kg		0.1	10-OCT-18
Boron (B)			<5.0		mg/kg		5	10-OCT-18
Bismuth (Bi)			<0.20		mg/kg		0.2	10-OCT-18
Cadmium (Cd)			<0.020		mg/kg		0.02	10-OCT-18
Calcium (Ca)			<50		mg/kg		50	10-OCT-18
Chromium (Cr)			<0.50		mg/kg		0.5	10-OCT-18
Cobalt (Co)			<0.10		mg/kg		0.1	10-OCT-18
Copper (Cu)			<0.50		mg/kg		0.5	10-OCT-18
Iron (Fe)			<50		mg/kg		50	10-OCT-18
Lead (Pb)			<0.50		mg/kg		0.5	10-OCT-18
Lithium (Li)			<2.0		mg/kg		2	10-OCT-18
Magnesium (Mg)			<20		mg/kg		20	10-OCT-18
Manganese (Mn)			<1.0		mg/kg		1	10-OCT-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	10-OCT-18
Nickel (Ni)			<0.50		mg/kg		0.5	10-OCT-18
Phosphorus (P)			<50		mg/kg		50	10-OCT-18
Potassium (K)			<100		mg/kg		100	10-OCT-18
Selenium (Se)			<0.20		mg/kg		0.2	10-OCT-18
Silver (Ag)			<0.10		mg/kg		0.1	10-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-SK		Soil						
Batch R4268336								
WG2894269-1 MB								
Sodium (Na)			<50		mg/kg		50	10-OCT-18
Strontium (Sr)			<0.50		mg/kg		0.5	10-OCT-18
Sulfur (S)			<1000		mg/kg		1000	10-OCT-18
Thallium (Tl)			<0.050		mg/kg		0.05	10-OCT-18
Tin (Sn)			<1.0		mg/kg		1	10-OCT-18
Titanium (Ti)			<1.0		mg/kg		1	10-OCT-18
Tungsten (W)			<0.50		mg/kg		0.5	10-OCT-18
Uranium (U)			<0.050		mg/kg		0.05	10-OCT-18
Vanadium (V)			<0.20		mg/kg		0.2	10-OCT-18
Zinc (Zn)			<2.0		mg/kg		2	10-OCT-18
Zirconium (Zr)			<1.0		mg/kg		1	10-OCT-18
Batch R4278629								
WG2894273-3 CRM		TILL-1						
Aluminum (Al)			86.9		%		70-130	15-OCT-18
Antimony (Sb)			99.8		%		70-130	15-OCT-18
Arsenic (As)			92.0		%		70-130	15-OCT-18
Barium (Ba)			89.2		%		70-130	15-OCT-18
Beryllium (Be)			97.3		%		70-130	15-OCT-18
Boron (B)			2.5		mg/kg		0-8.2	15-OCT-18
Bismuth (Bi)			95.9		%		70-130	15-OCT-18
Cadmium (Cd)			87.4		%		70-130	15-OCT-18
Calcium (Ca)			93.7		%		70-130	15-OCT-18
Chromium (Cr)			85.5		%		70-130	15-OCT-18
Cobalt (Co)			84.7		%		70-130	15-OCT-18
Copper (Cu)			90.7		%		70-130	15-OCT-18
Iron (Fe)			88.2		%		70-130	15-OCT-18
Lead (Pb)			96.3		%		70-130	15-OCT-18
Lithium (Li)			98.7		%		70-130	15-OCT-18
Magnesium (Mg)			85.6		%		70-130	15-OCT-18
Manganese (Mn)			91.3		%		70-130	15-OCT-18
Molybdenum (Mo)			92.6		%		70-130	15-OCT-18
Nickel (Ni)			87.9		%		70-130	15-OCT-18
Phosphorus (P)			87.9		%		70-130	15-OCT-18
Potassium (K)			85.2		%		70-130	15-OCT-18

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MET-200.2-CCMS-SK		Soil						
Batch	R4278629							
WG2894273-3	CRM	TILL-1						
Selenium (Se)			0.30		mg/kg		0.11-0.51	15-OCT-18
Silver (Ag)			0.24		mg/kg		0.13-0.33	15-OCT-18
Sodium (Na)			84.2		%		70-130	15-OCT-18
Strontium (Sr)			88.9		%		70-130	15-OCT-18
Thallium (Tl)			0.118		mg/kg		0.077-0.18	15-OCT-18
Tin (Sn)			0.8		mg/kg		0-3.1	15-OCT-18
Titanium (Ti)			72.8		%		70-130	15-OCT-18
Tungsten (W)			0.12		mg/kg		0-0.66	15-OCT-18
Uranium (U)			94.6		%		70-130	15-OCT-18
Vanadium (V)			86.0		%		70-130	15-OCT-18
Zinc (Zn)			89.7		%		70-130	15-OCT-18
Zirconium (Zr)			1.1		mg/kg		0-1.8	15-OCT-18
WG2894273-2	DUP	L2170896-21						
Aluminum (Al)		6740	6920		mg/kg	2.7	40	15-OCT-18
Antimony (Sb)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	15-OCT-18
Arsenic (As)		5.06	4.90		mg/kg	3.1	30	15-OCT-18
Barium (Ba)		38.5	36.6		mg/kg	5.1	40	15-OCT-18
Beryllium (Be)		0.15	0.15		mg/kg	1.2	30	15-OCT-18
Boron (B)		16.9	16.3		mg/kg	3.2	30	15-OCT-18
Bismuth (Bi)		<0.20	<0.20	RPD-NA	mg/kg	N/A	30	15-OCT-18
Cadmium (Cd)		<0.020	<0.020	RPD-NA	mg/kg	N/A	30	15-OCT-18
Calcium (Ca)		5850	5760		mg/kg	1.6	30	15-OCT-18
Chromium (Cr)		29.4	28.5		mg/kg	3.2	30	15-OCT-18
Cobalt (Co)		3.80	3.69		mg/kg	3.1	30	15-OCT-18
Copper (Cu)		6.72	6.39		mg/kg	5.1	30	15-OCT-18
Iron (Fe)		12600	12100		mg/kg	3.8	30	15-OCT-18
Lead (Pb)		3.34	3.24		mg/kg	2.9	40	15-OCT-18
Lithium (Li)		10.9	10.7		mg/kg	1.3	30	15-OCT-18
Magnesium (Mg)		6200	6150		mg/kg	0.7	30	15-OCT-18
Manganese (Mn)		134	131		mg/kg	2.5	30	15-OCT-18
Molybdenum (Mo)		0.66	0.67		mg/kg	0.8	40	15-OCT-18
Nickel (Ni)		13.3	12.2		mg/kg	8.5	30	15-OCT-18
Phosphorus (P)		834	783		mg/kg	6.3	30	15-OCT-18
Potassium (K)		2090	2030		mg/kg	2.9	40	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-SK		Soil						
Batch	R4278629							
WG2894273-2	DUP	L2170896-21						
Selenium (Se)		0.21	<0.20	RPD-NA	mg/kg	N/A	30	15-OCT-18
Silver (Ag)		<0.10	<0.10	RPD-NA	mg/kg	N/A	40	15-OCT-18
Sodium (Na)		7050	6200		mg/kg	13	40	15-OCT-18
Strontium (Sr)		25.4	24.3		mg/kg	4.6	40	15-OCT-18
Sulfur (S)		<1000	<1000	RPD-NA	mg/kg	N/A	30	15-OCT-18
Thallium (Tl)		0.089	0.082		mg/kg	8.7	30	15-OCT-18
Tin (Sn)		<1.0	<1.0	RPD-NA	mg/kg	N/A	40	15-OCT-18
Titanium (Ti)		498	501		mg/kg	0.6	40	15-OCT-18
Tungsten (W)		<0.50	<0.50	RPD-NA	mg/kg	N/A	30	15-OCT-18
Uranium (U)		0.856	0.810		mg/kg	5.6	30	15-OCT-18
Vanadium (V)		27.5	26.7		mg/kg	2.8	30	15-OCT-18
Zinc (Zn)		22.7	21.9		mg/kg	4.0	30	15-OCT-18
Zirconium (Zr)		4.5	4.5		mg/kg	0.8	30	15-OCT-18
WG2894273-4	LCS							
Aluminum (Al)			99.2		%		80-120	15-OCT-18
Antimony (Sb)			107.2		%		80-120	15-OCT-18
Arsenic (As)			98.4		%		80-120	15-OCT-18
Barium (Ba)			98.8		%		80-120	15-OCT-18
Beryllium (Be)			102.5		%		80-120	15-OCT-18
Boron (B)			91.9		%		80-120	15-OCT-18
Bismuth (Bi)			100.5		%		80-120	15-OCT-18
Cadmium (Cd)			99.0		%		80-120	15-OCT-18
Calcium (Ca)			101.2		%		80-120	15-OCT-18
Chromium (Cr)			96.8		%		80-120	15-OCT-18
Cobalt (Co)			93.4		%		80-120	15-OCT-18
Copper (Cu)			97.4		%		80-120	15-OCT-18
Iron (Fe)			103.6		%		80-120	15-OCT-18
Lead (Pb)			100.1		%		80-120	15-OCT-18
Lithium (Li)			102.8		%		80-120	15-OCT-18
Magnesium (Mg)			97.6		%		80-120	15-OCT-18
Manganese (Mn)			103.1		%		80-120	15-OCT-18
Molybdenum (Mo)			102.9		%		80-120	15-OCT-18
Nickel (Ni)			96.7		%		80-120	15-OCT-18
Phosphorus (P)			100.9		%		80-120	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-SK		Soil						
Batch	R4278629							
WG2894273-4	LCS							
Potassium (K)			101.7		%		80-120	15-OCT-18
Selenium (Se)			96.4		%		80-120	15-OCT-18
Silver (Ag)			100.1		%		80-120	15-OCT-18
Sodium (Na)			98.1		%		80-120	15-OCT-18
Strontium (Sr)			99.8		%		80-120	15-OCT-18
Sulfur (S)			100.3		%		80-120	15-OCT-18
Thallium (Tl)			92.1		%		80-120	15-OCT-18
Tin (Sn)			96.8		%		80-120	15-OCT-18
Titanium (Ti)			88.3		%		80-120	15-OCT-18
Tungsten (W)			97.5		%		80-120	15-OCT-18
Uranium (U)			99.4		%		80-120	15-OCT-18
Vanadium (V)			98.6		%		80-120	15-OCT-18
Zinc (Zn)			98.3		%		80-120	15-OCT-18
Zirconium (Zr)			101.7		%		80-120	15-OCT-18
WG2894273-1	MB							
Aluminum (Al)			<50		mg/kg		50	15-OCT-18
Antimony (Sb)			<0.10		mg/kg		0.1	15-OCT-18
Arsenic (As)			<0.10		mg/kg		0.1	15-OCT-18
Barium (Ba)			<0.50		mg/kg		0.5	15-OCT-18
Beryllium (Be)			<0.10		mg/kg		0.1	15-OCT-18
Boron (B)			<5.0		mg/kg		5	15-OCT-18
Bismuth (Bi)			<0.20		mg/kg		0.2	15-OCT-18
Cadmium (Cd)			<0.020		mg/kg		0.02	15-OCT-18
Calcium (Ca)			<50		mg/kg		50	15-OCT-18
Chromium (Cr)			<0.50		mg/kg		0.5	15-OCT-18
Cobalt (Co)			<0.10		mg/kg		0.1	15-OCT-18
Copper (Cu)			<0.50		mg/kg		0.5	15-OCT-18
Iron (Fe)			<50		mg/kg		50	15-OCT-18
Lead (Pb)			<0.50		mg/kg		0.5	15-OCT-18
Lithium (Li)			<2.0		mg/kg		2	15-OCT-18
Magnesium (Mg)			<20		mg/kg		20	15-OCT-18
Manganese (Mn)			<1.0		mg/kg		1	15-OCT-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	15-OCT-18
Nickel (Ni)			<0.50		mg/kg		0.5	15-OCT-18



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MET-200.2-CCMS-SK		Soil						
Batch	R4278629							
WG2894273-1	MB							
Phosphorus (P)			<50		mg/kg		50	15-OCT-18
Potassium (K)			<100		mg/kg		100	15-OCT-18
Selenium (Se)			<0.20		mg/kg		0.2	15-OCT-18
Silver (Ag)			<0.10		mg/kg		0.1	15-OCT-18
Sodium (Na)			<50		mg/kg		50	15-OCT-18
Strontium (Sr)			<0.50		mg/kg		0.5	15-OCT-18
Sulfur (S)			<1000		mg/kg		1000	15-OCT-18
Thallium (Tl)			<0.050		mg/kg		0.05	15-OCT-18
Tin (Sn)			<1.0		mg/kg		1	15-OCT-18
Titanium (Ti)			<1.0		mg/kg		1	15-OCT-18
Tungsten (W)			<0.50		mg/kg		0.5	15-OCT-18
Uranium (U)			<0.050		mg/kg		0.05	15-OCT-18
Vanadium (V)			<0.20		mg/kg		0.2	15-OCT-18
Zinc (Zn)			<2.0		mg/kg		2	15-OCT-18
Zirconium (Zr)			<1.0		mg/kg		1	15-OCT-18
N-TOTKJ-COL-SK		Soil						
Batch	R4280989							
WG2893968-1	DUP	L2170896-22						
Total Kjeldahl Nitrogen		0.085	0.087		%	3.2	20	15-OCT-18
WG2893968-2	IRM	08-109_SOIL						
Total Kjeldahl Nitrogen			93.5		%		80-120	15-OCT-18
WG2893968-3	MB							
Total Kjeldahl Nitrogen			<0.020		%		0.02	15-OCT-18
Batch	R4283767							
WG2893965-1	DUP	L2170896-12						
Total Kjeldahl Nitrogen		0.053	0.051		%	3.8	20	17-OCT-18
WG2893965-2	IRM	08-109_SOIL						
Total Kjeldahl Nitrogen			94.5		%		80-120	17-OCT-18
WG2893965-3	MB							
Total Kjeldahl Nitrogen			<0.020		%		0.02	17-OCT-18
ALK-TITR-VA		Seawater						
Batch	R4257666							
WG2890442-3	CRM	VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO3)			102.0		%		85-115	02-OCT-18
WG2890442-1	MB							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-VA Seawater								
Batch	R4257666							
WG2890442-1 MB								
Alkalinity, Total (as CaCO ₃)			<1.0		mg/L		1	02-OCT-18
ANIONS-C-BR-IC-VA Seawater								
Batch	R4258739							
WG2891645-3 DUP		L2170896-27						
Bromide (Br)		60.4	60.5		mg/L	0.2	20	02-OCT-18
WG2891645-2 LCS								
Bromide (Br)			100.4		%		85-115	02-OCT-18
WG2891645-1 MB								
Bromide (Br)			<5.0		mg/L		5	02-OCT-18
WG2891645-4 MS		L2170896-28						
Bromide (Br)			N/A	MS-B	%		-	02-OCT-18
ANIONS-C-CL-IC-VA Seawater								
Batch	R4258739							
WG2891645-3 DUP		L2170896-27						
Chloride (Cl)		17400	17300		mg/L	0.2	20	02-OCT-18
WG2891645-2 LCS								
Chloride (Cl)			100.0		%		90-110	02-OCT-18
WG2891645-1 MB								
Chloride (Cl)			<50		mg/L		50	02-OCT-18
WG2891645-4 MS		L2170896-28						
Chloride (Cl)			N/A	MS-B	%		-	02-OCT-18
ANIONS-C-F-IC-VA Seawater								
Batch	R4258739							
WG2891645-3 DUP		L2170896-27						
Fluoride (F)		1.0	<1.0	RPD-NA	mg/L	N/A	20	02-OCT-18
WG2891645-2 LCS								
Fluoride (F)			99.9		%		90-110	02-OCT-18
WG2891645-1 MB								
Fluoride (F)			<1.0		mg/L		1	02-OCT-18
WG2891645-4 MS		L2170896-28						
Fluoride (F)			N/A	MS-B	%		-	02-OCT-18
ANIONS-C-NO2-IC-VA Seawater								
Batch	R4258739							
WG2891645-3 DUP		L2170896-27						
Nitrite (as N)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	02-OCT-18
WG2891645-2 LCS								

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-C-NO2-IC-VA		Seawater						
Batch	R4258739							
WG2891645-2	LCS							
Nitrite (as N)			100.4		%		90-110	02-OCT-18
WG2891645-1	MB							
Nitrite (as N)			<0.10		mg/L		0.1	02-OCT-18
ANIONS-C-NO3-IC-VA		Seawater						
Batch	R4258739							
WG2891645-3	DUP	L2170896-27						
Nitrate (as N)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	02-OCT-18
WG2891645-2	LCS							
Nitrate (as N)			99.96		%		90-110	02-OCT-18
WG2891645-1	MB							
Nitrate (as N)			<0.50		mg/L		0.5	02-OCT-18
ANIONS-C-SO4-IC-VA		Seawater						
Batch	R4258739							
WG2891645-3	DUP	L2170896-27						
Sulfate (SO4)		2450	2440		mg/L	0.3	20	02-OCT-18
WG2891645-2	LCS							
Sulfate (SO4)			100.8		%		90-110	02-OCT-18
WG2891645-1	MB							
Sulfate (SO4)			<30		mg/L		30	02-OCT-18
WG2891645-4	MS	L2170896-28						
Sulfate (SO4)			N/A	MS-B	%		-	02-OCT-18
CARBONS-C-DOC-VA		Seawater						
Batch	R4257979							
WG2892697-4	LCS							
Dissolved Organic Carbon			96.8		%		80-120	02-OCT-18
WG2892697-3	MB							
Dissolved Organic Carbon			<0.50		mg/L		0.5	02-OCT-18
CARBONS-C-TOC-VA		Seawater						
Batch	R4257978							
WG2892696-1	LCS							
Total Organic Carbon			98.2		%		80-120	02-OCT-18
WG2892696-5	LCS							
Total Organic Carbon			95.6		%		80-120	02-OCT-18
WG2892696-4	MB							
Total Organic Carbon			<0.50		mg/L		0.5	02-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-C-TOC-VA	Seawater							
Batch R4263002								
WG2895786-4 LCS								
Total Organic Carbon			99.5		%		80-120	04-OCT-18
WG2895786-3 MB								
Total Organic Carbon			<0.50		mg/L		0.5	04-OCT-18
EC-C-PCT-VA	Seawater							
Batch R4257666								
WG2890442-4 CRM		VA-EC-PCT-CONTROL						
Conductivity			101.8		%		90-110	02-OCT-18
WG2890442-1 MB								
Conductivity			<2.0		uS/cm		2	02-OCT-18
HG-DIS-C-CVAFS-VA	Seawater							
Batch R4280190								
WG2904000-2 LCS								
Mercury (Hg)-Dissolved			99.0		%		80-120	16-OCT-18
WG2904000-1 MB		LF						
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	16-OCT-18
HG-TOT-C-CVAFS-VA	Seawater							
Batch R4263241								
WG2897182-2 LCS								
Mercury (Hg)-Total			94.7		%		80-120	06-OCT-18
WG2897182-1 MB								
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	06-OCT-18
MET-D-L-HRMS-VA	Seawater							
Batch R4286967								
WG2897898-2 LCS								
Aluminum (Al)-Dissolved			89.6		%		80-120	15-OCT-18
Aluminum (Al)-Dissolved			89.6		%		80-120	15-OCT-18
Antimony (Sb)-Dissolved			93.7		%		80-120	15-OCT-18
Antimony (Sb)-Dissolved			93.7		%		80-120	15-OCT-18
Arsenic (As)-Dissolved			93.4		%		80-120	15-OCT-18
Arsenic (As)-Dissolved			93.4		%		80-120	15-OCT-18
Barium (Ba)-Dissolved			102.0		%		80-120	15-OCT-18
Barium (Ba)-Dissolved			102.0		%		80-120	15-OCT-18
Beryllium (Be)-Dissolved			98.4		%		80-120	15-OCT-18
Beryllium (Be)-Dissolved			98.4		%		80-120	15-OCT-18
Bismuth (Bi)-Dissolved			88.6		%		80-120	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897898-2	LCS							
Bismuth (Bi)-Dissolved			88.6		%		80-120	15-OCT-18
Boron (B)-Dissolved			114.2		%		80-120	15-OCT-18
Boron (B)-Dissolved			114.2		%		80-120	15-OCT-18
Cadmium (Cd)-Dissolved			100.0		%		80-120	15-OCT-18
Cadmium (Cd)-Dissolved			100.0		%		80-120	15-OCT-18
Calcium (Ca)-Dissolved			96.9		%		80-120	15-OCT-18
Calcium (Ca)-Dissolved			96.9		%		80-120	15-OCT-18
Cesium (Cs)-Dissolved			106.0		%		80-120	15-OCT-18
Cesium (Cs)-Dissolved			106.0		%		80-120	15-OCT-18
Chromium (Cr)-Dissolved			104.0		%		80-120	15-OCT-18
Chromium (Cr)-Dissolved			104.0		%		80-120	15-OCT-18
Cobalt (Co)-Dissolved			95.2		%		80-120	15-OCT-18
Cobalt (Co)-Dissolved			95.2		%		80-120	15-OCT-18
Copper (Cu)-Dissolved			95.2		%		80-120	15-OCT-18
Copper (Cu)-Dissolved			95.2		%		80-120	15-OCT-18
Gallium (Ga)-Dissolved			96.4		%		80-120	15-OCT-18
Gallium (Ga)-Dissolved			96.4		%		80-120	15-OCT-18
Iron (Fe)-Dissolved			98.3		%		80-120	15-OCT-18
Iron (Fe)-Dissolved			98.3		%		80-120	15-OCT-18
Lead (Pb)-Dissolved			107.4		%		80-120	15-OCT-18
Lead (Pb)-Dissolved			107.4		%		80-120	15-OCT-18
Lithium (Li)-Dissolved			100.7		%		80-120	15-OCT-18
Lithium (Li)-Dissolved			100.7		%		80-120	15-OCT-18
Magnesium (Mg)-Dissolved			102.9		%		80-120	15-OCT-18
Magnesium (Mg)-Dissolved			102.9		%		80-120	15-OCT-18
Manganese (Mn)-Dissolved			106.0		%		80-120	15-OCT-18
Manganese (Mn)-Dissolved			106.0		%		80-120	15-OCT-18
Molybdenum (Mo)-Dissolved			104.4		%		80-120	15-OCT-18
Molybdenum (Mo)-Dissolved			104.4		%		80-120	15-OCT-18
Nickel (Ni)-Dissolved			97.4		%		80-120	15-OCT-18
Nickel (Ni)-Dissolved			97.4		%		80-120	15-OCT-18
Phosphorus (P)-Dissolved			101.1		%		80-120	15-OCT-18
Phosphorus (P)-Dissolved			101.1		%		80-120	15-OCT-18
Potassium (K)-Dissolved			98.1		%		80-120	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897898-2	LCS							
Potassium (K)-Dissolved			98.1		%		80-120	15-OCT-18
Rhenium (Re)-Dissolved			99.3		%		80-120	15-OCT-18
Rhenium (Re)-Dissolved			99.3		%		80-120	15-OCT-18
Rubidium (Rb)-Dissolved			107.4		%		80-120	15-OCT-18
Rubidium (Rb)-Dissolved			107.4		%		80-120	15-OCT-18
Selenium (Se)-Dissolved			100.0		%		80-120	15-OCT-18
Selenium (Se)-Dissolved			100.0		%		80-120	15-OCT-18
Silicon (Si)-Dissolved			99.9		%		80-120	15-OCT-18
Silicon (Si)-Dissolved			99.9		%		80-120	15-OCT-18
Silver (Ag)-Dissolved			101.0		%		80-120	15-OCT-18
Silver (Ag)-Dissolved			101.0		%		80-120	15-OCT-18
Sodium (Na)-Dissolved			115.1		%		80-120	15-OCT-18
Sodium (Na)-Dissolved			115.1		%		80-120	15-OCT-18
Strontium (Sr)-Dissolved			93.2		%		80-120	15-OCT-18
Strontium (Sr)-Dissolved			93.2		%		80-120	15-OCT-18
Sulfur (S)-Dissolved			103.0		%		80-120	15-OCT-18
Sulfur (S)-Dissolved			103.0		%		80-120	15-OCT-18
Tellurium (Te)-Dissolved			106.0		%		80-120	15-OCT-18
Tellurium (Te)-Dissolved			106.0		%		80-120	15-OCT-18
Thallium (Tl)-Dissolved			94.5		%		80-120	15-OCT-18
Thallium (Tl)-Dissolved			94.5		%		80-120	15-OCT-18
Thorium (Th)-Dissolved			107.5		%		80-120	15-OCT-18
Thorium (Th)-Dissolved			107.5		%		80-120	15-OCT-18
Tin (Sn)-Dissolved			109.8		%		80-120	15-OCT-18
Tin (Sn)-Dissolved			109.8		%		80-120	15-OCT-18
Titanium (Ti)-Dissolved			97.2		%		80-120	15-OCT-18
Titanium (Ti)-Dissolved			97.2		%		80-120	15-OCT-18
Tungsten (W)-Dissolved			98.8		%		80-120	15-OCT-18
Tungsten (W)-Dissolved			98.8		%		80-120	15-OCT-18
Uranium (U)-Dissolved			108.6		%		80-120	15-OCT-18
Uranium (U)-Dissolved			108.6		%		80-120	15-OCT-18
Vanadium (V)-Dissolved			98.2		%		80-120	15-OCT-18
Vanadium (V)-Dissolved			98.2		%		80-120	15-OCT-18
Yttrium (Y)-Dissolved			113.0		%		80-120	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897898-2	LCS							
Yttrium (Y)-Dissolved			113.0		%		80-120	15-OCT-18
Zinc (Zn)-Dissolved			93.2		%		80-120	15-OCT-18
Zinc (Zn)-Dissolved			93.2		%		80-120	15-OCT-18
Zirconium (Zr)-Dissolved			109.0		%		80-120	15-OCT-18
Zirconium (Zr)-Dissolved			109.0		%		80-120	15-OCT-18
WG2897898-1	MB	LF						
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	16-OCT-18
Antimony (Sb)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-18
Antimony (Sb)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-18
Antimony (Sb)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Arsenic (As)-Dissolved			<0.0020		mg/L		0.002	16-OCT-18
Barium (Ba)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Barium (Ba)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Barium (Ba)-Dissolved			<0.0010		mg/L		0.001	16-OCT-18
Beryllium (Be)-Dissolved			<0.0000050		mg/L		0.000005	15-OCT-18
Beryllium (Be)-Dissolved			<0.0000050		mg/L		0.000005	15-OCT-18
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Bismuth (Bi)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Bismuth (Bi)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Bismuth (Bi)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Boron (B)-Dissolved			<0.10		mg/L		0.1	16-OCT-18
Cadmium (Cd)-Dissolved			<0.000050		mg/L		0.00005	16-OCT-18
Calcium (Ca)-Dissolved			<1.0		mg/L		1	16-OCT-18
Cesium (Cs)-Dissolved			<0.0000050		mg/L		0.000005	15-OCT-18
Cesium (Cs)-Dissolved			<0.0000050		mg/L		0.000005	15-OCT-18
Cesium (Cs)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Chromium (Cr)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Chromium (Cr)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Chromium (Cr)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Cobalt (Co)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Cobalt (Co)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Cobalt (Co)-Dissolved			<0.000050		mg/L		0.00005	16-OCT-18
Copper (Cu)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Copper (Cu)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18

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MET-D-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897898-1	MB	LF						
Copper (Cu)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Gallium (Ga)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Gallium (Ga)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Gallium (Ga)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	15-OCT-18
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	15-OCT-18
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	16-OCT-18
Lead (Pb)-Dissolved			<0.00030		mg/L		0.0003	15-OCT-18
Lead (Pb)-Dissolved			<0.00030		mg/L		0.0003	15-OCT-18
Lead (Pb)-Dissolved			<0.00030		mg/L		0.0003	16-OCT-18
Lithium (Li)-Dissolved			<0.020		mg/L		0.02	16-OCT-18
Magnesium (Mg)-Dissolved			<1.0		mg/L		1	15-OCT-18
Magnesium (Mg)-Dissolved			<1.0		mg/L		1	15-OCT-18
Magnesium (Mg)-Dissolved			<1.0		mg/L		1	16-OCT-18
Manganese (Mn)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-18
Manganese (Mn)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-18
Manganese (Mn)-Dissolved			<0.00020		mg/L		0.0002	16-OCT-18
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Molybdenum (Mo)-Dissolved			<0.0020		mg/L		0.002	16-OCT-18
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	15-OCT-18
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	15-OCT-18
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	16-OCT-18
Potassium (K)-Dissolved			<1.0		mg/L		1	16-OCT-18
Rhenium (Re)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Rhenium (Re)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Rhenium (Re)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Rubidium (Rb)-Dissolved			<0.0050		mg/L		0.005	16-OCT-18
Selenium (Se)-Dissolved			<0.0020		mg/L		0.002	15-OCT-18
Selenium (Se)-Dissolved			<0.0020		mg/L		0.002	15-OCT-18
Selenium (Se)-Dissolved			<0.0020		mg/L		0.002	16-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897898-1 MB		LF						
Silicon (Si)-Dissolved			<1.0		mg/L		1	16-OCT-18
Silver (Ag)-Dissolved			<0.00010		mg/L		0.0001	16-OCT-18
Sodium (Na)-Dissolved			<1.0		mg/L		1	16-OCT-18
Strontium (Sr)-Dissolved			<0.010		mg/L		0.01	15-OCT-18
Strontium (Sr)-Dissolved			<0.010		mg/L		0.01	15-OCT-18
Strontium (Sr)-Dissolved			<0.010		mg/L		0.01	16-OCT-18
Sulfur (S)-Dissolved			<5.0		mg/L		5	15-OCT-18
Sulfur (S)-Dissolved			<5.0		mg/L		5	15-OCT-18
Sulfur (S)-Dissolved			<5.0		mg/L		5	16-OCT-18
Tellurium (Te)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-18
Tellurium (Te)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-18
Tellurium (Te)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	16-OCT-18
Thorium (Th)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Thorium (Th)-Dissolved			<0.00050		mg/L		0.0005	15-OCT-18
Thorium (Th)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Tin (Sn)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Tin (Sn)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Tin (Sn)-Dissolved			<0.0010		mg/L		0.001	16-OCT-18
Titanium (Ti)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-18
Titanium (Ti)-Dissolved			<0.00020		mg/L		0.0002	15-OCT-18
Titanium (Ti)-Dissolved			<0.0050		mg/L		0.005	16-OCT-18
Tungsten (W)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-18
Tungsten (W)-Dissolved			<0.000010		mg/L		0.00001	15-OCT-18
Tungsten (W)-Dissolved			<0.0010		mg/L		0.001	16-OCT-18
Uranium (U)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Uranium (U)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Uranium (U)-Dissolved			<0.000050		mg/L		0.00005	16-OCT-18
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Yttrium (Y)-Dissolved			<0.0000050		mg/L		0.000005	15-OCT-18
Yttrium (Y)-Dissolved			<0.0000050		mg/L		0.000005	15-OCT-18
Yttrium (Y)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897898-1 MB		LF						
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	15-OCT-18
Zinc (Zn)-Dissolved			<0.0030		mg/L		0.003	16-OCT-18
Zirconium (Zr)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Zirconium (Zr)-Dissolved			<0.000050		mg/L		0.00005	15-OCT-18
Zirconium (Zr)-Dissolved			<0.00050		mg/L		0.0005	16-OCT-18
Batch	R4288587							
WG2897898-3 DUP		L2170896-29						
Aluminum (Al)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	19-OCT-18
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Arsenic (As)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	19-OCT-18
Barium (Ba)-Dissolved		0.0098	0.0100		mg/L	1.7	20	19-OCT-18
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Bismuth (Bi)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Boron (B)-Dissolved		4.21	4.01		mg/L	4.8	20	19-OCT-18
Cadmium (Cd)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	19-OCT-18
Calcium (Ca)-Dissolved		312	335		mg/L	7.0	20	19-OCT-18
Cesium (Cs)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Chromium (Cr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Cobalt (Co)-Dissolved		<0.000050	0.000058	RPD-NA	mg/L	N/A	20	19-OCT-18
Copper (Cu)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Gallium (Ga)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Iron (Fe)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	19-OCT-18
Lead (Pb)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	19-OCT-18
Lithium (Li)-Dissolved		0.205	0.192		mg/L	6.8	20	19-OCT-18
Magnesium (Mg)-Dissolved		970	964		mg/L	0.7	20	19-OCT-18
Manganese (Mn)-Dissolved		0.00026	0.00033	J	mg/L	0.00007	0.0004	19-OCT-18
Molybdenum (Mo)-Dissolved		0.0128	0.0123		mg/L	3.4	20	19-OCT-18
Nickel (Ni)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Phosphorus (P)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	19-OCT-18
Potassium (K)-Dissolved		321	335		mg/L	4.4	20	19-OCT-18
Rhenium (Re)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Rubidium (Rb)-Dissolved		0.118	0.112		mg/L	4.7	20	19-OCT-18
Selenium (Se)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	19-OCT-18

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MET-D-L-HRMS-VA		Seawater						
Batch	R4288587							
WG2897898-3	DUP	L2170896-29						
Silicon (Si)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	19-OCT-18
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	19-OCT-18
Sodium (Na)-Dissolved		8680	8980		mg/L	3.5	20	19-OCT-18
Strontium (Sr)-Dissolved		5.40	5.39		mg/L	0.1	20	19-OCT-18
Sulfur (S)-Dissolved		716	708		mg/L	1.2	20	19-OCT-18
Tellurium (Te)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	19-OCT-18
Thorium (Th)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Tin (Sn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	19-OCT-18
Titanium (Ti)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	19-OCT-18
Tungsten (W)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	19-OCT-18
Uranium (U)-Dissolved		0.00301	0.00301		mg/L	0.3	20	19-OCT-18
Vanadium (V)-Dissolved		0.00120	0.00117		mg/L	2.6	20	19-OCT-18
Yttrium (Y)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
Zinc (Zn)-Dissolved		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	19-OCT-18
Zirconium (Zr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	19-OCT-18
MET-T-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897866-2	LCS							
Aluminum (Al)-Total			93.6		%		80-120	15-OCT-18
Antimony (Sb)-Total			96.6		%		80-120	15-OCT-18
Arsenic (As)-Total			100.4		%		80-120	15-OCT-18
Barium (Ba)-Total			104.4		%		80-120	15-OCT-18
Beryllium (Be)-Total			101.0		%		80-120	15-OCT-18
Bismuth (Bi)-Total			90.9		%		80-120	15-OCT-18
Boron (B)-Total			119.0		%		80-120	15-OCT-18
Cadmium (Cd)-Total			105.0		%		80-120	15-OCT-18
Calcium (Ca)-Total			97.1		%		80-120	15-OCT-18
Cesium (Cs)-Total			107.2		%		80-120	15-OCT-18
Chromium (Cr)-Total			100.0		%		80-120	15-OCT-18
Cobalt (Co)-Total			98.4		%		80-120	15-OCT-18
Copper (Cu)-Total			96.8		%		80-120	15-OCT-18
Gallium (Ga)-Total			100.0		%		80-120	15-OCT-18
Iron (Fe)-Total			101.3		%		80-120	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897866-2	LCS							
Lead (Pb)-Total			107.2		%		80-120	15-OCT-18
Lithium (Li)-Total			102.8		%		80-120	15-OCT-18
Magnesium (Mg)-Total			106.7		%		80-120	15-OCT-18
Manganese (Mn)-Total			110.0		%		80-120	15-OCT-18
Molybdenum (Mo)-Total			106.8		%		80-120	15-OCT-18
Nickel (Ni)-Total			100.4		%		80-120	15-OCT-18
Phosphorus (P)-Total			107.1		%		80-120	15-OCT-18
Potassium (K)-Total			101.2		%		80-120	15-OCT-18
Rhenium (Re)-Total			103.0		%		80-120	15-OCT-18
Rubidium (Rb)-Total			109.3		%		80-120	15-OCT-18
Selenium (Se)-Total			103.1		%		80-120	15-OCT-18
Silicon (Si)-Total			103.0		%		80-120	15-OCT-18
Silver (Ag)-Total			103.0		%		80-120	15-OCT-18
Sodium (Na)-Total			114.9		%		80-120	15-OCT-18
Strontium (Sr)-Total			95.6		%		80-120	15-OCT-18
Sulfur (S)-Total			108.1		%		70-130	15-OCT-18
Tellurium (Te)-Total			106.0		%		80-120	15-OCT-18
Thallium (Tl)-Total			96.5		%		80-120	15-OCT-18
Thorium (Th)-Total			107.5		%		80-120	15-OCT-18
Tin (Sn)-Total			113.0		%		80-120	15-OCT-18
Titanium (Ti)-Total			98.4		%		80-120	15-OCT-18
Tungsten (W)-Total			101.0		%		80-120	15-OCT-18
Uranium (U)-Total			109.6		%		80-120	15-OCT-18
Vanadium (V)-Total			101.4		%		80-120	15-OCT-18
Yttrium (Y)-Total			114.0		%		80-120	15-OCT-18
Zinc (Zn)-Total			100.6		%		80-120	15-OCT-18
Zirconium (Zr)-Total			109.0		%		80-120	15-OCT-18
WG2897866-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	15-OCT-18
Antimony (Sb)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Arsenic (As)-Total			<0.0020		mg/L		0.002	15-OCT-18
Barium (Ba)-Total			<0.0010		mg/L		0.001	15-OCT-18
Beryllium (Be)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Bismuth (Bi)-Total			<0.00050		mg/L		0.0005	15-OCT-18

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-HRMS-VA		Seawater						
Batch	R4286967							
WG2897866-1 MB								
Boron (B)-Total			<0.10		mg/L		0.1	15-OCT-18
Cadmium (Cd)-Total			<0.000050		mg/L		0.00005	15-OCT-18
Calcium (Ca)-Total			<1.0		mg/L		1	15-OCT-18
Cesium (Cs)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Chromium (Cr)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Cobalt (Co)-Total			<0.000050		mg/L		0.00005	15-OCT-18
Copper (Cu)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Gallium (Ga)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Iron (Fe)-Total			<0.010		mg/L		0.01	15-OCT-18
Lead (Pb)-Total			<0.00030		mg/L		0.0003	15-OCT-18
Lithium (Li)-Total			<0.020		mg/L		0.02	15-OCT-18
Magnesium (Mg)-Total			<1.0		mg/L		1	15-OCT-18
Manganese (Mn)-Total			<0.00020		mg/L		0.0002	15-OCT-18
Molybdenum (Mo)-Total			<0.0020		mg/L		0.002	15-OCT-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Phosphorus (P)-Total			<0.050		mg/L		0.05	15-OCT-18
Potassium (K)-Total			<1.0		mg/L		1	15-OCT-18
Rhenium (Re)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Rubidium (Rb)-Total			<0.0050		mg/L		0.005	15-OCT-18
Selenium (Se)-Total			<0.0020		mg/L		0.002	15-OCT-18
Silicon (Si)-Total			<1.0		mg/L		1	15-OCT-18
Silver (Ag)-Total			<0.00010		mg/L		0.0001	15-OCT-18
Sodium (Na)-Total			<1.0		mg/L		1	15-OCT-18
Strontium (Sr)-Total			<0.010		mg/L		0.01	15-OCT-18
Sulfur (S)-Total			<5.0		mg/L		5	15-OCT-18
Tellurium (Te)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Thallium (Tl)-Total			<0.000050		mg/L		0.00005	15-OCT-18
Thorium (Th)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Tin (Sn)-Total			<0.0010		mg/L		0.001	15-OCT-18
Titanium (Ti)-Total			<0.0050		mg/L		0.005	15-OCT-18
Tungsten (W)-Total			<0.0010		mg/L		0.001	15-OCT-18
Uranium (U)-Total			<0.000050		mg/L		0.00005	15-OCT-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	15-OCT-18
Yttrium (Y)-Total			<0.00050		mg/L		0.0005	15-OCT-18



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
MET-T-L-HRMS-VA		Seawater							
Batch	R4286967								
WG2897866-1	MB								
Zinc (Zn)-Total			<0.0030		mg/L		0.003	15-OCT-18	
Zirconium (Zr)-Total			<0.00050		mg/L		0.0005	15-OCT-18	
NH3-F-VA		Seawater							
Batch	R4282102								
WG2904276-3	DUP	L2170896-29							
Ammonia, Total (as N)			<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-OCT-18
WG2904276-2	LCS								
Ammonia, Total (as N)				99.7		%		85-115	16-OCT-18
WG2904276-1	MB								
Ammonia, Total (as N)				<0.0050		mg/L		0.005	16-OCT-18
WG2904276-4	MS	L2170896-29							
Ammonia, Total (as N)				102.6		%		75-125	16-OCT-18
P-T-COL-VA		Seawater							
Batch	R4255689								
WG2891084-2	CRM	VA-ERA-PO4							
Phosphorus (P)-Total				102.9		%		80-120	01-OCT-18
WG2891084-3	DUP	L2170896-27							
Phosphorus (P)-Total			0.0273	0.0257		mg/L	5.8	20	01-OCT-18
WG2891084-1	MB								
Phosphorus (P)-Total				<0.0040		mg/L		0.004	01-OCT-18
PH-C-PCT-VA		Seawater							
Batch	R4257666								
WG2890442-2	CRM	VA-PH7-BUF							
pH				7.04		pH		6.9-7.1	02-OCT-18
PO4-DO-COL-VA		Seawater							
Batch	R4252115								
WG2890710-2	CRM	VA-OPO4-CONTROL							
Orthophosphate-Dissolved (as P)				101.0		%		80-120	29-SEP-18
WG2890710-3	DUP	L2170896-27							
Orthophosphate-Dissolved (as P)			0.0187	0.0182		mg/L	2.8	20	29-SEP-18
WG2890710-1	MB								
Orthophosphate-Dissolved (as P)				<0.0010		mg/L		0.001	29-SEP-18
WG2890710-4	MS	L2170896-28							
Orthophosphate-Dissolved (as P)				96.5		%		70-130	29-SEP-18
SIO2-L-COL-VA		Seawater							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SIO2-L-COL-VA	Seawater							
Batch R4258600								
WG2893982-2 CRM		VA-SIO2-L-0.025						
Silicate (as SiO ₂)			105.3		%		85-115	03-OCT-18
WG2893982-1 MB								
Silicate (as SiO ₂)			<0.010		mg/L		0.01	03-OCT-18
TDS-VA	Seawater							
Batch R4253115								
WG2890897-3 DUP		L2170896-27						
Total Dissolved Solids		35400	36400		mg/L	2.8	20	29-SEP-18
WG2890897-2 LCS								
Total Dissolved Solids			103.5		%		85-115	29-SEP-18
WG2890897-1 MB								
Total Dissolved Solids			<10		mg/L		10	29-SEP-18
TKN-C-F-VA	Seawater							
Batch R4272089								
WG2899817-3 DUP		L2170896-29						
Total Kjeldahl Nitrogen		0.133	0.125		mg/L	6.3	20	11-OCT-18
WG2899817-2 LCS								
Total Kjeldahl Nitrogen			92.5		%		75-125	11-OCT-18
WG2899817-1 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	11-OCT-18
WG2899817-4 MS		L2170896-30						
Total Kjeldahl Nitrogen			114.3		%		70-130	11-OCT-18
TSS-C-VA	Seawater							
Batch R4253121								
WG2890894-2 LCS								
Total Suspended Solids			97.7		%		85-115	29-SEP-18
WG2890894-1 MB								
Total Suspended Solids			<2.0		mg/L		2	29-SEP-18

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Total Dissolved Solids by Gravimetric							
	27	20-SEP-18 11:00	29-SEP-18 15:57	7	9	days	EHT
	28	20-SEP-18 11:00	29-SEP-18 15:57	7	9	days	EHT
	29	20-SEP-18 12:00	29-SEP-18 15:57	7	9	days	EHT
	30	20-SEP-18 12:00	29-SEP-18 15:57	7	9	days	EHT
Total Suspended Solids by Gravimetric							
	27	20-SEP-18 11:00	29-SEP-18 15:56	7	9	days	EHT
	28	20-SEP-18 11:00	29-SEP-18 15:56	7	9	days	EHT
	29	20-SEP-18 12:00	29-SEP-18 15:56	7	9	days	EHT
	30	20-SEP-18 12:00	29-SEP-18 15:56	7	9	days	EHT
pH by Meter (Automated) (seawater)							
	27	20-SEP-18 11:00	02-OCT-18 13:45	0.25	291	hours	EHTR-FM
	28	20-SEP-18 11:00	02-OCT-18 13:45	0.25	291	hours	EHTR-FM
	29	20-SEP-18 12:00	02-OCT-18 13:45	0.25	290	hours	EHTR-FM
	30	20-SEP-18 12:00	02-OCT-18 13:45	0.25	290	hours	EHTR-FM
Anions and Nutrients							
D-Orthophosphate in Seawater by Colour							
	27	20-SEP-18 11:00	29-SEP-18 15:17	3	9	days	EHTR
	28	20-SEP-18 11:00	29-SEP-18 15:19	3	9	days	EHTR
	29	20-SEP-18 12:00	29-SEP-18 15:19	3	9	days	EHTR
	30	20-SEP-18 12:00	29-SEP-18 15:20	3	9	days	EHTR
Nitrate in Seawater by IC							
	27	20-SEP-18 11:00	02-OCT-18 07:08	3	12	days	EHTR
	28	20-SEP-18 11:00	02-OCT-18 07:08	3	12	days	EHTR
	29	20-SEP-18 12:00	02-OCT-18 07:08	3	12	days	EHTR
	30	20-SEP-18 12:00	02-OCT-18 07:08	3	12	days	EHTR
Nitrite in Seawater by IC							
	27	20-SEP-18 11:00	02-OCT-18 07:08	3	12	days	EHTR
	28	20-SEP-18 11:00	02-OCT-18 07:08	3	12	days	EHTR
	29	20-SEP-18 12:00	02-OCT-18 07:08	3	12	days	EHTR
	30	20-SEP-18 12:00	02-OCT-18 07:08	3	12	days	EHTR
Total P in Seawater by Colour							
	27	20-SEP-18 11:00	01-OCT-18 17:29	3	11	days	EHTR
	28	20-SEP-18 11:00	01-OCT-18 17:29	3	11	days	EHTR
	29	20-SEP-18 12:00	01-OCT-18 17:29	3	11	days	EHTR
	30	20-SEP-18 12:00	01-OCT-18 17:29	3	11	days	EHTR
Metals							
Mercury in Soil by CVAAS							
	8	13-SEP-18 15:00	18-OCT-18 13:00	28	35	days	EHT
	26	13-SEP-18 17:00	12-OCT-18 14:00	28	29	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.

Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2170896 were received on 26-SEP-18 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the

Quality Control Report

Workorder: L2170896

Report Date: 19-OCT-18

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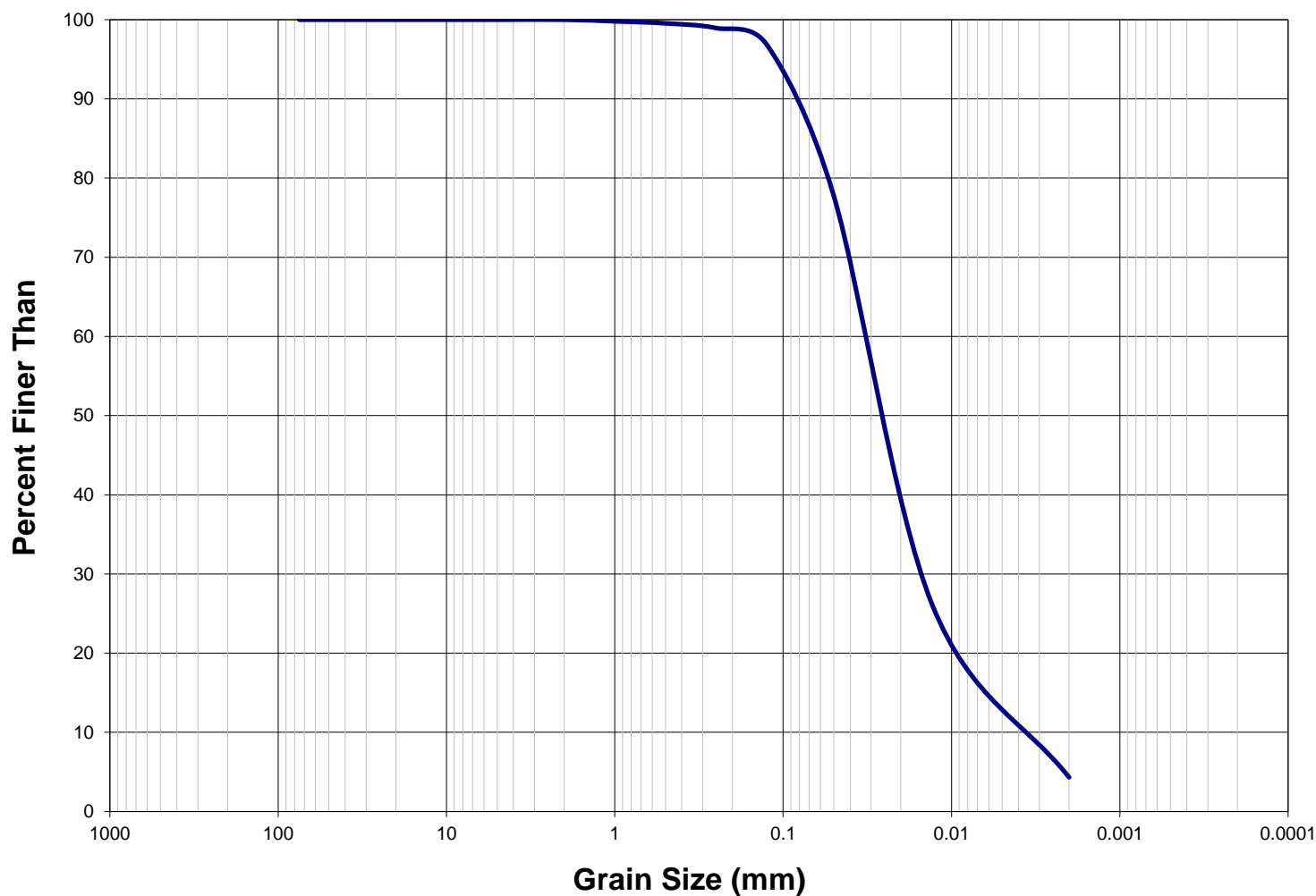
US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Particle Size Distribution Curve



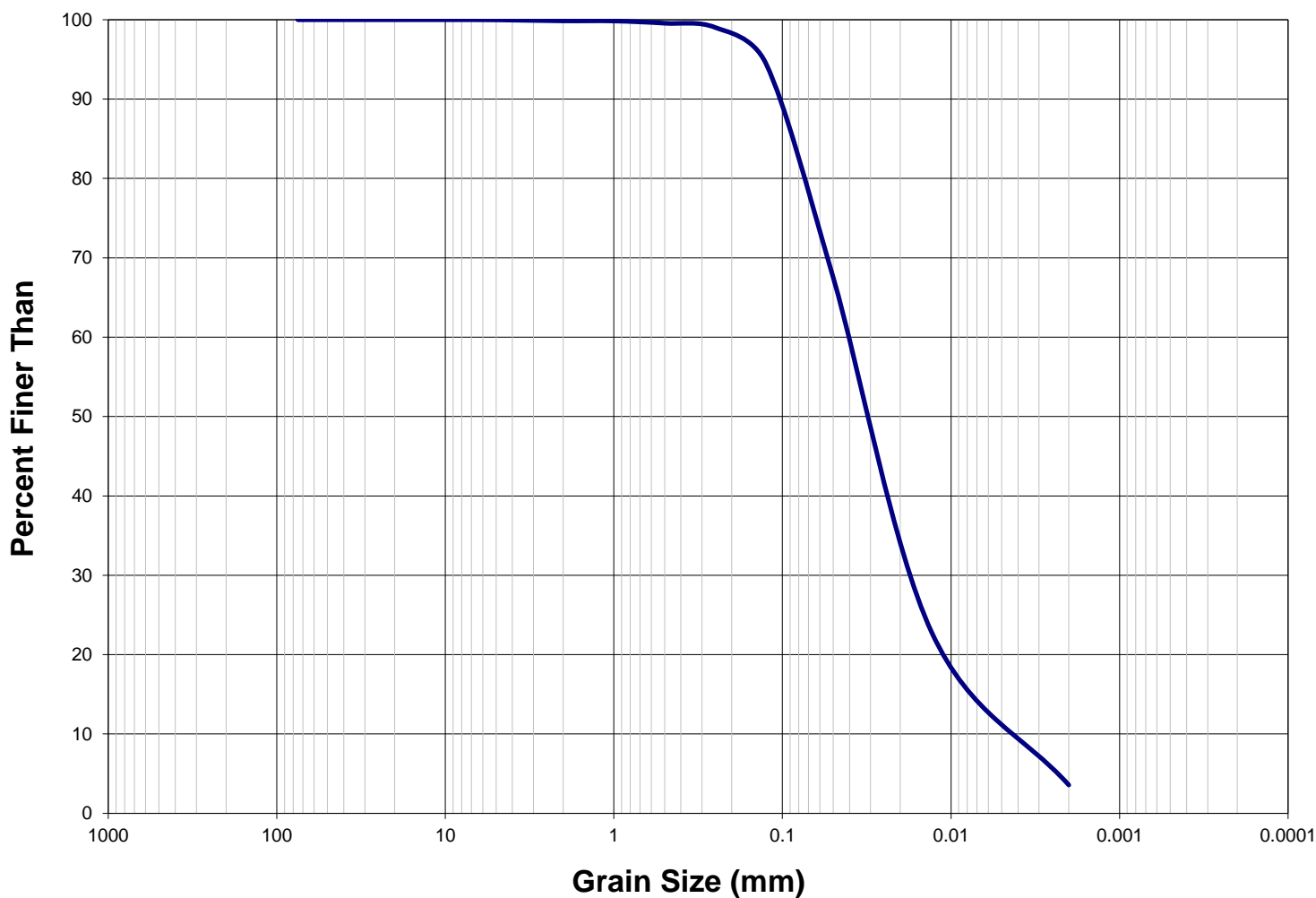
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	8.08	Clay
64 - 4	0.00	Pebble			
4 - 2	0.00	Granule			
2 - 1	0.20	Very coarse s			
1 - 0.5	0.26	Coarse sand			
0.5 - 0.25	0.60	Medium sand			
0.25 - 0.125	2.11	Fine sand			
0.125 - 0.0625	15.92	Very fine san			
0.0625 - 0.031	29.71	Coarse silt			
0.031 - 0.0156	21.50	Medium silt			
0.0156 - 0.0078	13.92	Fine silt			
0.0078 - 0.0039	7.72	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



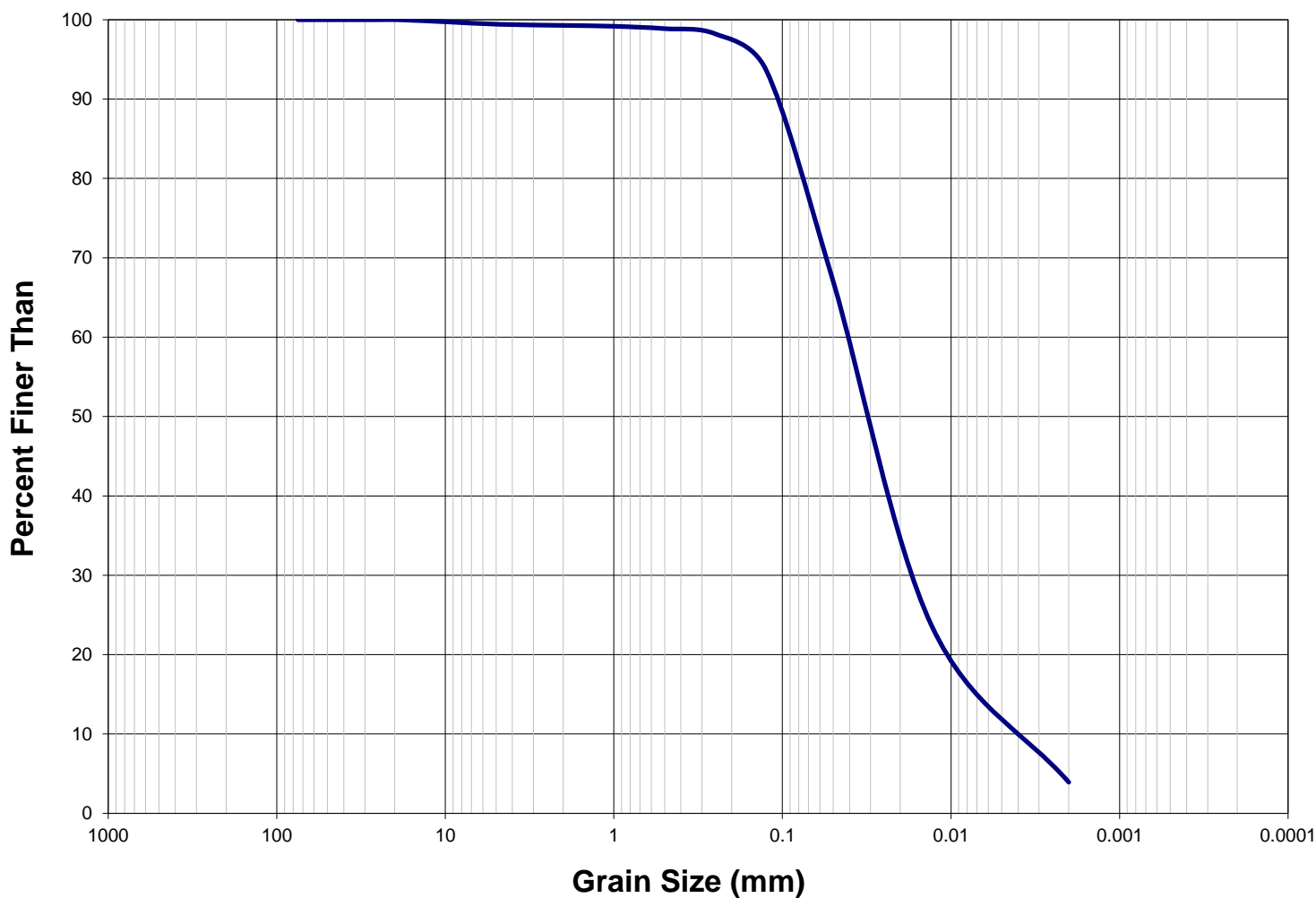
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.89	Clay
64 - 4	0.06	Pebble			
4 - 2	0.09	Granule			
2 - 1	0.01	Very coarse s			
1 - 0.5	0.28	Coarse sand			
0.5 - 0.25	0.54	Medium sand			
0.25 - 0.125	4.58	Fine sand			
0.125 - 0.0625	22.42	Very fine san			
0.0625 - 0.031	27.46	Coarse silt			
0.031 - 0.0156	18.62	Medium silt			
0.0156 - 0.0078	12.23	Fine silt			
0.0078 - 0.0039	6.81	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



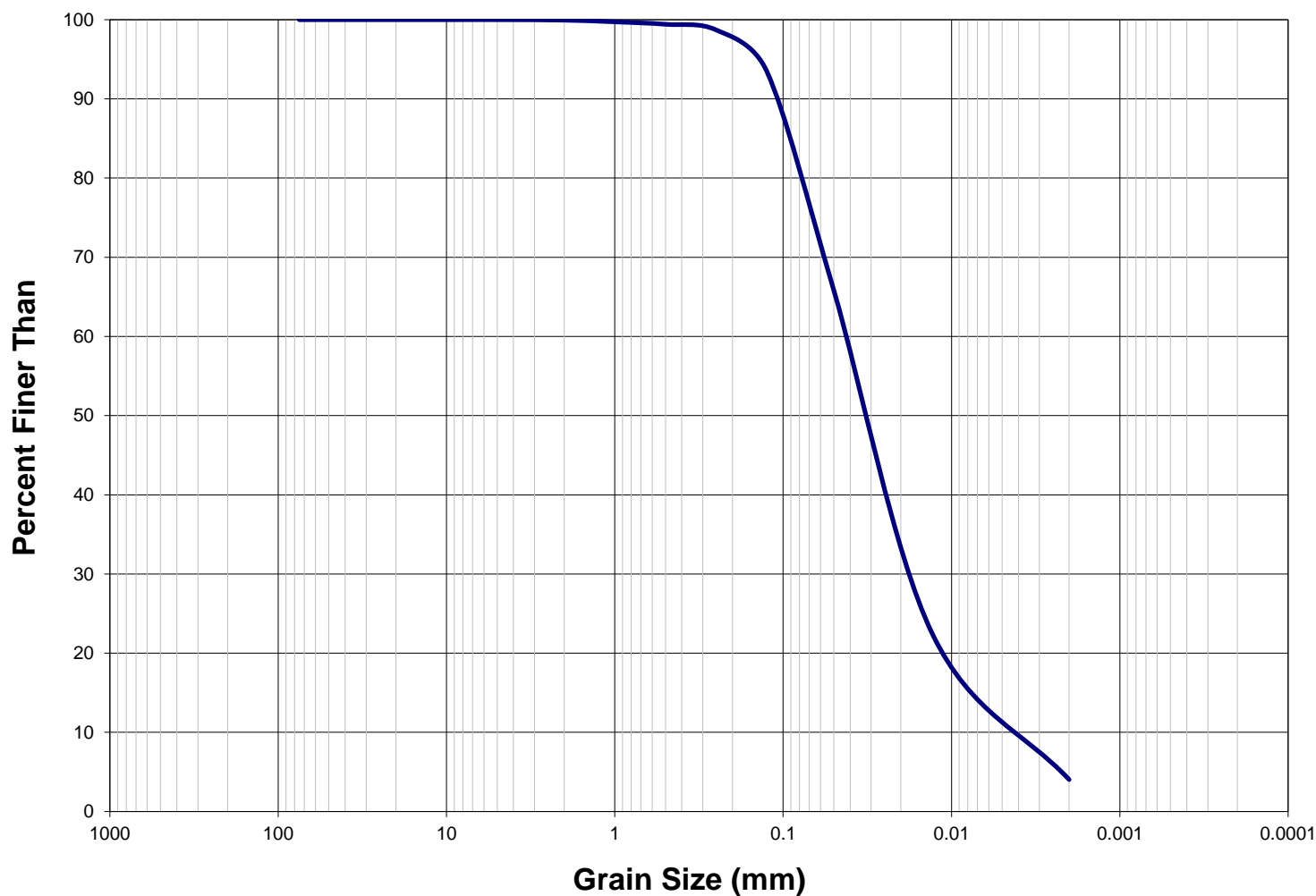
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.33	Clay
64 - 4	0.62	Pebble			
4 - 2	0.10	Granule			
2 - 1	0.11	Very coarse s			
1 - 0.5	0.30	Coarse sand			
0.5 - 0.25	0.66	Medium sand			
0.25 - 0.125	4.55	Fine sand			
0.125 - 0.0625	22.19	Very fine san			
0.0625 - 0.031	26.74	Coarse silt			
0.031 - 0.0156	18.08	Medium silt			
0.0156 - 0.0078	12.36	Fine silt			
0.0078 - 0.0039	6.98	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



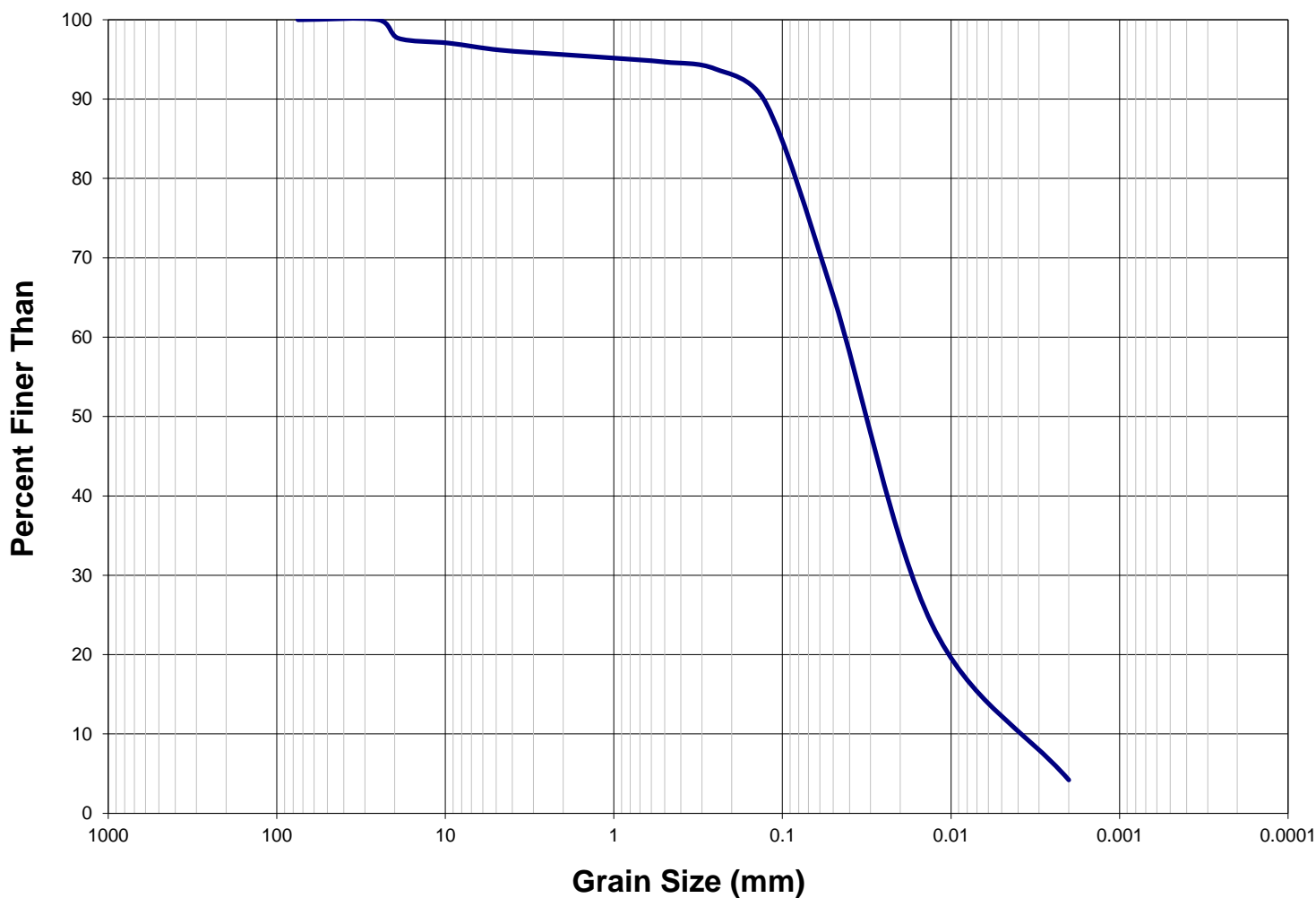
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.22	Clay
64 - 4	0.02	Pebble			
4 - 2	0.04	Granule			
2 - 1	0.22	Very coarse s			
1 - 0.5	0.31	Coarse sand			
0.5 - 0.25	0.72	Medium sand			
0.25 - 0.125	5.24	Fine sand			
0.125 - 0.0625	23.04	Very fine san			
0.0625 - 0.031	26.87	Coarse silt			
0.031 - 0.0156	18.05	Medium silt			
0.0156 - 0.0078	11.76	Fine silt			
0.0078 - 0.0039	6.53	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



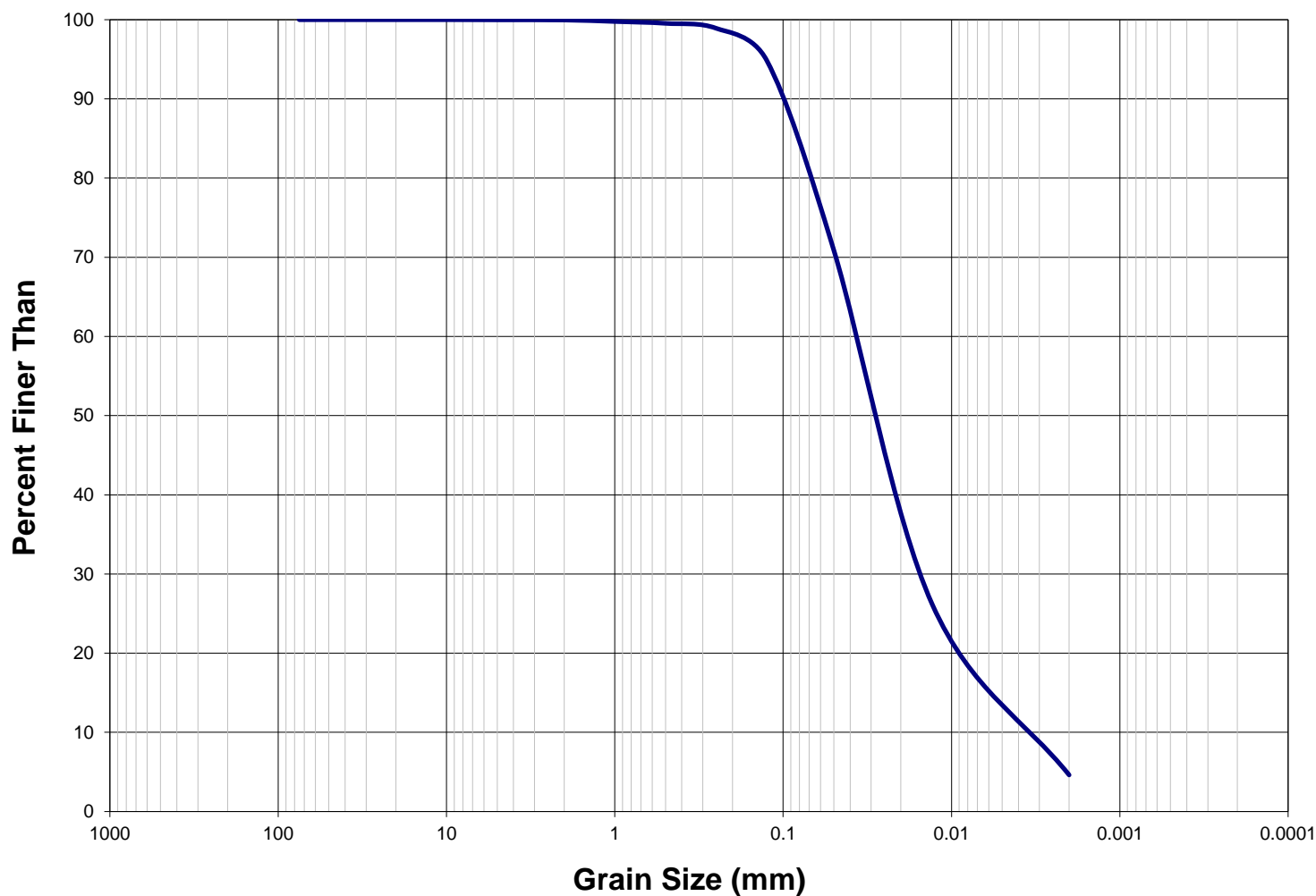
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.61	Clay
64 - 4	3.98	Pebble			
4 - 2	0.41	Granule			
2 - 1	0.44	Very coarse s			
1 - 0.5	0.50	Coarse sand			
0.5 - 0.25	0.87	Medium sand			
0.25 - 0.125	4.35	Fine sand			
0.125 - 0.0625	20.17	Very fine san			
0.0625 - 0.031	25.28	Coarse silt			
0.031 - 0.0156	17.22	Medium silt			
0.0156 - 0.0078	12.20	Fine silt			
0.0078 - 0.0039	6.97	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



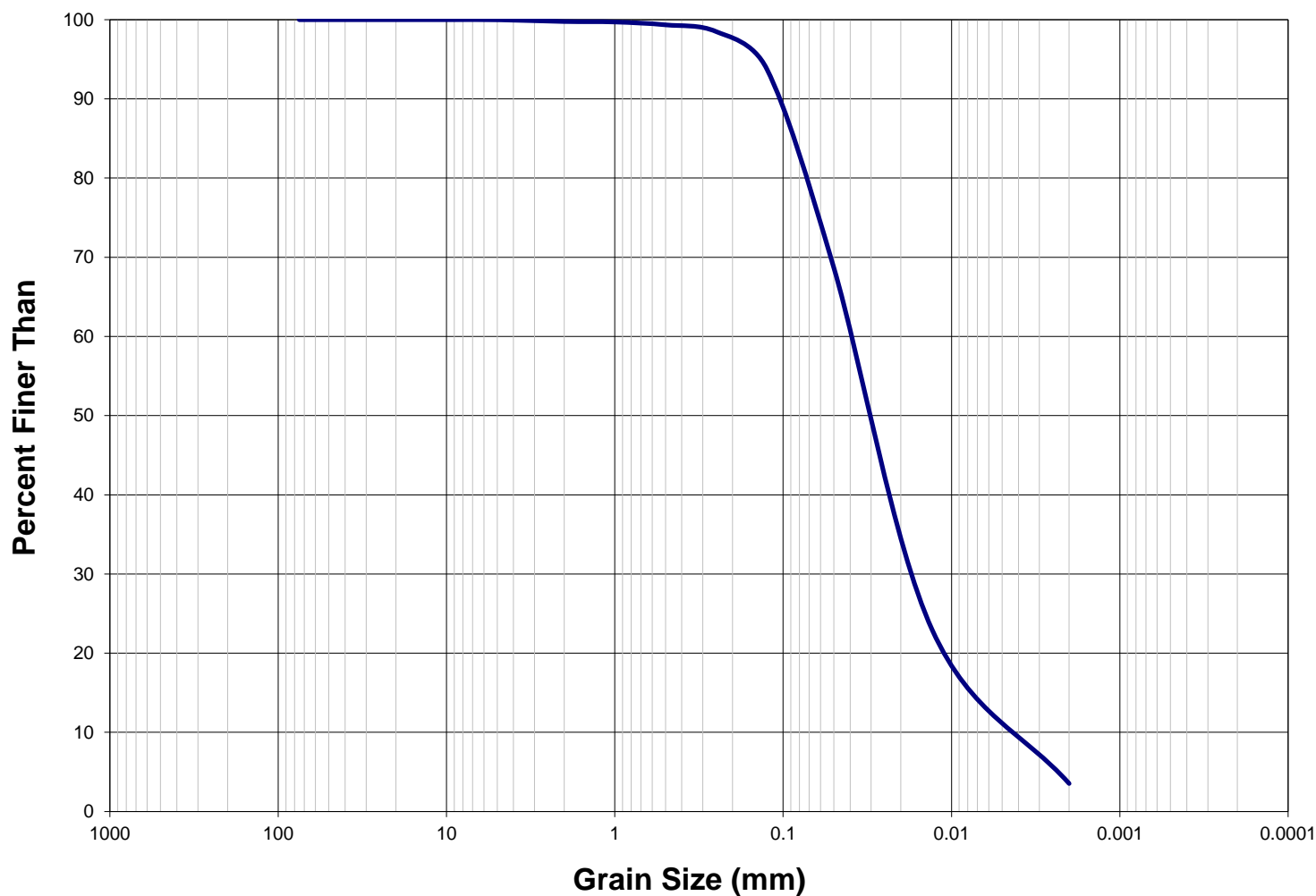
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	8.34	Clay
64 - 4	0.03	Pebble			
4 - 2	0.01	Granule			
2 - 1	0.19	Very coarse s			
1 - 0.5	0.23	Coarse sand			
0.5 - 0.25	0.63	Medium sand			
0.25 - 0.125	4.08	Fine sand			
0.125 - 0.0625	19.96	Very fine san			
0.0625 - 0.031	26.96	Coarse silt			
0.031 - 0.0156	18.62	Medium silt			
0.0156 - 0.0078	13.32	Fine silt			
0.0078 - 0.0039	7.63	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



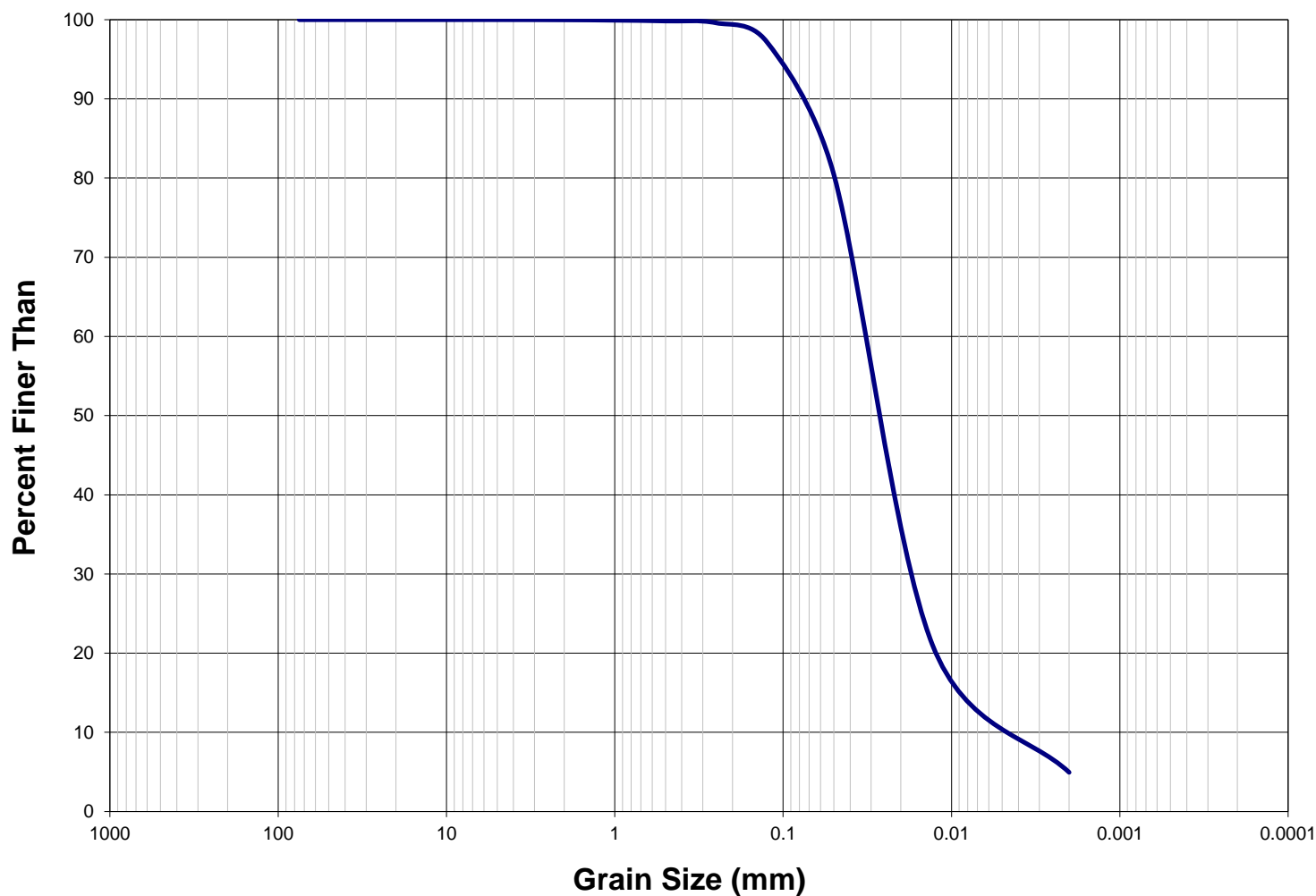
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.88	Clay
64 - 4	0.08	Pebble			
4 - 2	0.15	Granule			
2 - 1	0.06	Very coarse s			
1 - 0.5	0.36	Coarse sand			
0.5 - 0.25	0.85	Medium sand			
0.25 - 0.125	4.73	Fine sand			
0.125 - 0.0625	20.91	Very fine san			
0.0625 - 0.031	27.68	Coarse silt			
0.031 - 0.0156	19.05	Medium silt			
0.0156 - 0.0078	12.38	Fine silt			
0.0078 - 0.0039	6.87	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



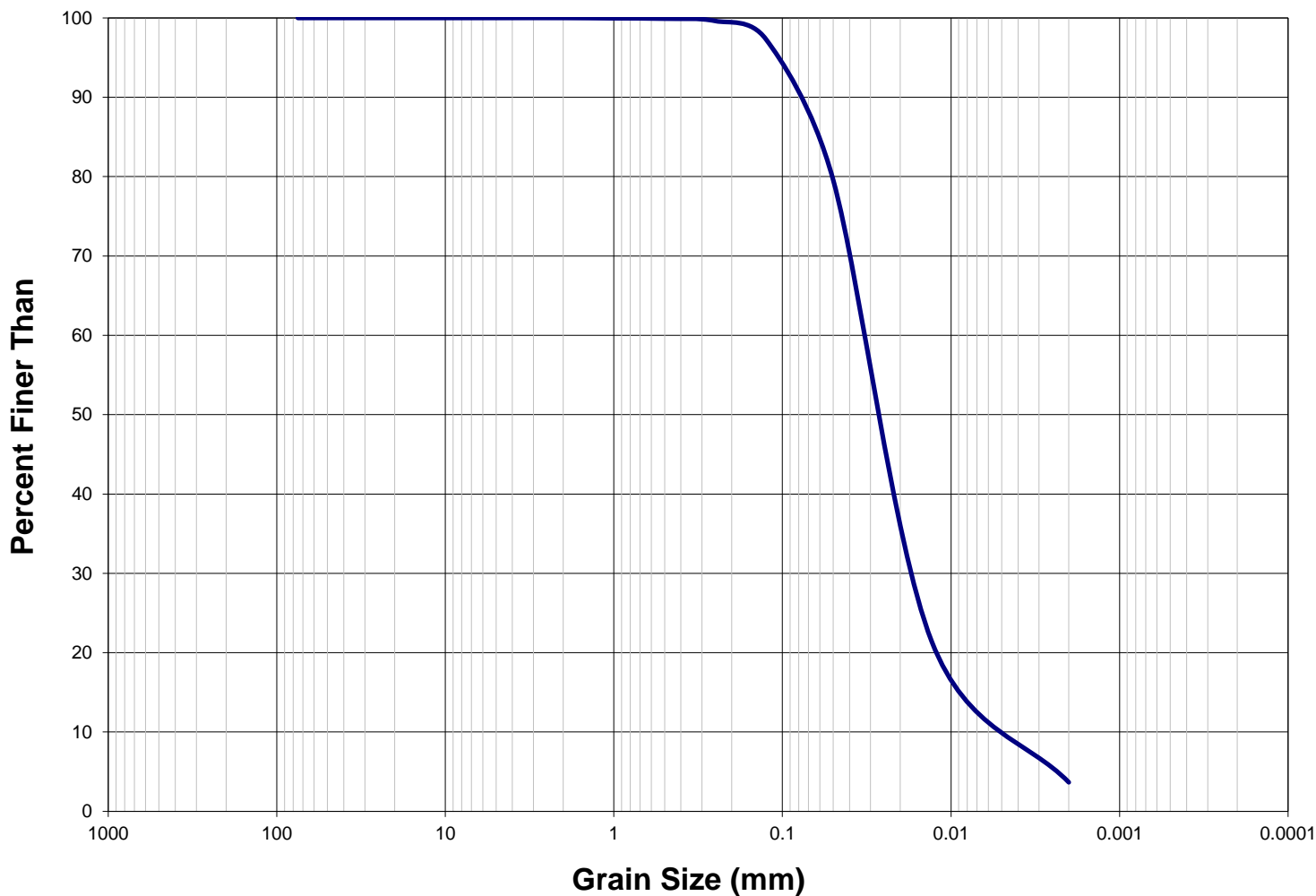
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.74	Clay
64 - 4	0.01	Pebble			
4 - 2	0.01	Granule			
2 - 1	0.05	Very coarse s			
1 - 0.5	0.10	Coarse sand			
0.5 - 0.25	0.24	Medium sand			
0.25 - 0.125	2.40	Fine sand			
0.125 - 0.0625	13.96	Very fine san			
0.0625 - 0.031	33.27	Coarse silt			
0.031 - 0.0156	24.70	Medium silt			
0.0156 - 0.0078	11.81	Fine silt			
0.0078 - 0.0039	5.73	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



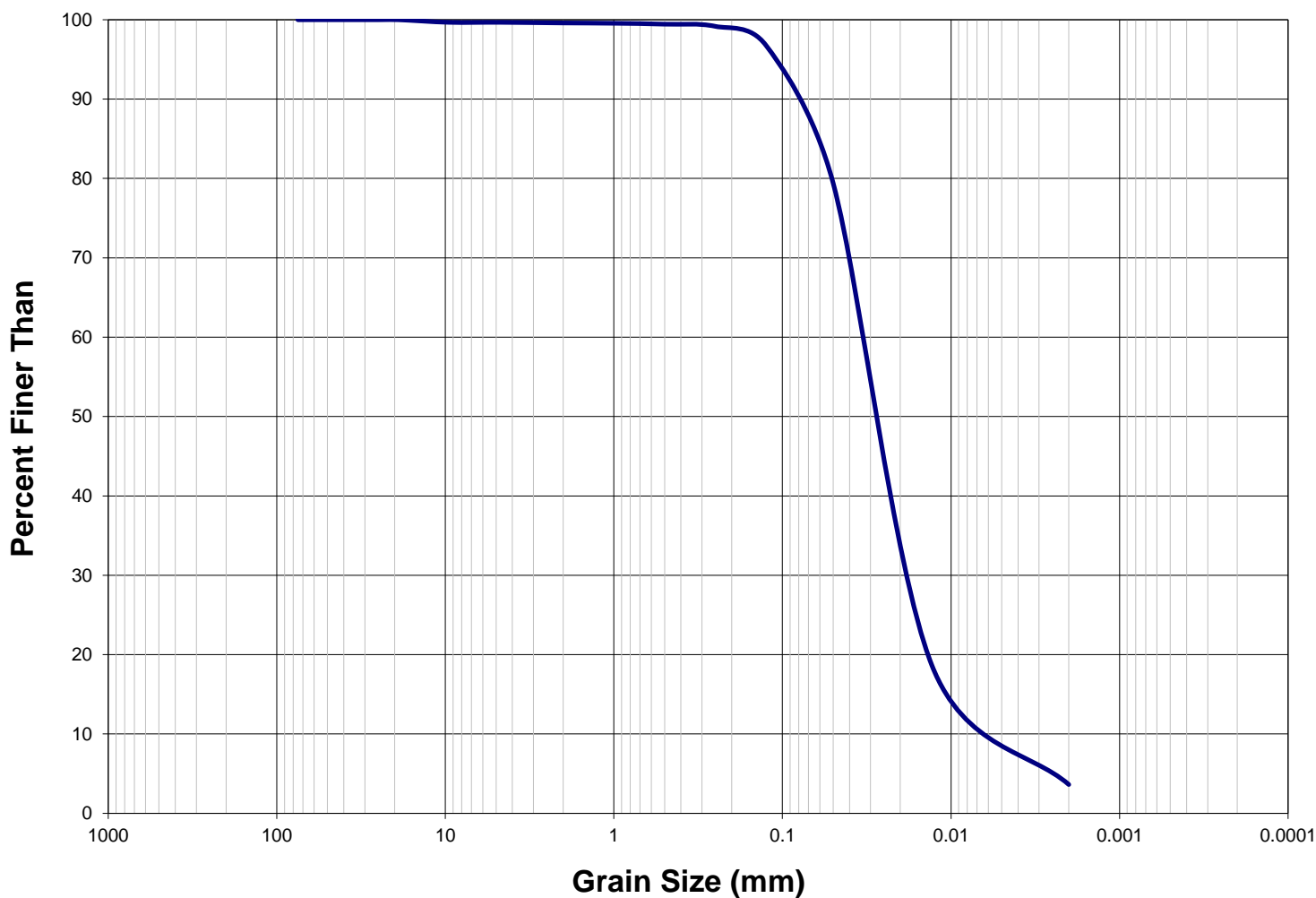
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.73	Clay
64 - 4	0.00	Pebble			
4 - 2	0.00	Granule			
2 - 1	0.04	Very coarse s			
1 - 0.5	0.05	Coarse sand			
0.5 - 0.25	0.29	Medium sand			
0.25 - 0.125	2.33	Fine sand			
0.125 - 0.0625	14.76	Very fine san			
0.0625 - 0.031	32.83	Coarse silt			
0.031 - 0.0156	24.22	Medium silt			
0.0156 - 0.0078	12.47	Fine silt			
0.0078 - 0.0039	6.29	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



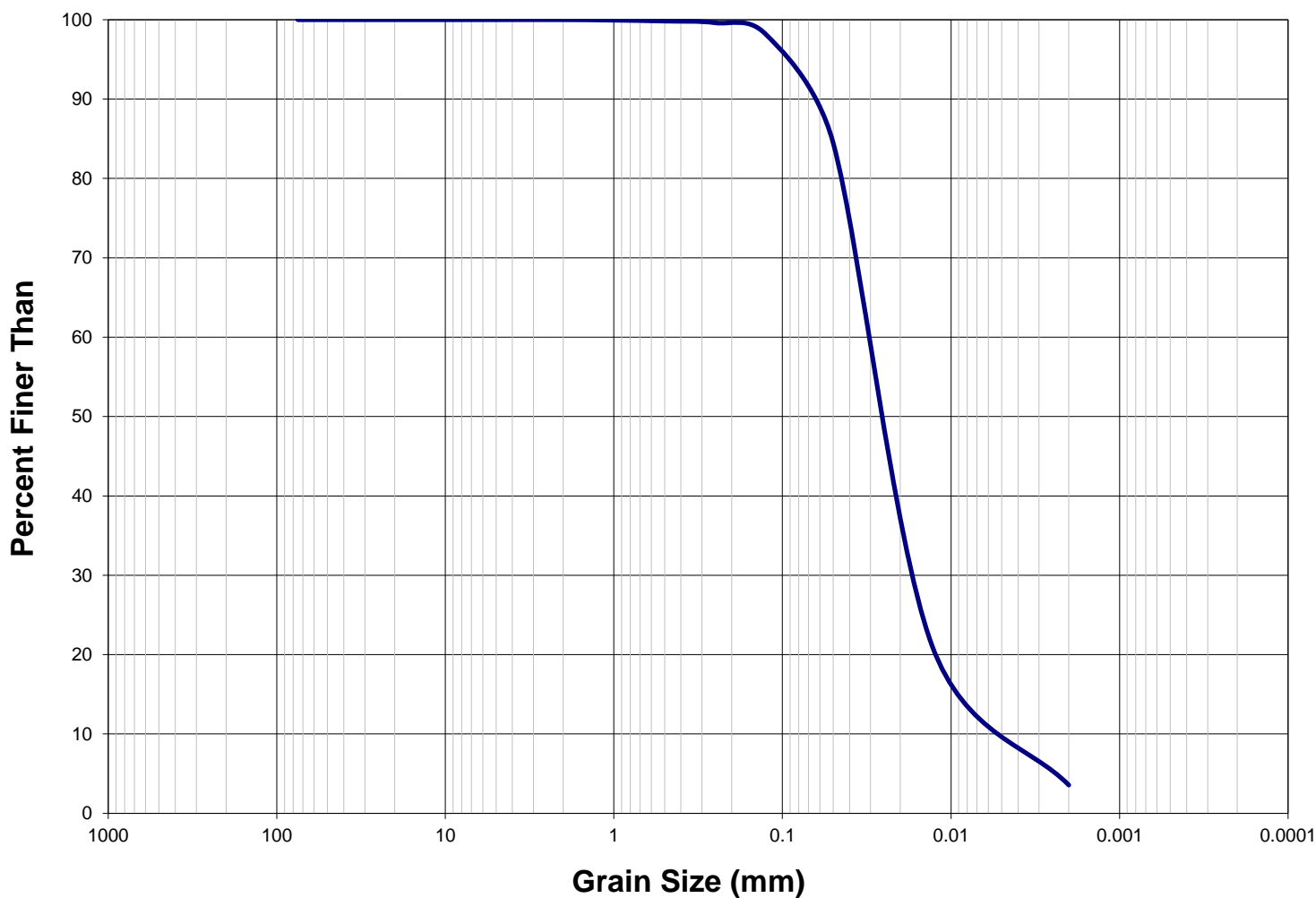
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.23	Clay
64 - 4	0.35	Pebble			
4 - 2	0.06	Granule			
2 - 1	0.04	Very coarse s			
1 - 0.5	0.11	Coarse sand			
0.5 - 0.25	0.27	Medium sand			
0.25 - 0.125	2.41	Fine sand			
0.125 - 0.0625	14.46	Very fine san			
0.0625 - 0.031	34.07	Coarse silt			
0.031 - 0.0156	25.27	Medium silt			
0.0156 - 0.0078	11.39	Fine silt			
0.0078 - 0.0039	5.34	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



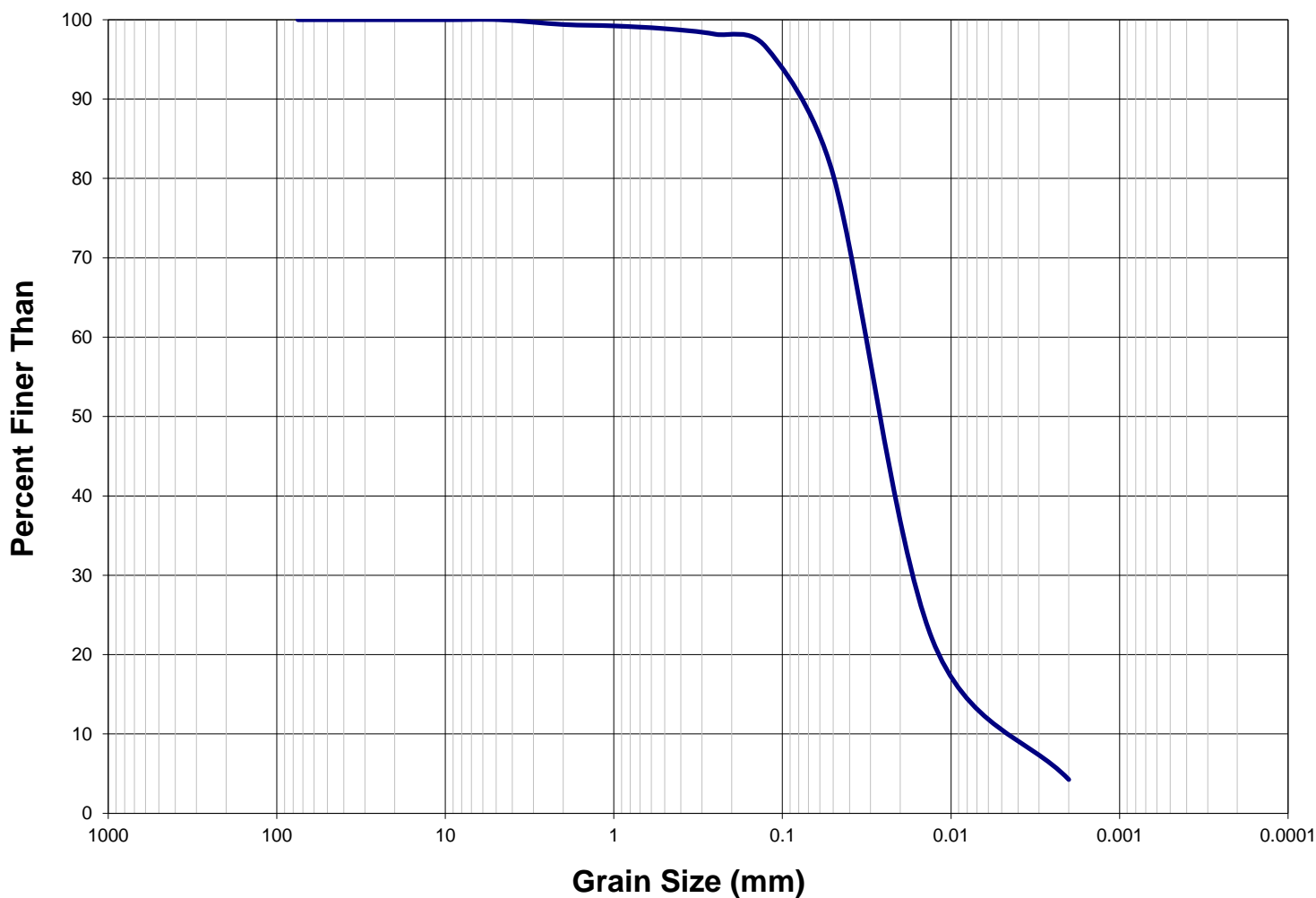
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.61	Clay
64 - 4	0.00	Pebble			
4 - 2	0.00	Granule			
2 - 1	0.06	Very coarse s			
1 - 0.5	0.12	Coarse sand			
0.5 - 0.25	0.21	Medium sand			
0.25 - 0.125	1.48	Fine sand			
0.125 - 0.0625	11.37	Very fine san			
0.0625 - 0.031	34.75	Coarse silt			
0.031 - 0.0156	26.33	Medium silt			
0.0156 - 0.0078	12.80	Fine silt			
0.0078 - 0.0039	6.27	Very fine silt			

Texture: Silt



Particle Size Distribution Curve



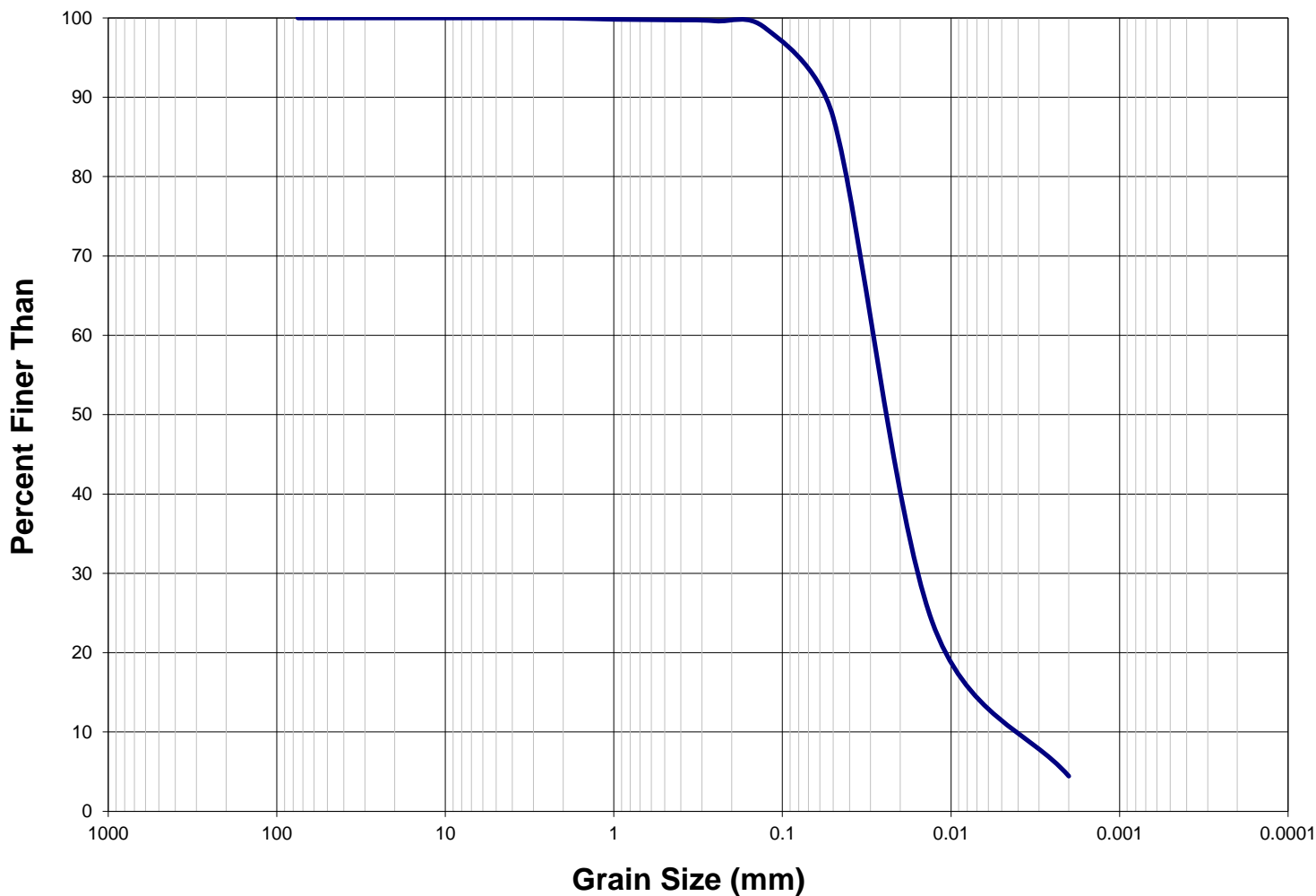
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.34	Clay
64 - 4	0.16	Pebble			
4 - 2	0.43	Granule			
2 - 1	0.18	Very coarse s			
1 - 0.5	0.35	Coarse sand			
0.5 - 0.25	0.70	Medium sand			
0.25 - 0.125	1.64	Fine sand			
0.125 - 0.0625	13.40	Very fine san			
0.0625 - 0.031	32.65	Coarse silt			
0.031 - 0.0156	24.29	Medium silt			
0.0156 - 0.0078	12.53	Fine silt			
0.0078 - 0.0039	6.32	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



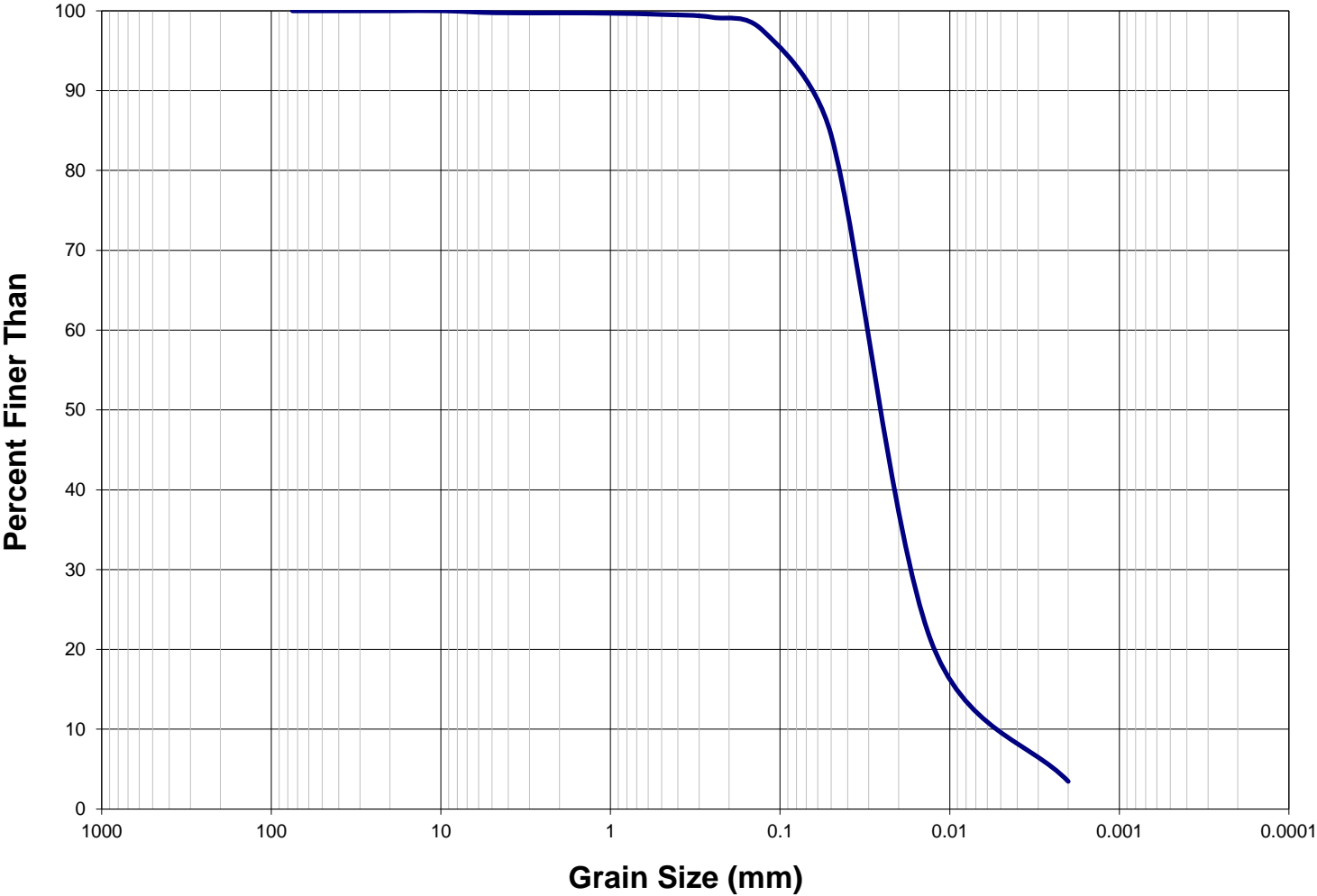
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.83	Clay
64 - 4	0.01	Pebble			
4 - 2	0.02	Granule			
2 - 1	0.15	Very coarse s			
1 - 0.5	0.07	Coarse sand			
0.5 - 0.25	0.14	Medium sand			
0.25 - 0.125	0.97	Fine sand			
0.125 - 0.0625	9.30	Very fine san			
0.0625 - 0.031	34.44	Coarse silt			
0.031 - 0.0156	26.41	Medium silt			
0.0156 - 0.0078	13.72	Fine silt			
0.0078 - 0.0039	6.95	Very fine silt			

Texture: Silt



Particle Size Distribution Curve



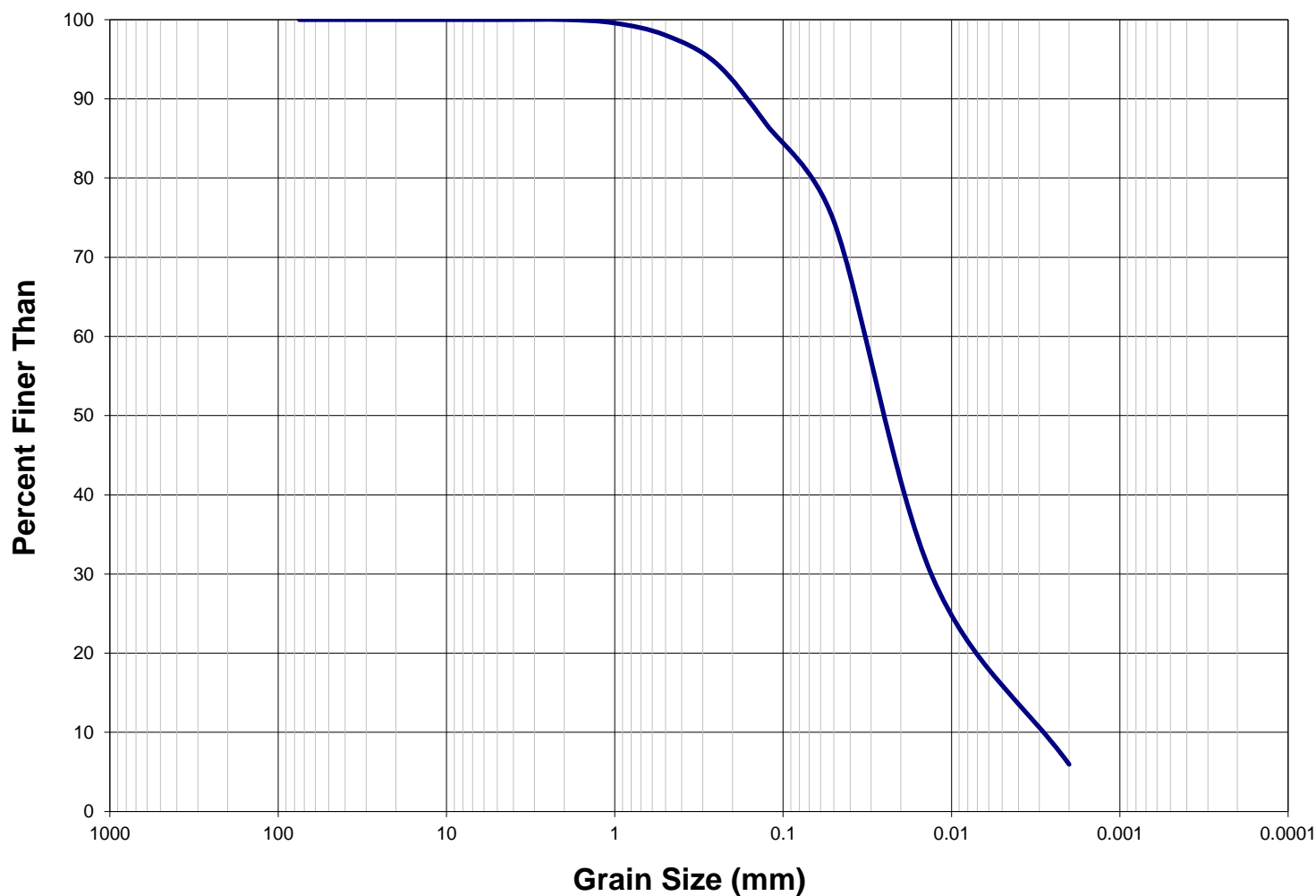
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.54	Clay
64 - 4	0.25	Pebble			
4 - 2	0.01	Granule			
2 - 1	0.04	Very coarse s			
1 - 0.5	0.15	Coarse sand			
0.5 - 0.25	0.37	Medium sand			
0.25 - 0.125	1.75	Fine sand			
0.125 - 0.0625	10.83	Very fine san			
0.0625 - 0.031	34.59	Coarse silt			
0.031 - 0.0156	26.28	Medium silt			
0.0156 - 0.0078	12.86	Fine silt			
0.0078 - 0.0039	6.32	Very fine silt			

Texture: Silt



Particle Size Distribution Curve



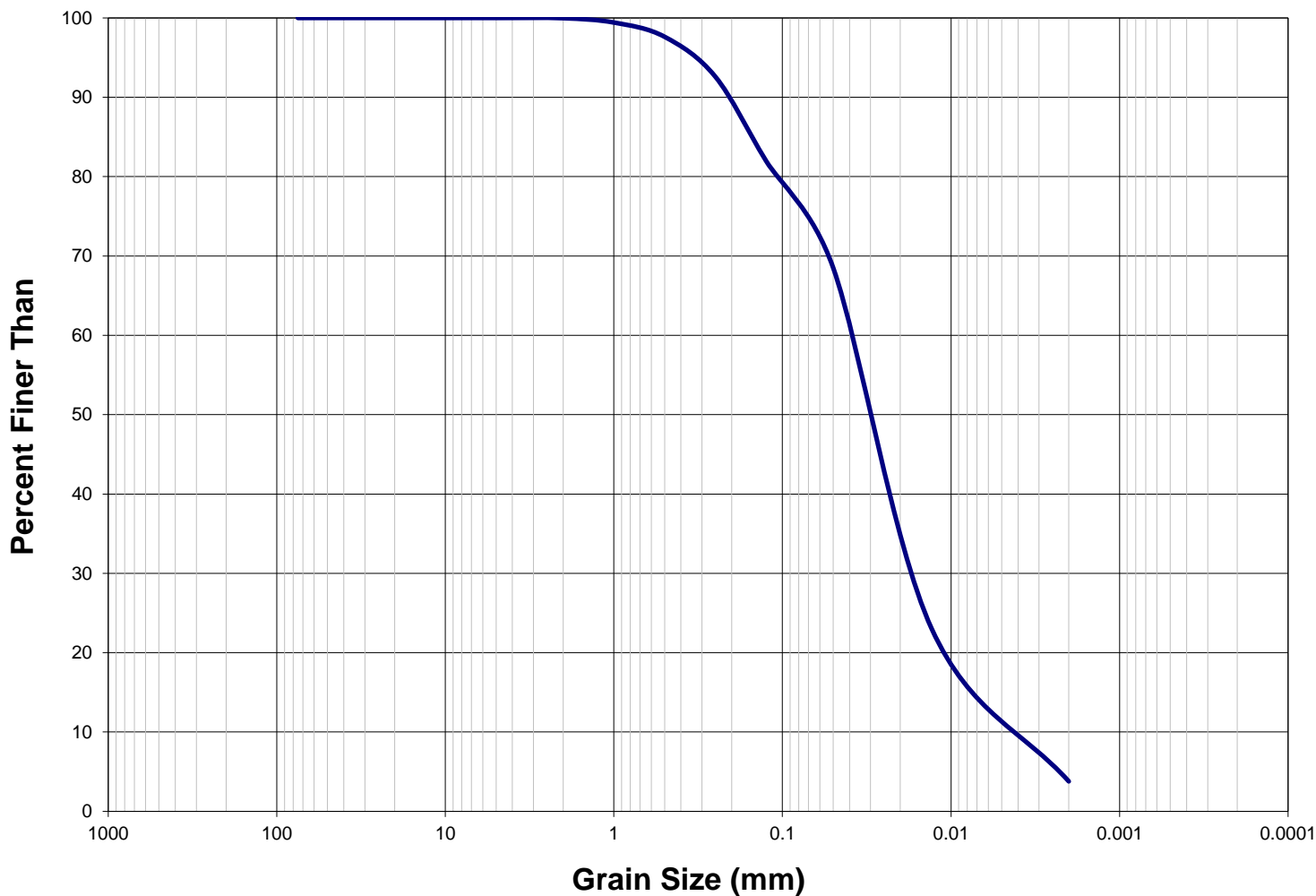
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	10.05	Clay
64 - 4	0.00	Pebble			
4 - 2	0.00	Granule			
2 - 1	0.43	Very coarse s			
1 - 0.5	1.53	Coarse sand			
0.5 - 0.25	3.54	Medium sand			
0.25 - 0.125	7.78	Fine sand			
0.125 - 0.0625	10.13	Very fine san			
0.0625 - 0.031	25.08	Coarse silt			
0.031 - 0.0156	18.68	Medium silt			
0.0156 - 0.0078	14.36	Fine silt			
0.0078 - 0.0039	8.41	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



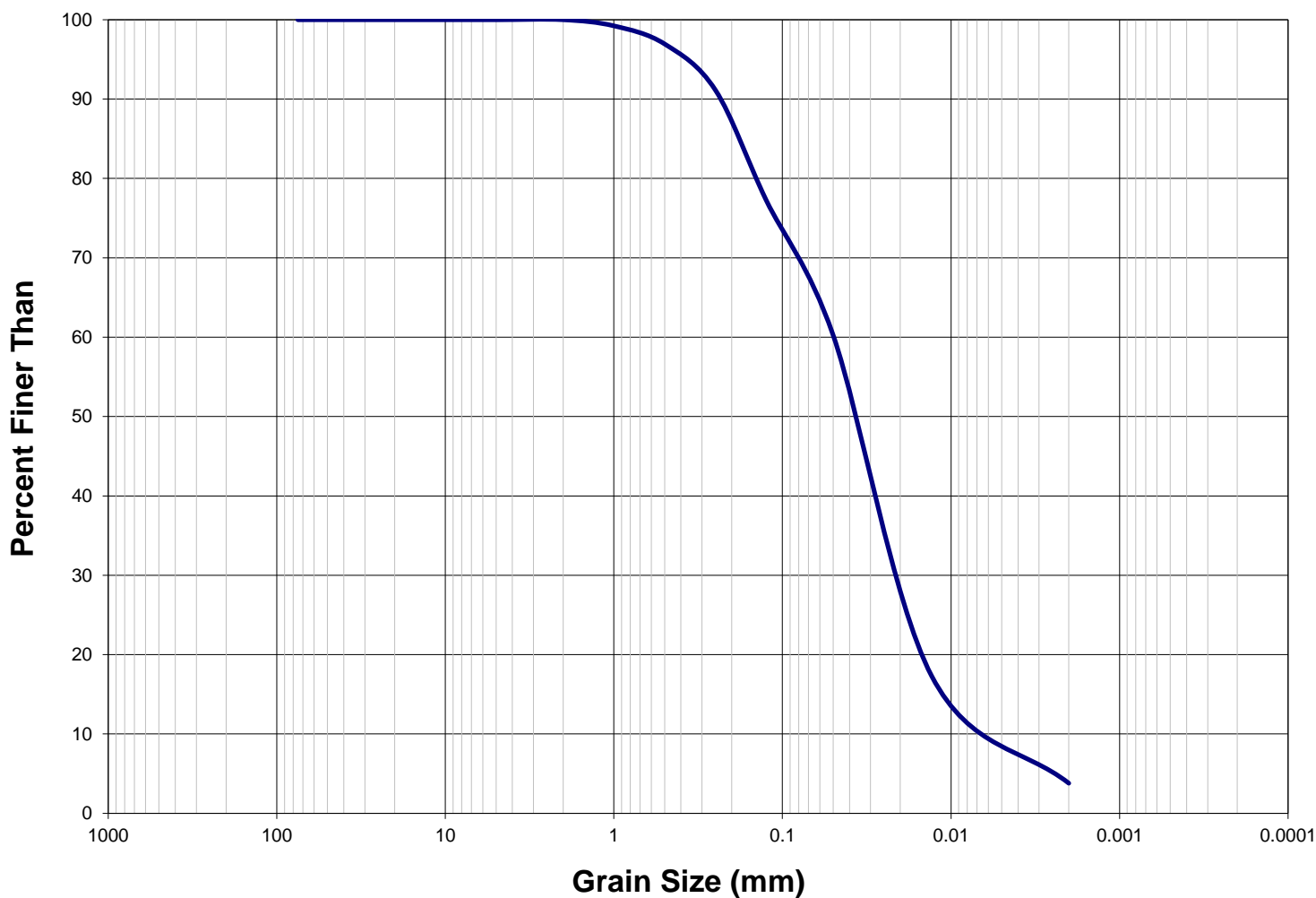
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.10	Clay
64 - 4	0.01	Pebble			
4 - 2	0.02	Granule			
2 - 1	0.55	Very coarse s			
1 - 0.5	1.80	Coarse sand			
0.5 - 0.25	5.03	Medium sand			
0.25 - 0.125	10.62	Fine sand			
0.125 - 0.0625	11.22	Very fine san			
0.0625 - 0.031	25.62	Coarse silt			
0.031 - 0.0156	18.95	Medium silt			
0.0156 - 0.0078	12.28	Fine silt			
0.0078 - 0.0039	6.81	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



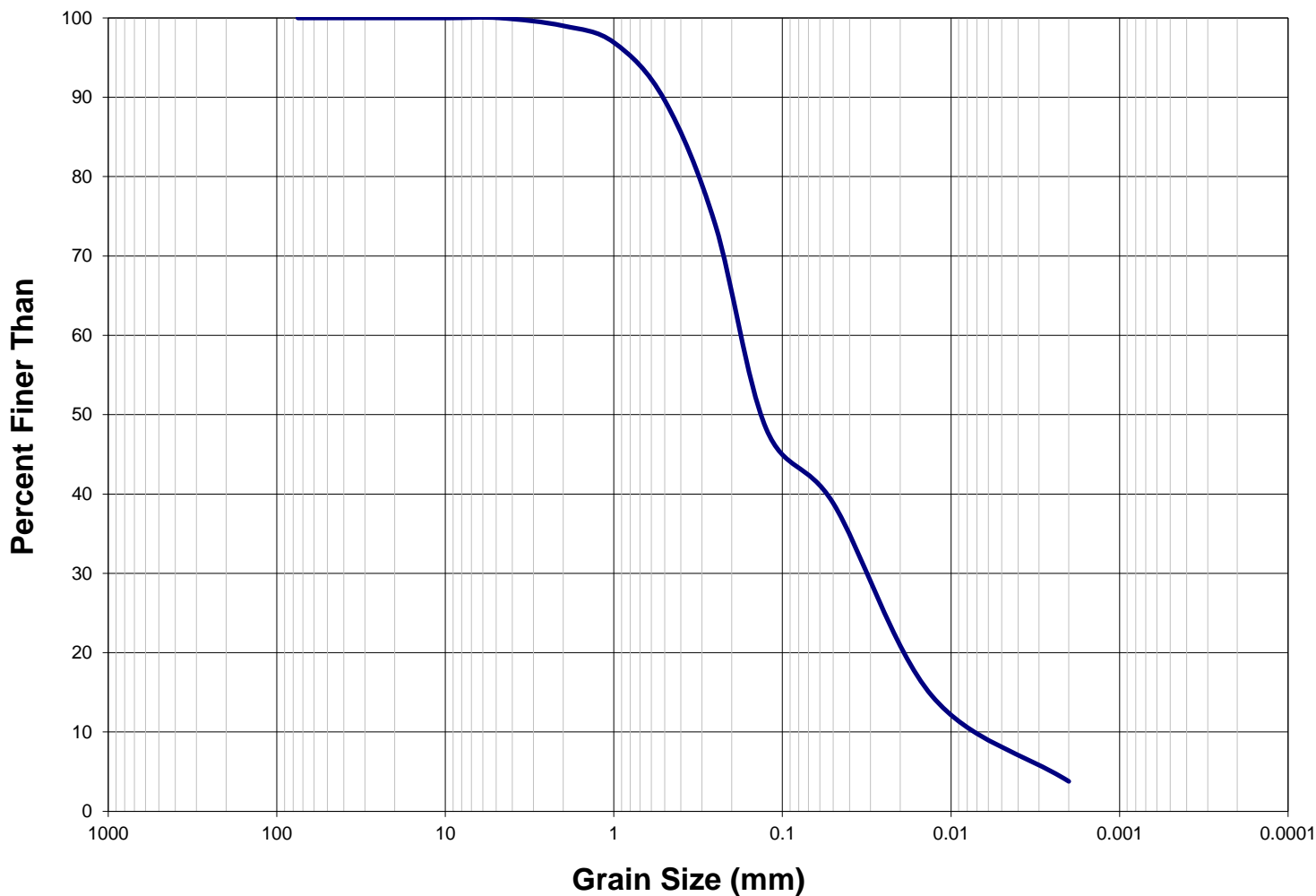
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.13	Clay
64 - 4	0.00	Pebble			
4 - 2	0.00	Granule			
2 - 1	0.77	Very coarse s			
1 - 0.5	2.28	Coarse sand			
0.5 - 0.25	5.80	Medium sand			
0.25 - 0.125	13.86	Fine sand			
0.125 - 0.0625	14.20	Very fine san			
0.0625 - 0.031	24.90	Coarse silt			
0.031 - 0.0156	17.88	Medium silt			
0.0156 - 0.0078	9.39	Fine silt			
0.0078 - 0.0039	4.78	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



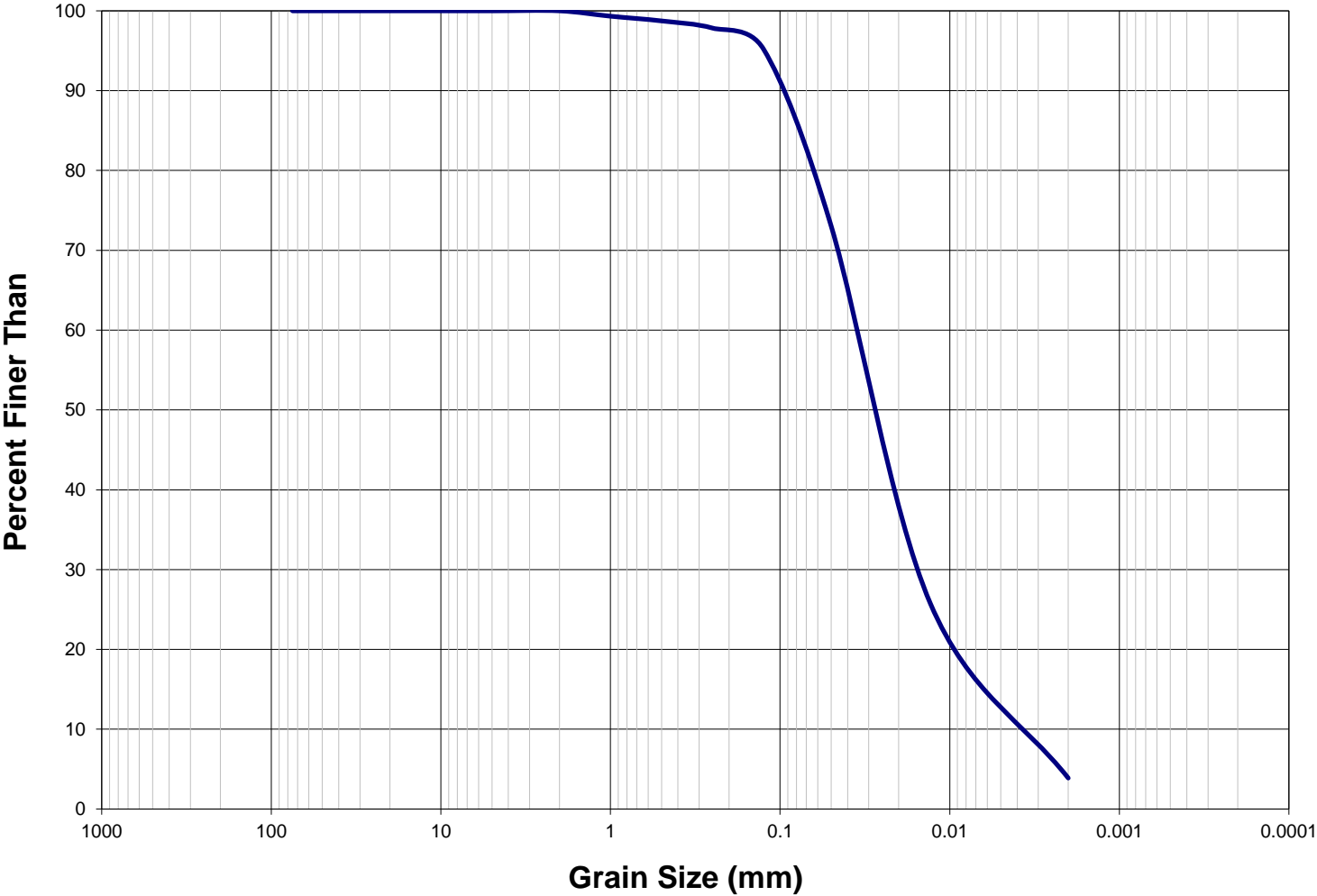
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	5.65	Clay
64 - 4	0.27	Pebble			
4 - 2	0.72	Granule			
2 - 1	2.10	Very coarse s			
1 - 0.5	7.28	Coarse sand			
0.5 - 0.25	15.71	Medium sand			
0.25 - 0.125	25.66	Fine sand			
0.125 - 0.0625	7.84	Very fine san			
0.0625 - 0.031	14.03	Coarse silt			
0.031 - 0.0156	10.10	Medium silt			
0.0156 - 0.0078	6.81	Fine silt			
0.0078 - 0.0039	3.83	Very fine silt			

Texture: Sandy loam



Particle Size Distribution Curve



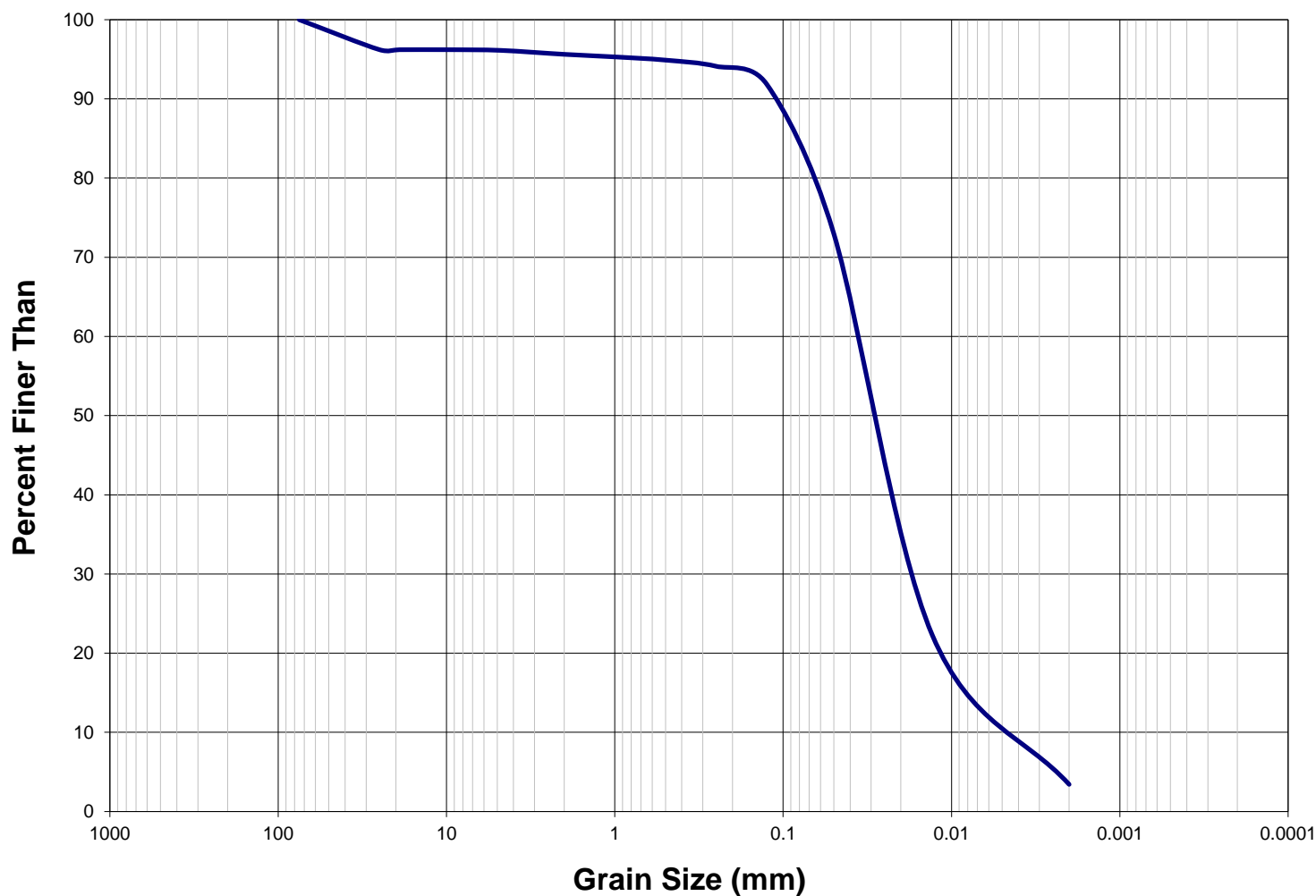
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.66	Clay
64 - 4	0.00	Pebble			
4 - 2	0.00	Granule			
2 - 1	0.67	Very coarse s			
1 - 0.5	0.59	Coarse sand			
0.5 - 0.25	0.90	Medium sand			
0.25 - 0.125	2.66	Fine sand			
0.125 - 0.0625	18.44	Very fine san			
0.0625 - 0.031	27.97	Coarse silt			
0.031 - 0.0156	19.68	Medium silt			
0.0156 - 0.0078	13.66	Fine silt			
0.0078 - 0.0039	7.75	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



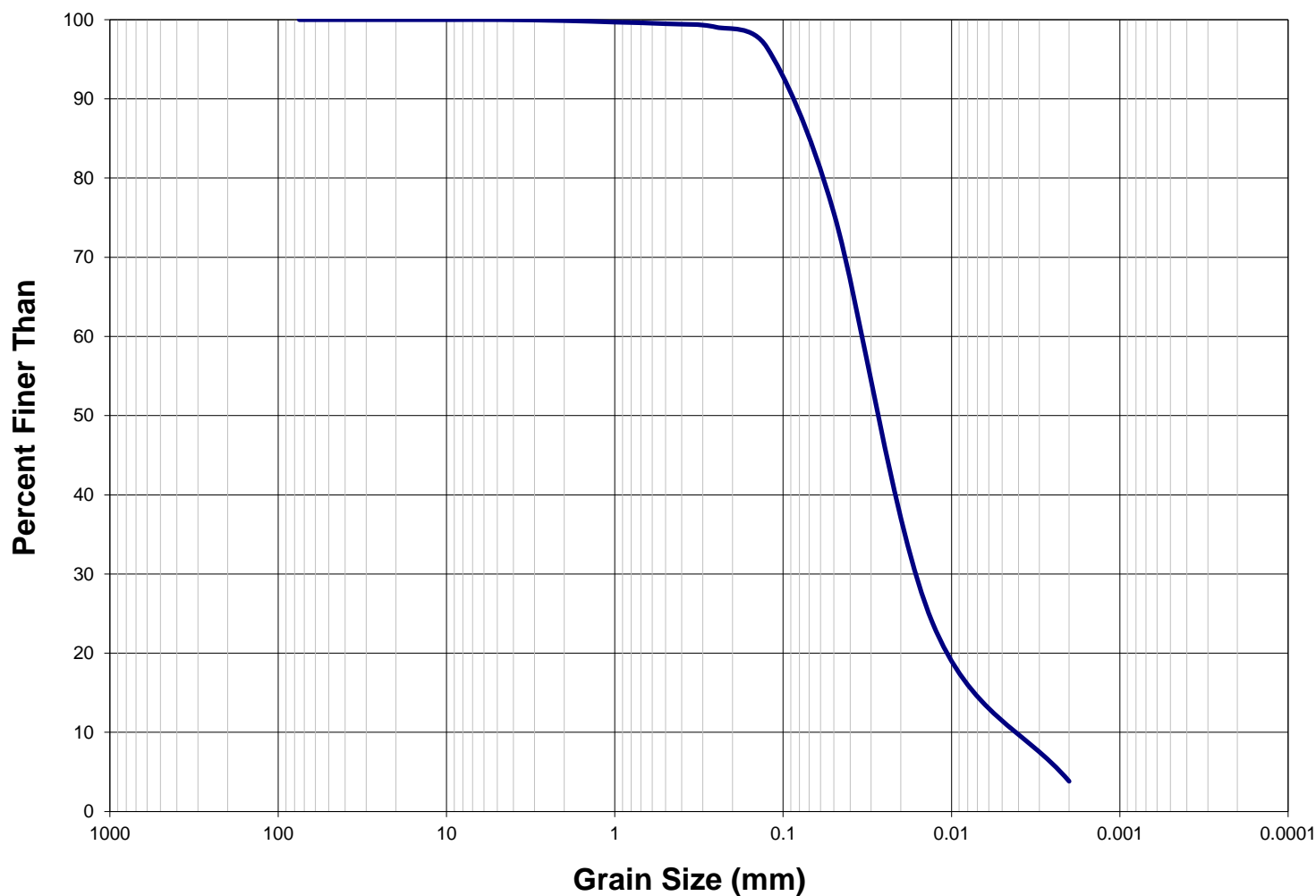
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.83	Cobble	<0.0039	6.69	Clay
64 - 4	3.18	Pebble			
4 - 2	0.36	Granule			
2 - 1	0.33	Very coarse s			
1 - 0.5	0.40	Coarse sand			
0.5 - 0.25	0.78	Medium sand			
0.25 - 0.125	2.28	Fine sand			
0.125 - 0.0625	15.72	Very fine san			
0.0625 - 0.031	29.17	Coarse silt			
0.031 - 0.0156	21.10	Medium silt			
0.0156 - 0.0078	12.47	Fine silt			
0.0078 - 0.0039	6.68	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



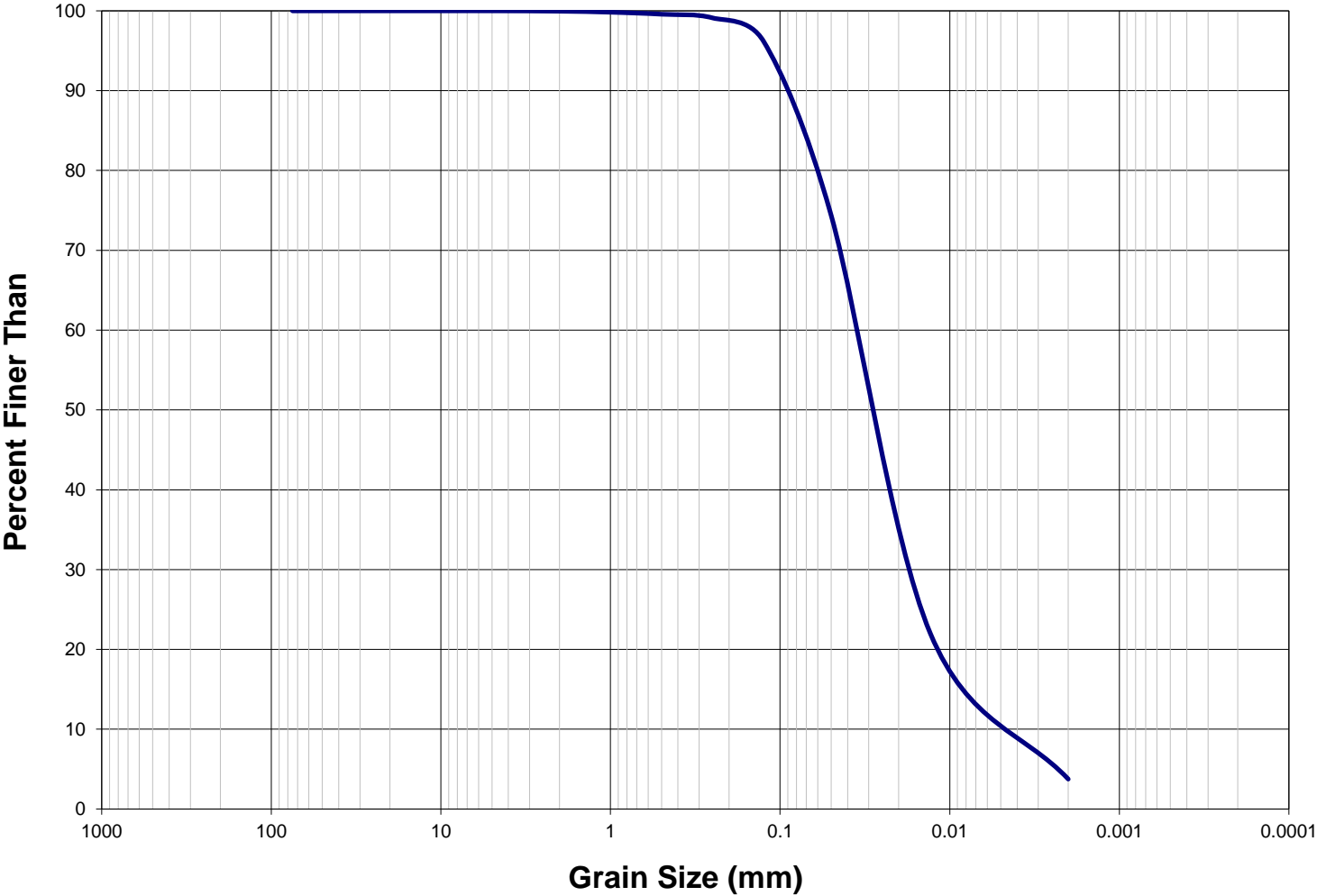
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.29	Clay
64 - 4	0.03	Pebble			
4 - 2	0.09	Granule			
2 - 1	0.19	Very coarse s			
1 - 0.5	0.20	Coarse sand			
0.5 - 0.25	0.44	Medium sand			
0.25 - 0.125	2.54	Fine sand			
0.125 - 0.0625	17.42	Very fine san			
0.0625 - 0.031	30.03	Coarse silt			
0.031 - 0.0156	21.52	Medium silt			
0.0156 - 0.0078	13.13	Fine silt			
0.0078 - 0.0039	7.12	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



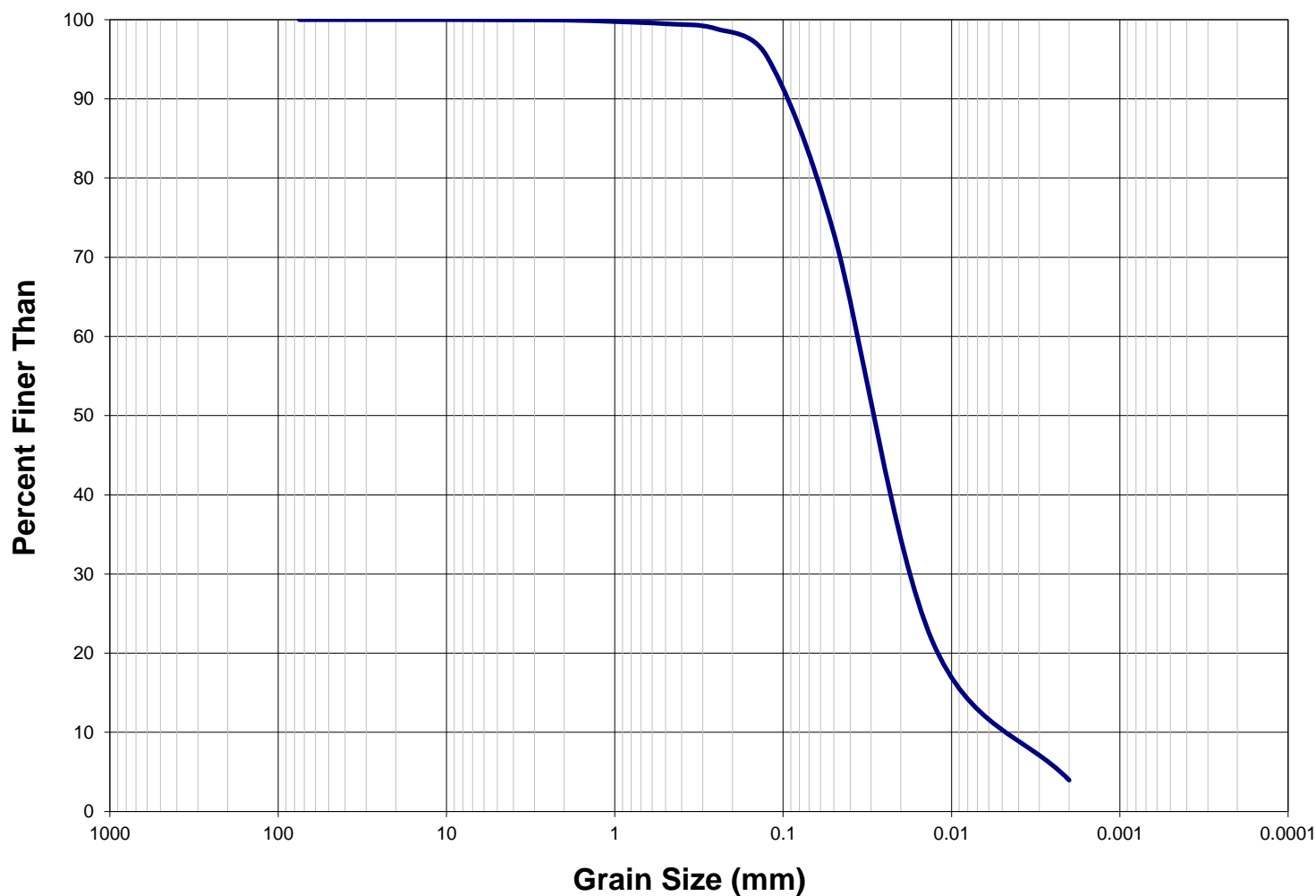
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.91	Clay
64 - 4	0.01	Pebble			
4 - 2	0.03	Granule			
2 - 1	0.13	Very coarse s			
1 - 0.5	0.25	Coarse sand			
0.5 - 0.25	0.47	Medium sand			
0.25 - 0.125	2.95	Fine sand			
0.125 - 0.0625	18.15	Very fine san			
0.0625 - 0.031	30.53	Coarse silt			
0.031 - 0.0156	21.80	Medium silt			
0.0156 - 0.0078	12.30	Fine silt			
0.0078 - 0.0039	6.47	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



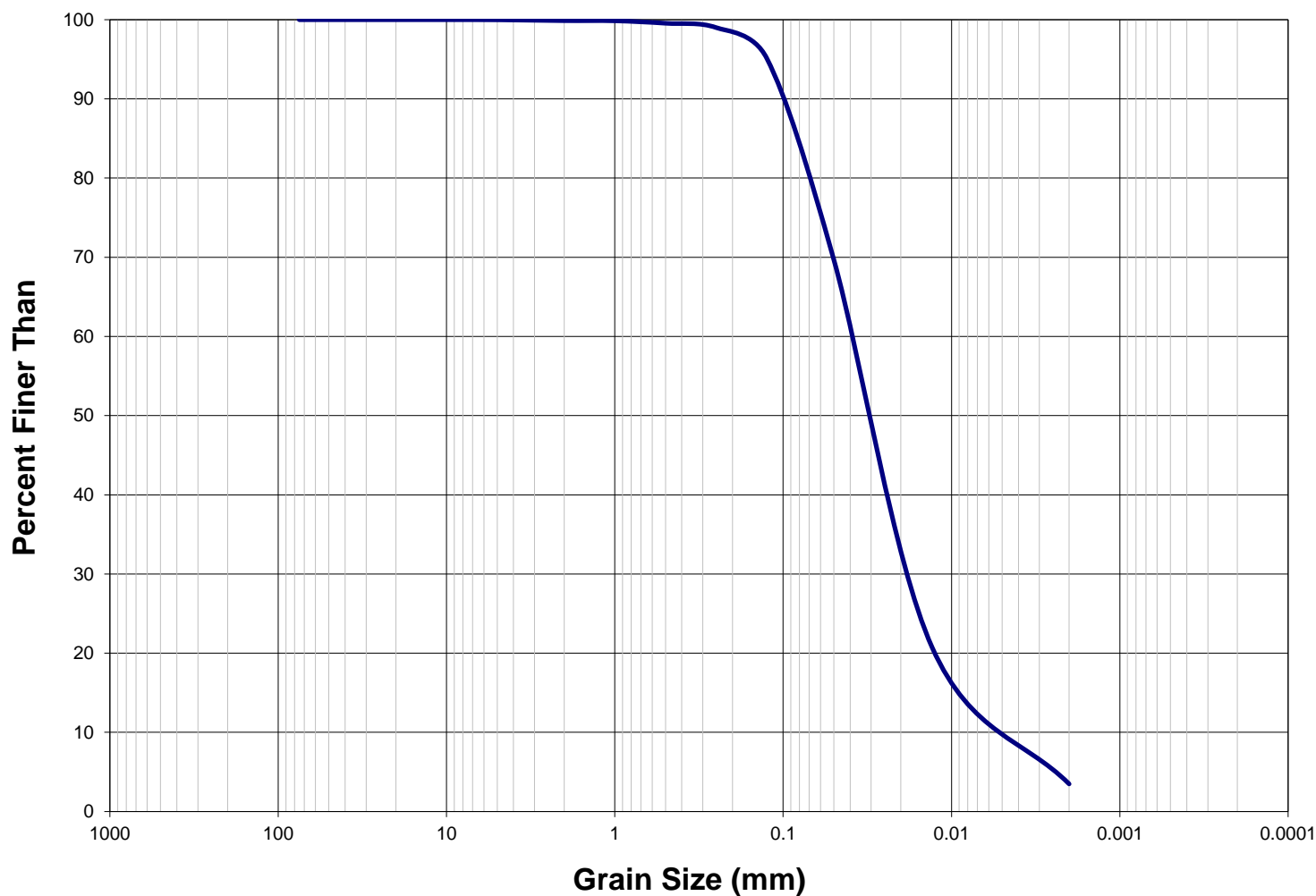
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.00	Clay
64 - 4	0.04	Pebble			
4 - 2	0.02	Granule			
2 - 1	0.18	Very coarse s			
1 - 0.5	0.28	Coarse sand			
0.5 - 0.25	0.63	Medium sand			
0.25 - 0.125	3.47	Fine sand			
0.125 - 0.0625	18.63	Very fine san			
0.0625 - 0.031	30.16	Coarse silt			
0.031 - 0.0156	21.43	Medium silt			
0.0156 - 0.0078	11.92	Fine silt			
0.0078 - 0.0039	6.23	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



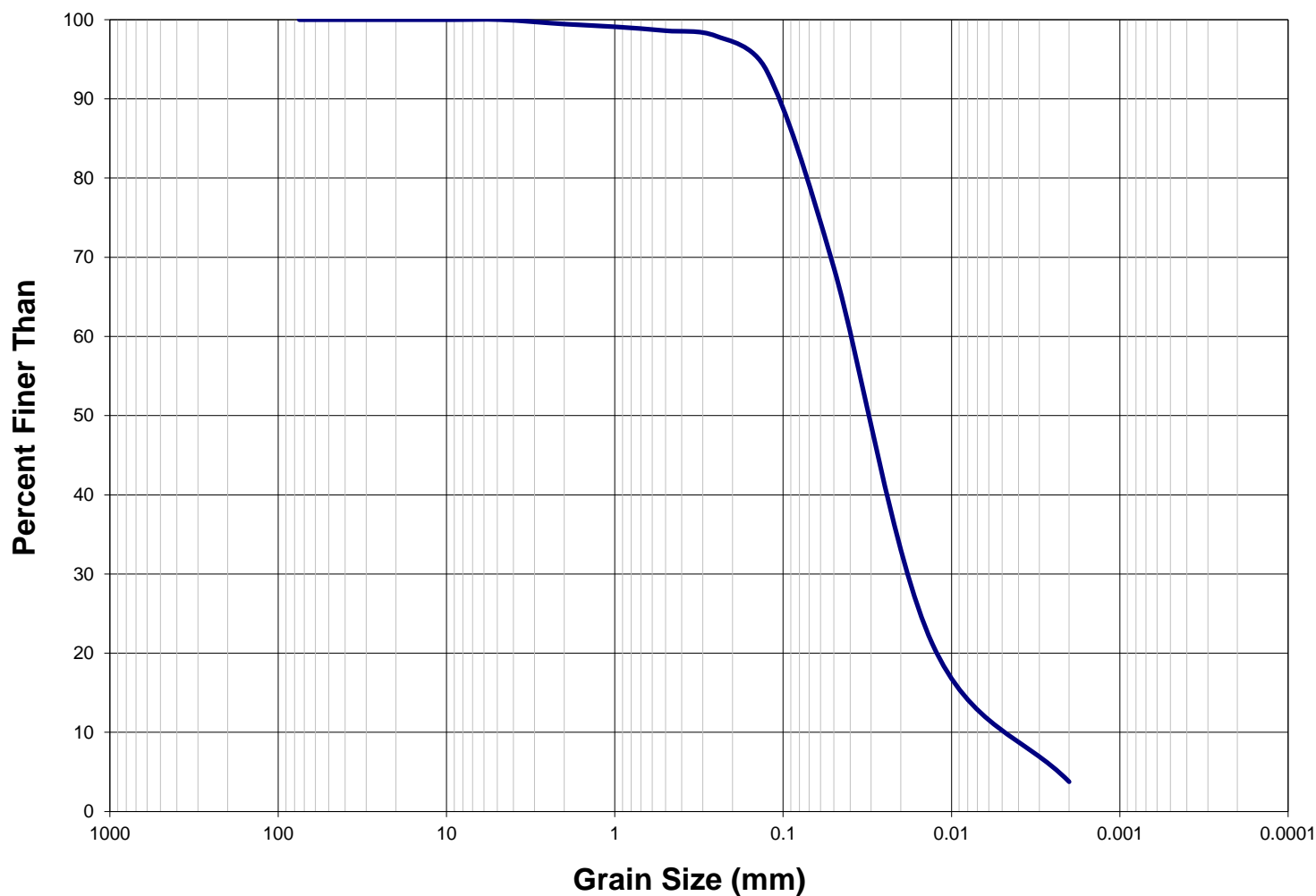
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.46	Clay
64 - 4	0.05	Pebble			
4 - 2	0.07	Granule			
2 - 1	0.02	Very coarse s			
1 - 0.5	0.31	Coarse sand			
0.5 - 0.25	0.55	Medium sand			
0.25 - 0.125	3.89	Fine sand			
0.125 - 0.0625	21.18	Very fine san			
0.0625 - 0.031	29.40	Coarse silt			
0.031 - 0.0156	20.40	Medium silt			
0.0156 - 0.0078	11.57	Fine silt			
0.0078 - 0.0039	6.10	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



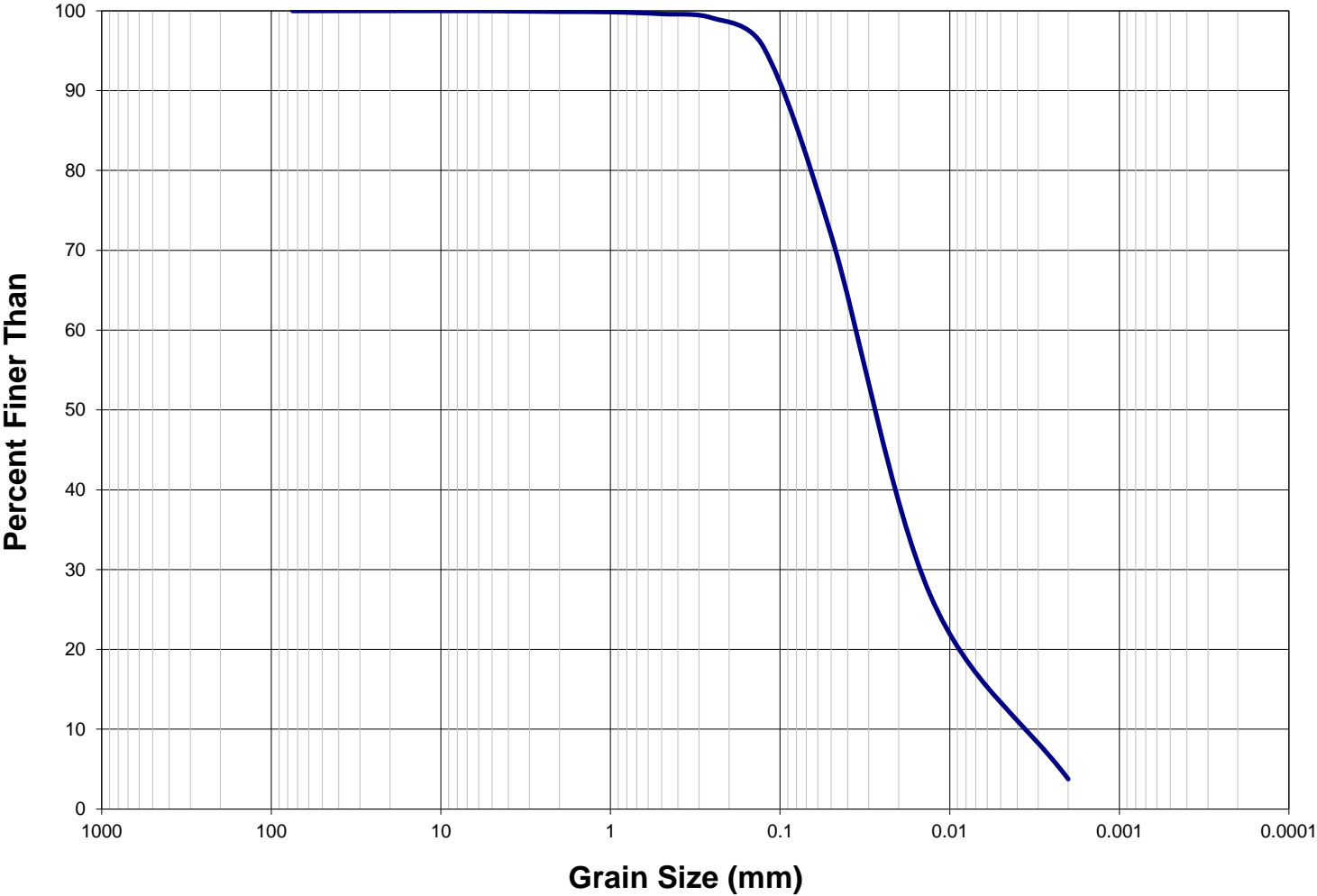
Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	6.77	Clay
64 - 4	0.15	Pebble			
4 - 2	0.40	Granule			
2 - 1	0.35	Very coarse s			
1 - 0.5	0.49	Coarse sand			
0.5 - 0.25	0.68	Medium sand			
0.25 - 0.125	4.41	Fine sand			
0.125 - 0.0625	20.69	Very fine san			
0.0625 - 0.031	28.53	Coarse silt			
0.031 - 0.0156	19.77	Medium silt			
0.0156 - 0.0078	11.58	Fine silt			
0.0078 - 0.0039	6.18	Very fine silt			

Texture: Silt loam



Particle Size Distribution Curve



Particle Size Distribution

Range (mm)	Wt. (%)	Class	Range (mm)	Wt. (%)	Class
> 64	0.00	Cobble	<0.0039	7.73	Clay
64 - 4	0.04	Pebble			
4 - 2	0.06	Granule			
2 - 1	0.04	Very coarse s			
1 - 0.5	0.24	Coarse sand			
0.5 - 0.25	0.52	Medium sand			
0.25 - 0.125	3.68	Fine sand			
0.125 - 0.0625	19.59	Very fine san			
0.0625 - 0.031	27.10	Coarse silt			
0.031 - 0.0156	18.79	Medium silt			
0.0156 - 0.0078	14.05	Fine silt			
0.0078 - 0.0039	8.16	Very fine silt			

Texture: Silt loam



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Page 1 of 3

Report To			Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)																																																																																																																																																																																																																																				
Company: Agnico Eagle Mines			Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT If received by 3pm)																																																																																																																																																																																																																																				
Contact: Jennifer Brown			Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 business days if received by 3pm)																																																																																																																																																																																																																																				
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Phone: 1-819-759-7555 ext 4603946			Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge.																																																																																																																																																																																																																																				
			Email 1 or Fax arman-ospan@golder.com			Specify Date Required for E2, E or P:																																																																																																																																																																																																																																				
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Company: Agnico Eagle & Golder			Email 1 or Fax invoices.meliadine@agnico.eagle.com			<table border="1"><thead><tr><th>TOC</th><th>Total Metals</th><th>Diss. Metals</th><th>Total + Diss Nutrients</th><th>Total + Diss Hg</th><th>PSA (Westworth)</th><th colspan="10"></th><th rowspan="5">Number of Containers</th></tr></thead><tbody><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>												TOC	Total Metals	Diss. Metals	Total + Diss Nutrients	Total + Diss Hg	PSA (Westworth)											Number of Containers	X	X	X	X	X	X										X	X	X	X	X	X										X	X	X	X	X	X										X	X	X	X	X	X																																																																																																																																																					
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Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			CCME criteria; contact erichard@golder.com for FINAL ANALYSIS																																																																																																																																																																																																																																							
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White Paper Co. 604 951-3900

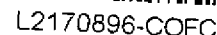
Failure to complete all portions of this form may delay analysis. Please fill in this form I FGBI Y. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

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

NA-EU-0226-1-08 Exempt October 2011



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Page 2 of 3

REFER TO BACK PAGE FOR ALL LOCATIONS AND SAMPLING INFORMATION

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MA-FAA-01268, v08, Email:03 October 20

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

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

White Paper Co. 604 951-3900



Appendix G-2. Sediment Quality QA/QC results

Sample ID			MBE-1 REP 3	DUP A	RPD (%)
Parameter	Lowest Detection Limit	Units	Sediments	Sediments	
Leachable Anions & Nutrients (Soil)					
Total Kjeldahl Nitrogen	0.020	%	0.057	0.058	<DL*5
Organic / Inorganic Carbon (Soil)					
Inorganic Carbon	0.050	%	0.097	0.089	<DL*5
Inorganic Carbon (as CaCO3 Equivalent)	0.40	%	0.81	0.74	<DL*5
Total Carbon by Combustion	0.05	%	0.63	0.64	1.6
Total Organic Carbon	0.050	%	0.53	0.551	3.9
Metals (Soil)					
Aluminum (Al)	50	mg/kg	7250	7380	1.8
Antimony (Sb)	0.10	mg/kg	<0.10	<0.10	<DL*5
Arsenic (As)	0.10	mg/kg	4.99	4.70	6.0
Barium (Ba)	0.50	mg/kg	45.8	40.1	13.3
Beryllium (Be)	0.10	mg/kg	0.15	0.15	<DL*5
Bismuth (Bi)	0.20	mg/kg	<0.20	<0.20	<DL*5
Boron (B)	5.0	mg/kg	14.3	14.9	<DL*5
Cadmium (Cd)	0.020	mg/kg	<0.020	<0.020	<DL*5
Calcium (Ca)	50	mg/kg	5490	6140	11.2
Chromium (Cr)	0.50	mg/kg	57.0	36.9	42.8
Cobalt (Co)	0.10	mg/kg	4.40	4.11	6.8
Copper (Cu)	0.50	mg/kg	9.08	7.77	15.5
Iron (Fe)	50	mg/kg	13200	12200	7.9
Lead (Pb)	0.50	mg/kg	3.10	3.51	12.4
Lithium (Li)	2.0	mg/kg	11.6	10.5	10.0
Magnesium (Mg)	20	mg/kg	7010	6500	7.5
Manganese (Mn)	1.0	mg/kg	146	139	4.9
Mercury (Hg)	0.0050	mg/kg	0.0095	0.0109	<DL*5
Molybdenum (Mo)	0.10	mg/kg	2.19	0.63	110.6
Nickel (Ni)	0.50	mg/kg	26.3	15.1	54.1
Phosphorus (P)	50	mg/kg	815	765	6.3
Potassium (K)	100	mg/kg	2110	1960	7.4
Selenium (Se)	0.20	mg/kg	<0.20	<0.20	<DL*5
Silver (Ag)	0.10	mg/kg	<0.10	<0.10	<DL*5
Sodium (Na)	50	mg/kg	6000	5920	1.3
Strontium (Sr)	0.50	mg/kg	25.4	27.4	7.6
Sulfur (S)	1000	mg/kg	<1000	<1000	<DL*5
Thallium (Tl)	0.050	mg/kg	0.086	0.089	<DL*5
Tin (Sn)	1.0	mg/kg	<1.0	<1.0	<DL*5
Titanium (Ti)	1.0	mg/kg	559	500	11.1
Tungsten (W)	0.50	mg/kg	<0.50	<0.50	<DL*5
Uranium (U)	0.050	mg/kg	0.743	0.838	12.0
Vanadium (V)	0.20	mg/kg	31.1	28.8	7.7
Zinc (Zn)	2.0	mg/kg	24.4	22.9	6.3
Zirconium (Zr)	1.0	mg/kg	4.2	4.6	<DL*5

Notes:

RPD - relative percent difference

<DL*5 - values are less than 5 times detection limit (DL)

Bold values - indicate RPDs greater than 50%

APPENDIX H

Benthic Infauna Laboratory Analysis Data

Total abundance data in matrix format, including total taxa (species richness) for Golder Rankin Inlet 2018.

Biologicala Sample ID								18-105-001		18-105-002		18-105-003		18-105-004		18-105-005		18-105-006		18-105-007		18-105-008		18-105-009		18-105-010		18-105-011		18-105-012		18-105-013		18-105-014		18-105-015		18-105-016		18-105-017		18-105-018		18-105-019		18-105-020		18-105-021		18-105-022		18-105-023		18-105-024																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Site								MB E-1		MB E-1		MB E-1		MB E-2		MB E-2		MB E-2		MB E-3		MB E-3		MB E-3		MB E-4		MB E-4		MB E-4		MB E-5		MB E-5		MB E-5		MB REF A-1		MB REF A-1		MB REF A-1		MB REF A-2		MB REF A-2		MB REF A-3		MB REF A-3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Date Sampled								15-Sep-18		15-Sep-18		15-Sep-18		16-Sep-18		16-Sep-18		16-Sep-18		14-Sep-18		14-Sep-18		14-Sep-18		14-Sep-18		14-Sep-18		14-Sep-18		14-Sep-18		14-Sep-18		14-Sep-18		16-Sep-18		16-Sep-18		16-Sep-18		16-Sep-18		16-Sep-18		16-Sep-18		19-Sep-18		19-Sep-18		19-Sep-18																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
taxcode	grgcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	Grand Total		Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Abbreviations & Definitions

Worksheets:

1. Abbrevi Glossary of terms and outline of report.
2. Data - IV Total abundance data in matrix format, including total taxa count per sample and total abundance per sample.
3. Data - L Raw abundance data in long format.
4. QC-QA I Results of sorting efficiency.

Life Stages:

A	Adult
Int	Intermediate - has adult features but not of typical reproductive size
J	Juvenile
L	Larvae
N	Nymph
P	Pupa
Col	Colony
Deut	Deutonymph
MEMO	Incidental taxa/fragments not included in data, or whose abundance is not generally captured accurately by 1.0mm screen.

Total Num Number of unique taxa (=species richness), not including higher-order taxa for which there exists a lower-order identification (e.g. not including *Lumbrineris* sp. if there exists *Lumbrineris cruzensis* in the data)

Total Num Total Abundance, not including incidental taxa

Biologica Coding

Major Taxonomic Groups:

Miscellaneous

BRAC	Brachiopoda
BRYO	Bryozoa
CNAN	Cnidaria Anthozoa
CNHY	Cnidaria Hydrozoa
CNXX	Cnidaria
ENTO	Entoprocta
EURA	Echiura
HEMI	Hemichordata
KINO	Kinorhyncha
NTEA	Nemertea
PHOR	Phoronida
PIXX	Pisces
PLTY	Platyhelminthes
PORI	Porifera
PRIA	Priapulida
SIPN	Sipuncula
TARD	Tardigrada
URAS	Ascidacea

Annelida

ANHI	Annelida Hirudinea
ANOL	Annelida Oligochaeta
POER	Polychaeta Errantia
POSE	Polychaeta Sedentaria
POLY	Polychaeta
POXX	Polychaeta indet.

Arthropoda

CHPY	Chelicerata Pycnogonida
CHAC	Chelicerata Arachnida
CRAM	Crustacea Amphipoda
CRCI	Crustacea Cirripedia
CRCO	Crustacea Copepoda
CRCU	Crustacea Cumacea
CRDE	Crustacea Decapoda
CRIS	Crustacea Isopoda
CRLE	Crustacea Leptostraca
CRMY	Crustacea Mysidacea
CROS	Crustacea Ostracoda
CRTA	Crustacea Tanaidacea
CRXX	Crustacea

Echinodermata

ECAS	Echinodermata Asteroidea
ECCR	Echinodermata Crinoidea
ECEC	Echinodermata Echinoidea
ECHO	Echinodermata Holothuroidea
ECOP	Echinodermata Ophiuroidea

Mollusca

MOAP	Mollusca Aplacophora
MOBI	Mollusca Bivalvia
MOCE	Mollusca Cephalopoda
MOGA	Mollusca Gastropoda
MOPO	Mollusca Polyplacophora
MOSC	Mollusca Scaphopoda



Taxonomic Family Codes:

Group	Family	Family code	Group	Family	Family code
ANHI	Piscicolidae	1138	KINO	Echinoderidae	1148
ANOL	Enchytraeidae	1133	KINO	Neocentrophyidae	1150
ANOL	Naididae	1134	KINO	Pycnophyidae	1152
ANOL	Tubificidae	1136	KINO	Semnoderidae	1154
BRAC	Frieleidae	0951	MOAP	Chaetodermatidae	0338
BRAC	Cancellothyrididae	0952	MOAP	Limifossoridae	0340
BRAC	Craniidae	0953	MOBI	Anomiidae	0348
BRAC	Laqueidae	0954	MOBI	Aricidae	0350
BRAC	Platidiidae	0955	MOBI	Astartidae	0352
BRAC	Lingulidae	0956	MOBI	Cardiidae	0354
BRAC	Dallinidae	0957	MOBI	Carditidae	0356
BRAC	Terebrataliidae	0958	MOBI	Chamidae	0358
BRYO	Aeteidae	0961	MOBI	Corbiculidae	0360
BRYO	Alcyonidiidae	0962	MOBI	Corbulidae	0362
BRYO	Annectocymidae	0964	MOBI	Crassatellidae	0364
BRYO	Arachnidiidae	0966	MOBI	Cuspidariidae	0366
BRYO	Bugulidae	0968	MOBI	Dimyidae	0368
BRYO	Bitectiporidae	0969	MOBI	Donacidae	0370
BRYO	Calloporidae	0970	MOBI	Galeommatidae	0372
BRYO	Candidae	0972	MOBI	Gastrochaenidae	0374
BRYO	Cellariidae	0974	MOBI	Glycymerididae	0376
BRYO	Celleporidae	0976	MOBI	Hiatellidae	0378
BRYO	Chapperiidae	0980	MOBI	Isognomonidae	0380
BRYO	Cheiloporinidae	0981	MOBI	Kelliellidae	0382
BRYO	Clavoporidae	0982	MOBI	Lasaeidae	0384
BRYO	Cribrilinidae	0983	MOBI	Laternulidae	0386
BRYO	Crisiidae	0984	MOBI	Limidae	0388
BRYO	Diastoporidae	0985	MOBI	Limopsidae	0390
BRYO	Epistomiidae	0986	MOBI	Lucinidae	0392
BRYO	Escharellidae	0987	MOBI	Lyonsiidae	0394
BRYO	Entalophoridae	0988	MOBI	Mactridae	0396
BRYO	Diaperoeciidae	0989	MOBI	Malletiidae	0398
BRYO	Electridae	0990	MOBI	Manzanellidae	0400
BRYO	Eucrateidae	0993	MOBI	Modiolatus	0401
BRYO	Hincksinidae	0988	MOBI	Myidae	0402
BRYO	Hippoporinidae	0989	MOBI	Mytilidae	0404
BRYO	Hippothoidae	0990	MOBI	Neilonellidae	0406
BRYO	Lichenoporidae	0991	MOBI	Neoleptonidae	0408
BRYO	Lunulariidae	0992	MOBI	Noetilldae	0410
BRYO	Membraniporidae	0994	MOBI	Nuculanidae	0412
BRYO	Microporellidae	0996	MOBI	Nuculidae	0414
BRYO	Microporidae	0998	MOBI	Ostreidae	0416
BRYO	Mucronellidae	0999	MOBI	Pandoridae	0418
BRYO	Myriaporidae	1000	MOBI	Pectinidae	0420
BRYO	Oncousoeciidae	1001	MOBI	Periplomatidae	0422
BRYO	Phylactellidae	1002	MOBI	Petricolidae	0424
BRYO	Reteporidae	1001	MOBI	Pharidae	0426
BRYO	Rhamphostomellidae	1004	MOBI	Philobryidae	0428
BRYO	Schizoporellidae	1006	MOBI	Pholadidae	0430
BRYO	Smittinidae	1008	MOBI	Pinnidae	0432
BRYO	Stomachetosellidae	1009	MOBI	Poromyidae	0434
BRYO	Thalamoporellidae	1010	MOBI	Pristiglomidae	0436
BRYO	Triticellidae	1012	MOBI	Propeamussiidae	0438
BRYO	Tubuliporidae	1014	MOBI	Psammobiidae	0440
BRYO	Umbonulidae	1015	MOBI	Pteriidae	0442
BRYO	Vesiculariidae	1016	MOBI	Saccella	0443
BRYO	Victorellidae	1017	MOBI	Semelidae	0444
CHAC	Halacaridae	0673	MOBI	Siliculidae	0446
CHPY	Ammotheidae	0662	MOBI	Solecurtidae	0448
CHPY	Callipallenidae	0664	MOBI	Solemyidae	0450
CHPY	Nymphonidae	0666	MOBI	Solenidae	0452
CHPY	Phoxichilidiidae	0668	MOBI	Spheniopsidae	0454
CHPY	Pycnogonidae	0670	MOBI	Tellinidae	0456
CHPY	Tanystylidae	0672	MOBI	Teredinidae	0458
CNAN	Actiniidae	0040	MOBI	Thraciidae	0460
CNAN	Actinostolidae	0041	MOBI	Thyasiridae	0462
CNAN	Anthothelidae	0043	MOBI	Tindariidae	0464
CNAN	Caryophylliidae	0042	MOBI	Trapezidae	0466
CNAN	Cerianthidae	0044	MOBI	Turtoniidae	0468
CNAN	Clavulariidae	0046	MOBI	Ungulinidae	0470
CNAN	Corallimorphidae	0048	MOBI	Veneridae	0472
CNAN	Dendrophylliidae	0049	MOBI	Verticordiidae	0474
CNAN	Diadumenidae	0050	MOBI	Vesicomyiidae	0476
CNAN	Edwardsiidae	0052	MOBI	Yoldiidae	0478
CNAN	Epizoanthidae	0054	MOCE	Histioteuthidae	0652
CNAN	Gorgoniidae	0056	MOCE	Loliginiidae	0654
CNAN	Halcampidae	0058	MOCE	Octopodidae	0656
CNAN	Halcampoididae	0060	MOCE	Opisthoteuthidae	0658
CNAN	Haloclavidae	0062	MOCE	Sepiolidae	0660
CNAN	Hormanthiidae	0064	MOGA	Acmaeidae	0480
CNAN	Isanthidae	0066	MOGA	Acteonidae	0482
CNAN	Limnactiniidae	0068	MOGA	Adeorbidae	0484
CNAN	Metridiidae	0070	MOGA	Aeolidiidae	0486
CNAN	Muriceidae	0072	MOGA	Aglajidae	0488



Taxonomic Family Codes:

Group	Family	Family code	Group	Family	Family code
CNAN	Pennatulidae	0074	MOGA	Aplysiidae	0490
CNAN	Plexauridae	0076	MOGA	Archidorididae	0492
CNAN	Protoptilidae	0077	MOGA	Arminidae	0494
CNAN	Renillidae	0078	MOGA	Barleeidae	0496
CNAN	Sagartiidae	0080	MOGA	Buccinidae	0498
CNAN	Virgulariidae	0082	MOGA	Bullidae	0500
CNHY	Aequoreidae	0083	MOGA	Bursidae	0502
CNHY	Aglaopheniidae	0084	MOGA	Cadlinidae	0504
CNHY	Cladonematidae	0085	MOGA	Caecidae	0506
CNHY	Alcycellidae	0086	MOGA	Calliostomatidae	0507
CNHY	Bonneviellidae	0087	MOGA	Calyptraeidae	0508
CNHY	Bougainvilliidae	0088	MOGA	Cancellariidae	0510
CNHY	Calycopsidae	0089	MOGA	Cerithiidae	0512
CNHY	Campanulariidae	0090	MOGA	Cerithiopsidae	0514
CNHY	Eirenidae	0091	MOGA	Colloniidae	0515
CNHY	Campanulinidae	0092	MOGA	Columbellidae	0516
CNHY	Clavidae	0093	MOGA	Mangeliidae	0518
CNHY	Corymorphidae	0094	MOGA	Conidae	0519
CNHY	Corynidae	0095	MOGA	Conualeviidae	0520
CNHY	Eudendriidae	0096	MOGA	Coralliophilidae	0522
CNHY	Haleciidae	0097	MOGA	Corambidae	0524
CNHY	Hebellidae	0098	MOGA	Cumanotidae	0526
CNHY	Halimedesidae	0099	MOGA	Cylichnidae	0528
CNHY	Hydractiniidae	0100	MOGA	Cymatiidae	0529
CNHY	Laodiceidae		MOGA	Dendrodorididae	0530
CNHY	Lafoeidae	0101	MOGA	Dendronotidae	0532
CNHY	Lovenellidae	0102	MOGA	Diaphanidae	0534
CNHY	Mitrocomidae	0103	MOGA	Dironidae	0536
CNHY	Olindiasidae	0104	MOGA	Discodorididae	0538
CNHY	Pandidae	0105	MOGA	Dorididae	0539
CNHY	Pennariidae	0106	MOGA	Dotoidae	0540
CNHY	Euphysidae	0107	MOGA	Epitoniidae	0542
CNHY	Plumulariidae	0108	MOGA	Eulimidae	0544
CNHY	Proboscidactylidae	0109	MOGA	Facelinidae	0546
CNHY	Protohydridae		MOGA	Fascioliariidae	0548
CNHY	Rathkeidae		MOGA	Fissurellidae	0550
CNHY	Rhodaliidae	0110	MOGA	Flabellinidae	0552
CNHY	Rhysiidae	0111	MOGA	Gastropteridae	0554
CNHY	Sertulariidae	0112	MOGA	Goniodorididae	0556
CNHY	Tiarannidae	0113	MOGA	Haminoeidae	0558
CNHY	Trichydridae		MOGA	Hermaeidae	0560
CNHY	Tubulariidae	0114	MOGA	Hipponicidae	0562
CNHY	Velellidae	0115	MOGA	Aplustridae	0564
CNHY	Cordylophoridae	0116	MOGA	Littorinidae	0566
CNHY	Calycellidae	0117	MOGA	Lamellariidae	0568
CRAM	Iphimediidae	0760	MOGA	Lepetidae	0570
CRAM	Ampeliscidae	0762	MOGA	Litiopidae	0572
CRAM	Amphilochidae	0764	MOGA	Lottiidae	0574
CRAM	Ampithoidae	0766	MOGA	Cysticidae	0576
CRAM	Anisogammaridae	0767	MOGA	Mitridae	0578
CRAM	Anamixidae	0768	MOGA	Muricidae	0580
CRAM	Aoridae	0770	MOGA	Nassariidae	0582
CRAM	Argissidae	0772	MOGA	Naticidae	0584
CRAM	Astyridae	0774	MOGA	Notodorididae	0586
CRAM	Bateidae	0776	MOGA	Nucellidae	0587
CRAM	Beaudettiidae	0778	MOGA	Oleidae	0588
CRAM	Calliopiidae	0780	MOGA	Olividae	0590
CRAM	Caprellidae	0782	MOGA	Onchidorididae	0592
CRAM	Cheluridae	0784	MOGA	Ovulidae	0594
CRAM	Colomastigidae	0786	MOGA	Philinidae	0596
CRAM	Corophiidae	0788	MOGA	Platydorididae	0598
CRAM	Cressidae	0790	MOGA	Pleurobranchidae	0600
CRAM	Dexaminidae	0792	MOGA	Polyceratidae	0602
CRAM	Dogielinotidae	0794	MOGA	Potamididae	0603
CRAM	Eophliantidae	0796	MOGA	Pseudomelatomidae	0604
CRAM	Eusiridae	0798	MOGA	Pyramidellidae	0606
CRAM	Gammaridae	0800	MOGA	Retusidae	0608
CRAM	Haustoriidae	0802	MOGA	Rissoidae	0610
CRAM	Hyalidae	0804	MOGA	Scaphandridae	0612
CRAM	Hyatellidae	0806	MOGA	Sciddurellidae	0614
CRAM	Hyperlopsidae	0808	MOGA	Stiligeridae	0615
CRAM	Isaeidae	0810	MOGA	Terebridae	0616
CRAM	Ischyroceridae	0812	MOGA	Tergipedidae	0618
CRAM	Kuriidae	0814	MOGA	Tethyidae	0620
CRAM	Lafystiidae	0816	MOGA	Trichotropididae	0621
CRAM	Laphystiopsidae	0818	MOGA	Tritoniidae	0622
CRAM	Lepechinellidae	0820	MOGA	Triviidae	0624
CRAM	Leucothoidae	0822	MOGA	Trochidae	0626
CRAM	Liljeborgiidae	0824	MOGA	Truncatellidae	0628
CRAM	Lysianassidae	0826	MOGA	Turbinidae	0630
CRAM	Megaluropidae	0827	MOGA	Turbinellidae	0632
CRAM	Melphidippidae	0828	MOGA	Turridae	0634
CRAM	Melitidae	0829	MOGA	Turritellidae	0636
CRAM	Ochlesidae	0830	MOGA	Vanikoridae	0638



Taxonomic Family Codes:

Group	Family	Family code	Group	Family	Family code
CRAM	Maeridae	0831	MOGA	Velutinidae	0471
CRAM	Oedicerotidae	0832	MOGA	Vermetidae	0640
CRAM	Opisidae	0833	MOGA	Vitrinellidae	0642
CRAM	Pagetinidae	0834	MOPO	Callistoplacidae	0341
CRAM	Odiidae	0835	MOPO	Ischnochitonidae	0342
CRAM	Parampithoidae	0836	MOPO	Protochitonidae	0343
CRAM	Pardaliscidae	0838	MOPO	Leptochitonidae	0344
CRAM	Pariambidae	0840	MOPO	Tonicellidae	0345
CRAM	Philiantidae	0842	MOPO	Mopaliidae	0346
CRAM	Phoxocephalidae	0844	MOPO	Schizoplacidae	0347
CRAM	Phtiscidae	0846	MOPO	Lepidochitonidae	0348
CRAM	Pleustidae	0848	MOSC	Dentaliidae	0644
CRAM	Podoceridae	0850	MOSC	Gadilidae	0646
CRAM	Pontogeneiidae	0851	MOSC	Pulsellidae	0647
CRAM	Prophliantidae	0852	MOSC	Rhabdidae	0648
CRAM	Pontoporeiidae	0853	MOSC	Siphonodentaliidae	0650
CRAM	Protellidae	0854	NTEA	Amphiporidae	0140
CRAM	Sebidae	0856	NTEA	Carinomidae	0142
CRAM	Stegocephalidae	0858	NTEA	Cephalothricidae	0144
CRAM	Stenothoidae	0859	NTEA	Emplectonematidae	0146
CRAM	Stilipedidae	0860	NTEA	Lineidae	0148
CRAM	Synopiidae	0862	NTEA	Cratenemertidae	0149
CRAM	Talitridae	0864	NTEA	Ototyphlonemertidae	0150
CRAM	Thaumatelsonidae	0866	NTEA	Prosorhochmidae	0152
CRAM	Urothoidae	0865	NTEA	Tetrastemmatidae	0154
CRAM	Vitjazianidae	0868	NTEA	Tubulanidae	0156
CRCO	Clytemnestridae	1300	NTEA	Valenciniidae	0158
CRCO	Harpacticidae	1301	PHOR	Phoronidae	0950
CRCO	Mytilicolidae	1302	PIXX	Anarhichadidae	1190
CRCO	Chondracanthidae	1303	PIXX	Ammodytidae	1195
CRCO	Caligidae	1304	PIXX	Cryptacanthodidae	1200
CRCO	Tisbidae	1305	PIXX	Stichaeidae	1210
CRCO	Ectinosomatidae	1306	PIXX	Bathylagidae	1220
CRCI	Archaeobalanidae	0688	PIXX	Batrachoididae	1230
CRCI	Balanidae	0690	PIXX	Gobiidae	1240
CRCI	Chthamalidae	0691	PIXX	Liparidae	1250
CRCI	Pollicipedidae	0693	PIXX	Agonidae	1255
CRCI	Scalpellidae	0692	PIXX	Zoarcidae	1260
CRCU	Bodotriidae	0698	PIXX	Scorpaenidae	1270
CRCU	Diastylidae	0700	PIXX	Pholidae	1271
CRCU	Lampropidae	0702	PLTY	Callioplanidae	0116
CRCU	Leuconidae	0704	PLTY	Cryptocelididae	0118
CRCU	Nannastacidae	0706	PLTY	Emprostopharyngidae	0120
CRDE	Albuneidae	0870	PLTY	Euryleptidae	0122
CRDE	Alpheidae	0872	PLTY	Holoplanidae	0124
CRDE	Aristeidae	0874	PLTY	Latocestidae	0126
CRDE	Atelecyclidae	0875	PLTY	Leptoplanidae	0128
CRDE	Axiidae	0876	PLTY	Planoceridae	0130
CRDE	Calappidae	0878	PLTY	Pleioplanidae	0131
CRDE	Callianassidae	0880	PLTY	Plehnidae	0132
CRDE	Cancridae	0882	PLTY	Promesostomidae	0133
CRDE	Crangonidae	0884	PLTY	Prostiomidae	0134
CRDE	Cyclodorippidae	0886	PLTY	Pseudocerotidae	0136
CRDE	Diogenidae	0888	PLTY	Stylochidae	0138
CRDE	Dromiidae	0890	POER	Aceotidae	0160
CRDE	Galatheididae	0892	POER	Alciopidae	0162
CRDE	Grapsidae	0894	POER	Amphinomidae	0164
CRDE	Hippidae	0896	POER	Aphroditidae	0166
CRDE	Hippolytidae	0898	POER	Chrysopetalidae	0168
CRDE	Homolidae	0900	POER	Diurodrilidae	0170
CRDE	Laomediidae	0902	POER	Dorvilleidae	0172
CRDE	Leucosiidae	0904	POER	Eulepethidae	0174
CRDE	Lithodidae	0906	POER	Eunicidae	0176
CRDE	Majidae	0908	POER	Euprosinidae	0178
CRDE	Ogyrididae	0910	POER	Glyceridae	0180
CRDE	Oplophoridae	0912	POER	Goniadidae	0182
CRDE	Oregoniidae	0913	POER	Hartmaniellidae	0184
CRDE	Paguridae	0914	POER	Hesionidae	0186
CRDE	Palaemonidae	0916	POER	Histriobdellidae	0188
CRDE	Palicidae	0918	POER	Ichthyotomidae	0190
CRDE	Palinuridae	0920	POER	Iospilidae	0192
CRDE	Pandalidae	0922	POER	Lacydoniidae	0194
CRDE	Parapaguridae	0924	POER	Lopadorhynchidae	0196
CRDE	Parthenopidae	0926	POER	Lumbrineridae	0198
CRDE	Pasiphaeidae	0928	POER	Nautiliniellidae	0200
CRDE	Penaeidae	0930	POER	Nephtyidae	0202
CRDE	Pinnotheridae	0932	POER	Nereididae	0204
CRDE	Porcellanidae	0934	POER	Oenonidae	0206
CRDE	Portunidae	0936	POER	Onuphidae	0208
CRDE	Processidae	0938	POER	Paralacydoniidae	0210
CRDE	Sergestidae	0940	POER	Pholoidae	0212
CRDE	Sicyoniidae	0942	POER	Phyllodocidae	0214
CRDE	Solenoceridae	0944	POER	Pilargidae	0216
CRDE	Upogebiidae	0946	POER	Pisionidae	0218



Taxonomic Family Codes:

Group	Family	Family code	Group	Family	Family code
CRDE	Xanthidae	0948	POER	Polynoidae	0220
CRIS	Aegidae	0720	POER	Pontodoridae	0222
CRIS	Ancinidae	0722	POER	Sigalionidae	0224
CRIS	Anthuridae	0724	POER	Sphaerodoridae	0226
CRIS	Arcturidae	0726	POER	Syllidae	0228
CRIS	Bopyridae	0728	POER	Tomopteridae	0230
CRIS	Cirolanidae	0730	POER	Typhloscolecidae	0232
CRIS	Corallanidae	0732	PORI	Amphoriscidae	0002
CRIS	Cymothoidae	0734	PORI	Aphrocallistidae	0004
CRIS	Desmosomatidae	0735	PORI	Aplysillidae	0005
CRIS	Gnathiidae	0736	PORI	Axinellidae	0006
CRIS	Idoteidae	0738	PORI	Coelosphaeridae	0007
CRIS	Janiridae	0740	PORI	Clathriidae	0008
CRIS	Joeropsididae	0742	PORI	Desmacellidae	0009
CRIS	Limnoriidae	0744	PORI	Clathrinidae	0010
CRIS	Munnidae	0746	PORI	"Clionidae"	0011
CRIS	Munnopsidae	0748	PORI	Cyamonidae	0012
CRIS	Paramunnidae	0750	PORI	Dysideidae	0013
CRIS	Paranthuridae	0752	PORI	Grantiidae	0014
CRIS	Scyphacidae	0753	PORI	Halichondriidae	0015
CRIS	Serolidae	0754	PORI	Haliclonidae	0016
CRIS	Sphaeromatidae	0756	PORI	Halisarcidae	0019
CRIS	Tridentellidae	0758	PORI	Hymedesmiidae	0021
CRLE	Nebaliidae	0694	PORI	Hymeniacidonidae	0017
CRMY	Mysidae	0696	PORI	Leucosoleniidae	0018
CROS	Cylindroleberididae	0674	PORI	Microcionidae	0019
CROS	Cyprididae	0676	PORI	Mycalidae	0020
CROS	Cypridinidae	0678	PORI	Myxillidae	0022
CROS	Cytheridae	0677	PORI	Pachastrellidae	0024
CROS	Cytheruridae	0675	PORI	Plakinidae	0023
CROS	Loxoconchidae	0679	PORI	Polymastiidae	0025
CROS	Macrocyprididae	0680	PORI	Raspailiidae	0026
CROS	Paradoxostomatidae	0681	PORI	Rossellidae	0028
CROS	Philomedidae	0682	PORI	Spirastrellidae	0030
CROS	Pontocyprididae	0683	PORI	Stellettidae	0032
CROS	Rutidermatidae	0684	PORI	Suberitidae	0034
CROS	Sarsiellidae	0686	PORI	Sycettidae	0035
CROS	Trachyleberididae	0687	PORI	Tethyidae	0036
CRTA	Anarthruridae	0708	PORI	Tedaniidae	0037
CRTA	Akanthophoreidae	0709	PORI	Tetillidae	0038
CRTA	Leptocheiliidae	0710	POSE	Aberrantidae	0234
CRTA	Leptognathiidae	0711	POSE	Acrocirridae	0236
CRTA	Nototanaidae	0713	POSE	Aeolosomatidae	0238
CRTA	Paratanaidae	0712	POSE	Alvinellidae	0240
CRTA	Pseudotanaidae	0714	POSE	Ampharetidae	0242
CRTA	Tanaellidae	0715	POSE	Apistobranchidae	0244
CRTA	Tanaidae	0716	POSE	Arenicolidae	0246
CRTA	Typhlotanaidae	0718	POSE	Capitellidae	0248
ECAS	Asteriidae	1020	POSE	Chaetopteridae	0250
ECAS	Asterinidae	1022	POSE	Cirratulidae	0252
ECAS	Asteropseidae	1024	POSE	Cossuridae	0254
ECAS	Astropectinidae	1026	POSE	Ctenodrilidae	0256
ECAS	Benthopectinidae	1028	POSE	Fabriciidae	0257
ECAS	Brisingidae	1030	POSE	Fauveliopsidae	0258
ECAS	Ctenodiscidae	1032	POSE	Flabelligeridae	0260
ECAS	Echinasteridae	1034	POSE	Longosomatidae	0262
ECAS	Freyellidae	1036	POSE	Magelonidae	0264
ECAS	Goniasteridae	1038	POSE	Maldanidae	0266
ECAS	Korethrasteridae	1040	POSE	Nerillidae	0268
ECAS	Labidiasteridae	1042	POSE	Opheliidae	0270
ECAS	Luididae	1044	POSE	Orbiniidae	0272
ECAS	Pedicellasteridae	1046	POSE	Oweniidae	0274
ECAS	Poraniidae	1048	POSE	Paraonidae	0276
ECAS	Porcellanasteridae	1050	POSE	Parergodrilidae	0278
ECAS	Pterasteridae	1052	POSE	Pectinariidae	0280
ECAS	Solasteridae	1054	POSE	Poecilochaetidae	0282
ECAS	Zoroasteridae	1056	POSE	Poeobiidae	0284
ECCR	Antedonidae	1018	POSE	Polygordiidae	0286
ECEC	Brissidae	1076	POSE	Potamodrilidae	0288
ECEC	Dendrasteridae	1078	POSE	Protodrilidae	0290
ECEC	Loveniidae	1080	POSE	Protodriloididae	0292
ECEC	Schizasteridae	1082	POSE	Psammodrilidae	0294
ECEC	Spatangidae	1084	POSE	Questidae	0296
ECEC	Strongylocentrotidae	1086	POSE	Sabellariidae	0298
ECEC	Toxopneustidae	1088	POSE	Sabellidae	0300
ECHO	Caudinidae	1090	POSE	Saccocirridae	0302
ECHO	Chirodotidae	1092	POSE	Scalibregmatidae	0304
ECHO	Cucumariidae	1094	POSE	Serpulidae	0306
ECHO	Molpadiidae	1096	POSE	Spintheridae	0308
ECHO	Phyllophoridae	1098	POSE	Spionidae	0310
ECHO	Psolidae	1100	POSE	Spirorbidae	0311
ECHO	Sclerodactylidae	1102	POSE	Sternaspidae	0312
ECHO	Stichopodidae	1104	POSE	Terebellidae	0314
ECHO	Synallactidae	1106	POSE	Trichobranchidae	0316

Taxonomic Family Codes:

Group	Family	Family code	Group	Family	Family code
ECHO	Synaptidae	1108	POSE	Trochochaetidae	0318
ECOP	Amphiuridae	1058	POSE	Uncispionidae	0320
ECOP	Gorgonocephalidae	1060	PRIA	Maccabeidae	1156
ECOP	Ophiacanthidae	1062	PRIA	Priapulidae	1158
ECOP	Ophiactidae	1064	PRIA	Tubiluchidae	1160
ECOP	Ophiocomidae	1066	SIPN	Aspidosiphonidae	0328
ECOP	Ophiodermatidae	1068	SIPN	Golfingiidae	0330
ECOP	Ophionereidae	1070	SIPN	Phascolionidae	0332
ECOP	Ophiotricidae	1072	SIPN	Themistidae	0333
ECOP	Ophiuridae	1074	SIPN	Phascolosomatidae	0334
ENTO	Barentsiidae	0958	SIPN	Sipunculidae	0336
ENTO	Pedicellinidae	0959	TARD	Echiniscoididae	0661
ENTO	Loxosomatidae	0960	URAS	Agneziidae	1110
EURA	Bonelliidae	0322	URAS	Cionidae	1112
EURA	Echiuridae	0323	URAS	Clavelinidae	1113
EURA	Thalassematidae	0324	URAS	Corellidae	1114
EURA	Urechidae	0326	URAS	Didemnidae	1115
HEMI	Harrimaniidae	1126	URAS	Molgulidae	1116
HEMI	Ptychoderidae	1128	URAS	Polycitoridae	1118
HEMI	Spengeliidae	1130	URAS	Polyclinidae	1120
KINO	Campiloderidae	1140	URAS	Pyuridae	1122
KINO	Cateriidae	1142	URAS	Ritterellidae	1123
KINO	Centroderidae	1144	URAS	Styelidae	1124
KINO	Condyloderidae	1146	URAS	Asciidiidae	1132



Marine Benthic Enumeration and Identification Methods

Client: Golder

Project: Rankin Inlet 2018

Sample Inventory

Sample arrival: September 26, 2018

Number of samples: 24

Number of jars: 24

Screen size (lab): 500 µm

Biologica project number: 18-105

The chain of custody documents were checked and approved with the client. Samples were transferred from formalin into 70% ethanol, and stained with Rose Bengal to aid in sorting. Each sample was provided a unique identification number and placed in the queue for analysis.

Table 1. Summary of benthic samples processed for Golder Rankin Inlet 2018.

Client Sample ID	Replicate	Date Sampled	Biologica Sample ID	Split	Organisms Counted
MB E-1	1	15-Sep-18	18-105-001	Whole	57
MB E-1	2	15-Sep-18	18-105-002	Whole	42
MB E-1	3	15-Sep-18	18-105-003	Whole	15
MB E-2	1	16-Sep-18	18-105-004	Whole	59
MB E-2	2	16-Sep-18	18-105-005	Whole	54
MB E-2	3	16-Sep-18	18-105-006	Whole	45
MB E-3	1	14-Sep-18	18-105-007	Whole	46
MB E-3	2	14-Sep-18	18-105-008	Whole	38
MB E-3	3	14-Sep-18	18-105-009	Whole	52
MB E-4	1	14-Sep-18	18-105-010	Whole	66
MB E-4	2	14-Sep-18	18-105-011	Whole	46
MB E-4	3	14-Sep-18	18-105-012	Whole	60
MB E-5	1	14-Sep-18	18-105-013	Whole	67
MB E-5	2	14-Sep-18	18-105-014	Whole	120
MB E-5	3	14-Sep-18	18-105-015	Whole	105
MB REF A-1	1	16-Sep-18	18-105-016	Whole	51
MB REF A-1	2	16-Sep-18	18-105-017	Whole	32
MB REF A-1	3	16-Sep-18	18-105-018	Whole	26
MB REF A-2	1	16-Sep-18	18-105-019	Whole	85
MB REF A-2	2	16-Sep-18	18-105-020	Whole	67
MB REF A-2	3	16-Sep-18	18-105-021	Whole	57
MB REF A-3	1	19-Sep-18	18-105-022	Whole	63
MB REF A-3	2	19-Sep-18	18-105-023	Whole	104
MB REF A-3	3	19-Sep-18	18-105-024	Whole	43

Sample Processing

Sorting:

All samples were sorted using dissecting microscopes at 10–40x magnification by trained personnel. All debris in each sample was checked microscopically, including leaves, elutriated gravel, and other large debris. To minimize potential sorter bias, samples were distributed among technicians such that no one person sorted all the replicates of a given sample or station.

Sorting QA/QC:

To ensure sorting efficiency was >95%, whole and/or partial sub-samples were re-sorted. Sorting efficiency was calculated using the following equation (where total count = final total number of organisms in sample):

Sorting efficiency =

$$[\text{total count} - (\text{organisms recovered in spot check and/or re-sort})] / \text{total count} \times 100\%$$

Due to low sample volumes all debris was sorted and rechecked during the identification process. All samples checked must meet or exceed 95% sorting efficiency. Any samples falling below 95% sorting efficiency were re-sorted in their entirety, and additional checks were undertaken as necessary. Refer to Table 2 for sorting efficiency results.

Table 2. Summary of sorting QA/QC results for Golder Rankin Inlet 2018.

Client Sample ID	Replicate	Biological Sample ID	Sorting Efficiency QC
MB E-1	1	18-105-001	100.00%
MB E-1	2	18-105-002	100.00%
MB E-1	3	18-105-003	100.00%
MB E-2	1	18-105-004	100.00%
MB E-2	2	18-105-005	100.00%
MB E-2	3	18-105-006	100.00%
MB E-3	1	18-105-007	100.00%
MB E-3	2	18-105-008	100.00%
MB E-3	3	18-105-009	100.00%
MB E-4	1	18-105-010	100.00%
MB E-4	2	18-105-011	100.00%
MB E-4	3	18-105-012	100.00%
MB E-5	1	18-105-013	100.00%
MB E-5	2	18-105-014	100.00%
MB E-5	3	18-105-015	100.00%
MB REF A-1	1	18-105-016	100.00%
MB REF A-1	2	18-105-017	100.00%
MB REF A-1	3	18-105-018	100.00%
MB REF A-2	1	18-105-019	100.00%
MB REF A-2	2	18-105-020	100.00%
MB REF A-2	3	18-105-021	100.00%
MB REF A-3	1	18-105-022	100.00%

Client Sample ID	Replicate	Biologica Sample ID	Sorting Efficiency QC
MB REF A-3	2	18-105-023	100.00%
MB REF A-3	3	18-105-024	100.00%
Average:			100.00%

Identification:

All organisms were identified using a combination of dissecting (10–40x) and compound microscopes (100–1000x) and standard taxonomic keys (see methodological and taxonomic references) to the lowest practicable level (species whenever possible). All specimens were archived in air-tight glass vials with glycerin and 70% ethanol for long-term storage. Taxonomic data were recorded in Biologica’s custom database.

Data Management

All data were recorded in Biologica’s custom database. Results were provided to the Golder project manager in Excel spreadsheets via email.

Selected Methodological and Taxonomic References

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APPENDIX C – MODELLING ASSESSMENT OF GROUNDWATER DISCHARGE INTO MELVIN BAY 2019

TECHNICAL MEMORANDUM

DATE February 1, 2019 **Project No.** Doc718_1773384 _Rev0

TO Manon Turmel
Agnico Eagle Mines Ltd.

CC Ryan Vanengen, Carolina Leseigneur Torres

FROM Shouhong Wu and Bruce Dean, Golder Associates Ltd. **EMAIL** bruce_dean@golder.com

MODELLING ASSESSMENT OF GROUNDWATER DISCHARGE INTO THE MELVIN BAY MARINE ENVIRONMENT, REV B

1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to undertake a modelling assessment of groundwater discharge into the marine environment near Rankin Inlet. This modelling assessment consisted of nearshore oceanographic modelling of the discharge. The study did not include geotechnical, structural or hydraulic engineering assessments of the outfall. This technical memorandum was updated to account for an additional modelling scenario and updated baseline data collected by Golder from Melvin Bay in September 2018 as well as to account for increased discharge velocity resulting from a change to the diffuser port size. This memorandum should be read in conjunction with "Important Information and Limitations of this Report".

1.1 Scope of Work

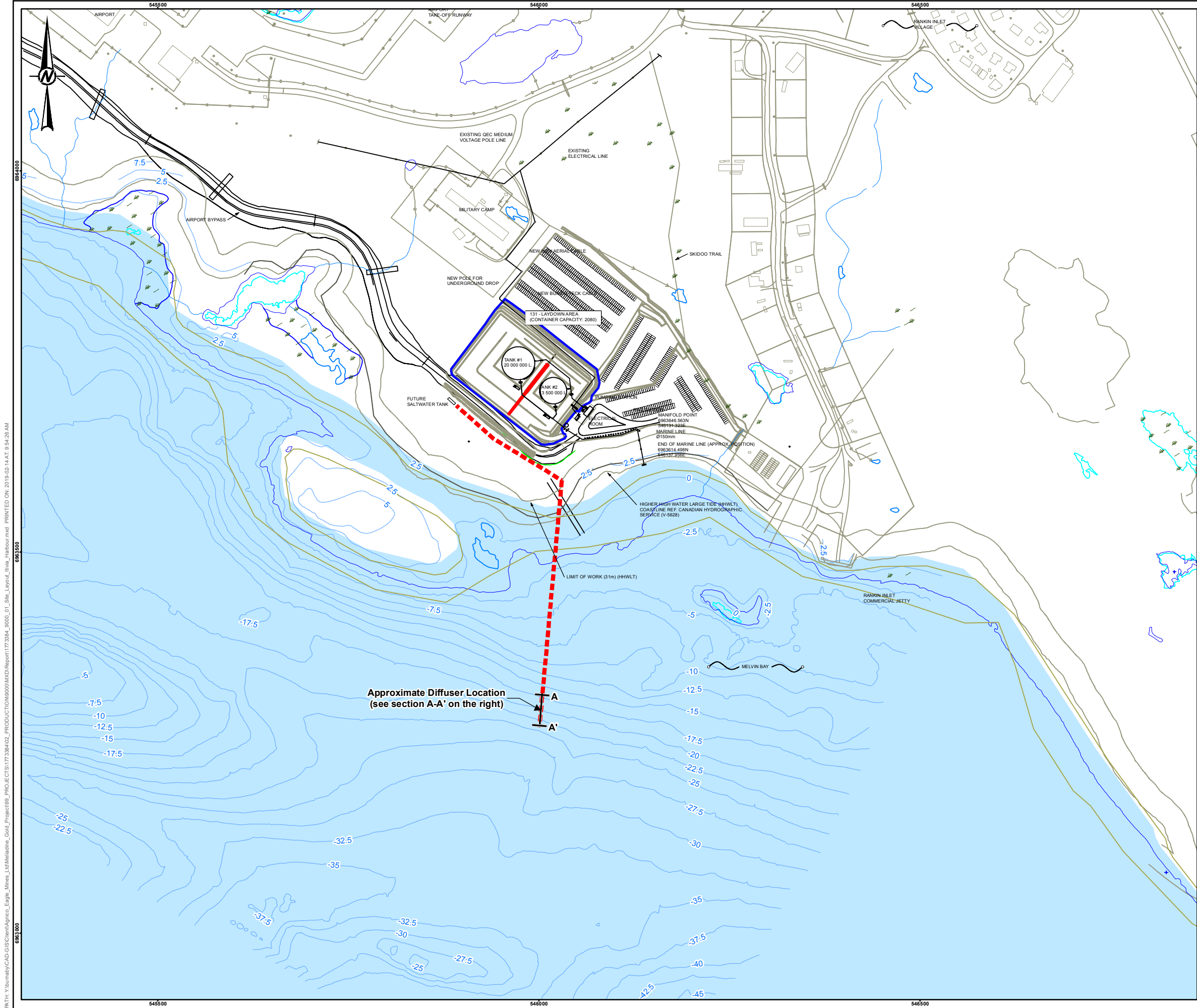
The objective of this work is to assess the near field mixing of the treated groundwater effluent disposal with respect to relevant environmental guidelines. The scope of the work includes:

- Near field modelling of dispersion of treated groundwater effluent plume using CORMIX (Doneker and Jirka 2007).
- Assess the plume dilution behavior.

For the purpose of this scope of this work, it is assumed that the discharges will consists of only pumped water at quantities and qualities per the estimated underground inflow volumes (Golder 2016) and estimated groundwater inputs to surface storage for management (Agnico Eagle 2017). Section 2.1 describes the modelling conditions.

1.2 Physical Setting

In September 2018, a field program was conducted by Golder in Melvin Bay. Field parameters measured included temperature, conductivity, pH, dissolved oxygen, salinity, and oxidation-reduction potential. The measurement depth ranged from 0.3 m to 26.7 m at three different locations in Melvin Bay (i.e., the exposure area and two new reference areas). The field measurement results are summarized in Appendix A. Nearshore bathymetry (Agnico Eagle 2017 data) and the approximate discharge location is shown in Figure 1, to the south of the Tank Farm at the Itivia Fuel Storage Facility. Based on the bathymetry of Melvin Bay at Itivia Harbour, the diffuser would be placed on the seabed at a depth of approximately 20 m, to ensure an unconstrained mixing zone and to avoid interference with use of Itivia Harbour by ships and boats at high and low tide.



LEGEND

- GENERAL AREA FOR THE DIFFUSER LOCATION
- CROSS SECTION LOCATION
- WATERCOURSE
- WATERBODY
- REEF

End of Discharge Pipe – Diffuser Port Design (HDPE Pipe)

NOT FOR CONSTRUCTION

REFERENCE(S)

BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED.
DATUM: NAD 83 PROJECTION: UTM ZONE 15

CLIENT

AGNICO EAGLE

PROJECT
MELIADINE GOLD MINE
NUNAVUT

TITLE

**SITE LAYOUT
ITIVIA HARBOUR SITE**

CONSULTANT	YYYY-MM-DD	2019-02-14
	DESIGNED	CLT
	PREPARED	CDB/MH
	REVIEWED	BD
	APPROVED	MT

PROJECT NO.

1773384

CONTROL

9000

REV.

0

FIGURE

1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
28mm

2.0 NEAR FIELD MODELLING

The Cornell Mixing Zone Expert System (CORMIX; Doneker and Jirka 2007) was applied to calculate numerical simulations of the near-field mixing and dilution behavior of treated groundwater effluent entering the nearshore coastal receiving environment in Melvin Bay. CORMIX is one of the most extensively applied models for predicting near-field discharge plume mixing and dilution of both conservative and non-conservative substances in surface water bodies. CORMIX calculates plume boundary interactions to estimate plume fate in terms of dilution and geometry relative to mixing zone regulations (Doneker and Jirka 2007). Nearshore ambient and treated groundwater effluent characteristics required to implement the mixing model are presented in the sections that follow.

2.1 Conditions for Modelling

2.1.1 Ambient Conditions

Assumptions made to characterize the ambient conditions of the receiving marine waters are as follows:

- Weak current: Ambient current velocity of 0.01 m/s and zero wind velocity were considered for this scenario which represented a slack tide condition during ice covered season.
- Mean current: Current speed of 0.2 m/s with no wind was used for this scenario.
- Open water condition: The water temperature and TDS (salinity) were considered to be 0°C (to account for the start and end of the open water season) and 33,300 mg/L, respectively.
- Water depth at discharge location is 20 m.

2.1.2 Discharge Conditions

Following discharge conditions based on estimated underground inflows were used for the near field mixing analysis:

- Flow rate of 800 m³/d discharged over a 12 hour period (for an equivalent flow rate of 1,600 m³/day), with TDS of 39,600 mg/L.
- Treated groundwater effluent temperature: 0°C.
- Outfall length: 230 m from the shoreline as shown.
- A single nozzle for discharge which has inside diameter of 68.07 mm (standard 3.0 inch port, DR9 (PE 4710), 252 psi) was used.
- Nozzle elevation from seabed: 1 m.
- Direction of discharge is perpendicular to the bathymetry contour and 90° vertical angle (upward port).

2.1.3 Modelling Scenarios

Table 1 lists the combination of effluent flow rate and ambient current speed in two simulation scenarios. Table 2 lists the CORMIX model input parameters. The target dilution at the edge of the near-field mixing zone is 11 as per analysis presented in Appendix B.

Table 1: Modelling Scenarios

Parameter	Scenario	
	1	2
Treated Groundwater Effluent Rate (m ³ /d) ¹	1,600	1,600
Ambient Current Speed (m/s)	0.01	0.20
Discharge Velocity (m/s)	5.1	5.1

Note: 1. Daily flow rate is 800 m³/day but this volume will be discharged over 12 hours for an equivalent flow rate of 1,600 m³/day.

Table 2: CORMIX Model Input Parameters

Parameter	Value	Source
Depth at Discharge	20 m	Based on 2017 bathymetry survey completed by Agnico Eagle
Coastal Current (Velocity)	Low = 0.01 m/s Mean = 0.2 m/s	Based on CCG (2008) and assumed
Roughness Value	0.020	Assumed (equivalent to minimum roughness value of similar seabed). This value does not affect vertical jet results.
Wind Speed	0 m/s	Assumed
Water Condition	Saline, non-stratified	Based on Agnico Eagle (2014) and confirmed through Sep. 2018 sampling
Ambient water temperature	Open water season (start and end condition): 0°C	Conservative estimate to capture the start and end of the open water season for discharge
Effluent Flow Rate	1,600 m ³ /d ¹	Per underground inflow and storage estimates (Agnico Eagle 2014; Golder 2016)
Effluent Temperature	0°C	Based on Diamond Drill Hole groundwater data (Agnico Eagle 2017)
Effluent Concentration	100%	Assumed
Discharge Type	Single Port	Assumed
Distance from Nearest Bank	230 m	Assumed
Horizontal Angle of Discharge	Perpendicular to bathymetric contour	Assumed
Vertical Angle of Discharge	90°	Assumed
Port Height above Seabed	1.0 m	Assumed
Port Diameter	0.0681 m	Assumed (3.0" port, DR 9, 252 psi)

Note: 1. Daily flow rate is 800 m³/day but this volume will be discharged over 12 hours for an equivalent flow rate of 1,600 m³/day.

3.0 RESULTS

Figures 2 and 3 present the near-field treated groundwater effluent plume dilution for a discharge of 800 m³/day (an effective effluent rate of 1,600 m³/d) in weak and mean ambient current conditions respectively, via the diffuser. For weak ambient current conditions, the maximum plume (centreline) height is 11.1 m from the seabed. For mean current conditions, the maximum plume (centreline) height is 5.6 m above the seabed. After reaching the maximum height, the negatively buoyant plumes settle towards the bottom as gravity starts to dominate over the initial jet momentum, and this is illustrated by the plume centrelines of Figures 2 and 3. For both scenarios, the plume centreline dilution factor reaches 11 within 1 m horizontal distance and 6 m vertical distance above the port. At

100 m distance from the diffuser, the dilution factors are 70 and 470 for scenarios 1 and 2 respectively, which are much higher than the required dilution of 11.

Figure 4 shows the changes in chloride concentration along the centrelines of the plumes, illustrating that at less than 5 m distance from the diffuser, the chloride concentration meets the required criteria. Figure 5 shows the changes in TDS concentration along the centrelines of the plumes, illustrating that at less than 1 m distance from the diffuser, the TDS concentration meets the required criteria.

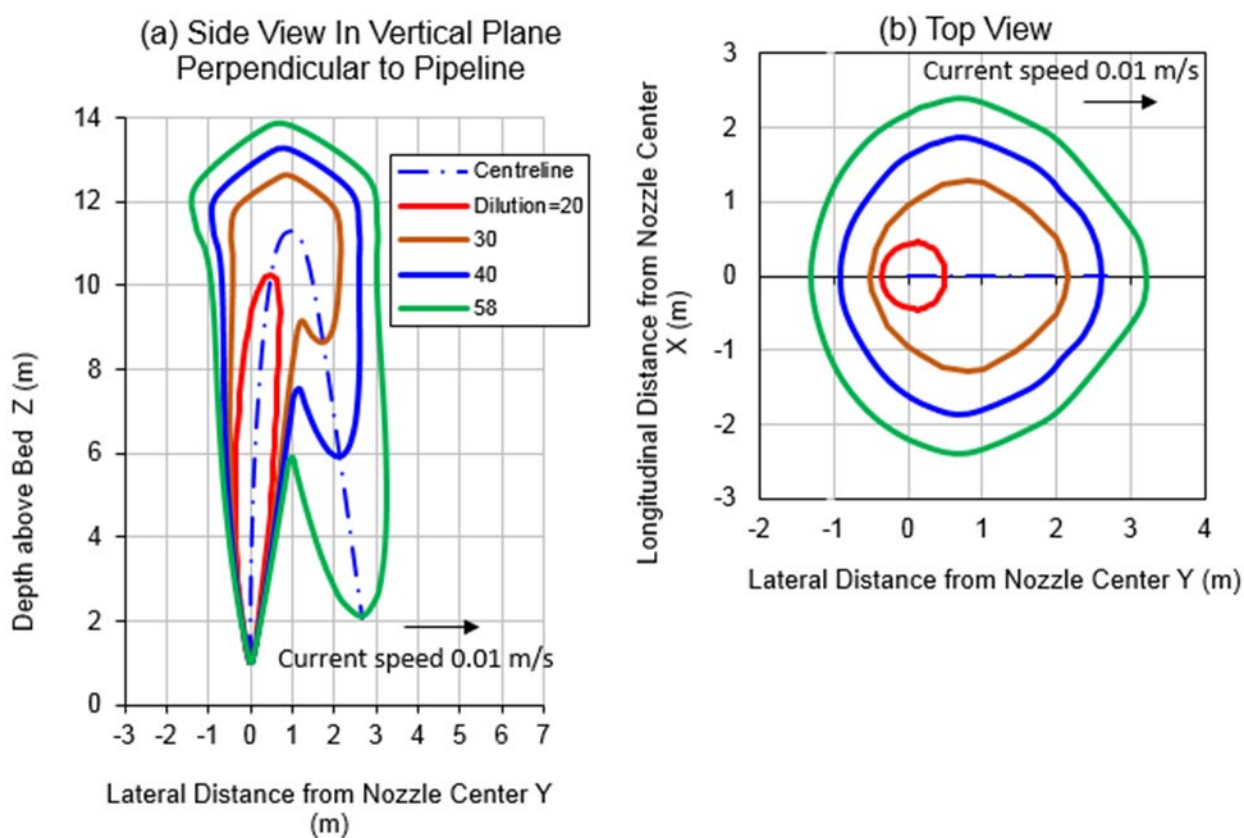


Figure 2: Dilution contours for a flow rate of 800 m³/day (effective effluent flow rate of 1,600 m³/d) in weak ambient current

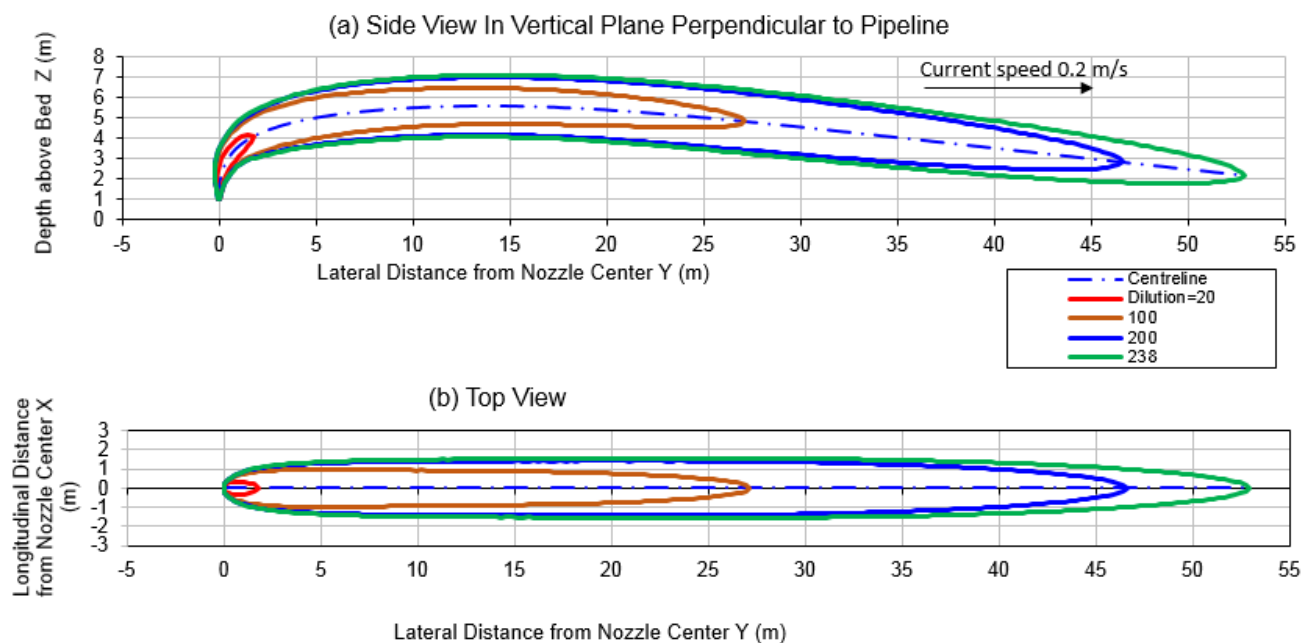


Figure 3: Dilution contours for a flow rate of 800 m³/day (effective effluent flow rate of 1,600 m³/d) in mean ambient current

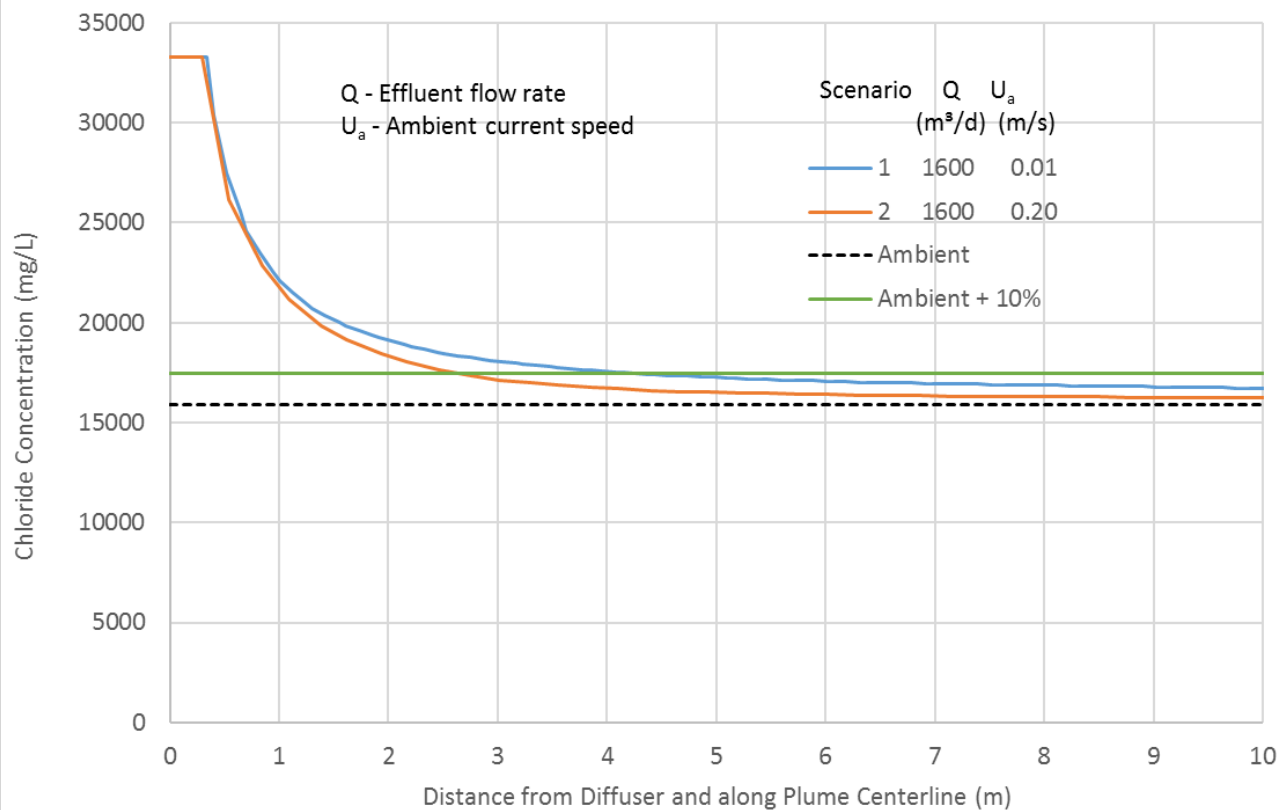


Figure 4: Chloride concentration along the plume centreline for both scenarios

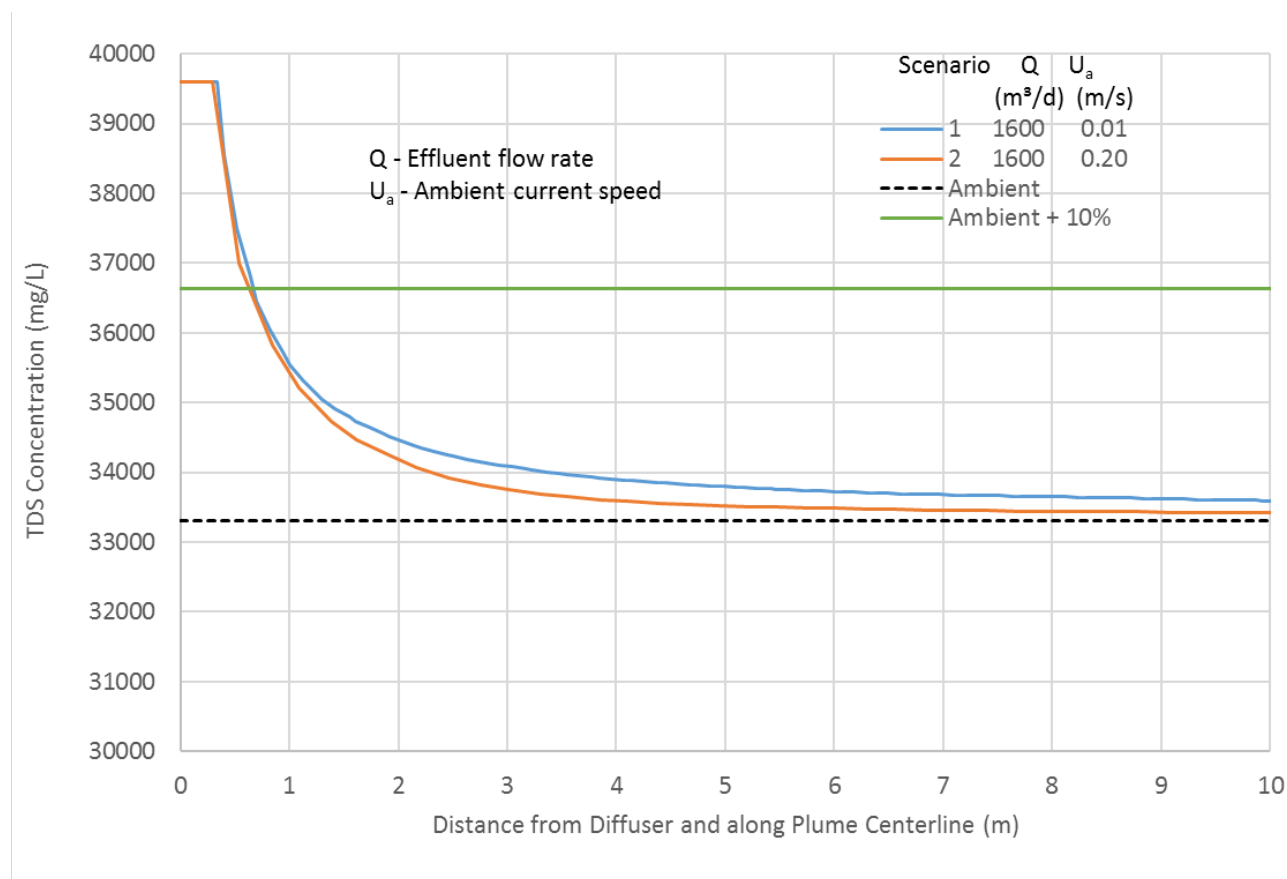


Figure 5: TDS concentration along the plume centreline for both scenarios

3.1 Temperature Sensitivity Analysis

For the simulated scenarios (800 m³/day discharged over 12 hours for an effective flow rate of 1,600 m³/day under weak and mean ambient current conditions), a sensitivity analysis simulation was conducted to review the effect of effluent and ambient temperature changes. The simulation conditions were otherwise identical to those for scenarios 1 and 2 except that the effluent temperature was increased to 20°C, and the ambient water temperature was increased to 8.5°C. The 20°C effluent temperature is understood to be the highest (though not expected) possible effluent temperature, as communicated by Agnico Eagle in November 2018. The 8.5°C was the water temperature measured in August 2011 at depth of 13 m below water surface (Stantec 2012).

The effluent temperature change results in effluent density change from 1031.85 kg/m³ to 1028.30 kg/m³, and the ambient water temperature change results in ambient water density change from 1026.76 kg/m³ to 1025.89 kg/m³. The temperature changes result in a slight change of the density difference between effluent and ambient water from 5.09 kg/m³ to 2.41 kg/m³. The plumes remain negatively buoyant with this temperature change, but not as strongly negative as under the original temperature assumptions for the ambient and effluent temperatures (both 0°C).

Table 3 summarizes the simulation results for sensitivity analysis on temperature change for the two scenarios. This table illustrates the following:

- The plumes rise to higher elevations than the plumes with the originally assumed temperature of 0°C due to reduced negative buoyancy.
- Similar to the original discharge plumes, the required dilution is met at less than 1 m distance from the diffuser.
- At an effective flow rate of 1,600 m³/day, the dilution factors at 100 m from the diffuser are increased due to accelerated plume mixing.

Table 3: Summary of simulation results for effluent temperatures of 20°C and ambient temperature of 8.5°C

Parameter	Scenario	
	1	2
Effluent flow rate (m ³ /d) ¹	1,600	1,600
Ambient current velocity (m/s)	0.01	0.2
Horizontal distance (m) from diffuser where required dilution of 11 is met	<1	<1
Maximum plume (centerline) height (m)	16.2	6.3
Dilution factor at 100 m from diffuser	163	563
Simulation results for originally assumed temperatures of 0°C		
Maximum plume (centerline) height (m)	11.1	5.6
Dilution factor at 100 m from diffuser	70	470

Note: 1. Daily flow rate is 800 m³/day but this volume will be discharged over 12 hours for an equivalent flow rate of 1,600 m³/day.

4.0 CONCLUSIONS

Mixing analysis was conducted for a diffuser designed for Melvin Bay, Rankin Inlet NWT. The simulation results show the following:

- 1) Dilution of the treated groundwater effluent plume is achieved within 5 m of the diffuser under the assumed conditions for the ambient and discharge conditions tested under assumed and increased temperatures.
- 2) After initial mixing, the plume migrates along the seabed under gravity and achieves further dilution and mixing with ambient water; concentrations within the 100 m regulatory mixing zone will thus meet discharge criteria per regulatory requirements and/or background concentrations for non-regulated parameters per the modelled conditions.
- 3) The results are valid for placement of the diffuser in Melvin Bay in water depths of at least 20 m.
- 4) Sensitivity analysis was performed for increased effluent and ambient temperatures. The required dilution of 11 is met within 1 m of the diffuser and dilution factors at 100 m from the diffuser were increased from the base case.

CLOSURE

Should you require any further information, please contact the undersigned.

Golder Associates Ltd.

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APPENDIX A

Field Measurements

Table A1: Results for September 2018 Measurements

Parameter	Minimum	Maximum	Average
pH (pH)	7.96	7.98	7.97
Salinity (psu)	29.7	30.5	30.0
TSS (mg/L)	<2	3.8	2.4
TDS (mg/L)	33,300	36,000	34,727
Hardness (as (CaCO ₃) (mg/L)	4,890	5,180	5,000
Conductivity (uS/cm)	45,400	46,500	45,782
Temperature (°C)	5.80	6.13	5.92
Chloride (mg/L)	15,900	17,400	16,655

Source: Golder (2018)

APPENDIX B

Environmental Guidelines

The intention of the treated groundwater effluent discharge objectives is to set the allowable effluent concentrations at the end-of-pipe and edge of a regulatory mixing zone. These allowable concentrations can then be used to design the diffuser to achieve the required dilution within the mixing zone. There is no specific definition for size of a mixing zone for discharges to Canadian coastal and estuarine waters. However, a radius of 100 m from the point of discharge is widely used for environmental compliance assessments. For example, the Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories (NWT 1992) provide guidance that the limits of initial mixing zone are 100 m from all points of discharge. For the current study, a 100 m regulatory mixing zone was applied.

Final effluent quality included in the model and assessment was based on measured groundwater quality from the borehole samples (see Section 3.4.2, Table 3 of the FEIS Addendum) and constrained by various regulations and guidelines to achieve non-acutely lethal effluent that will meet chronic guidelines or background concentrations at the edge of the regulatory mixing zone. The regulations and guidelines considered included:

- The proposed Metal and Diamond Mining Effluent Regulations (MDMER; GC 2017).
- Acute water quality guidelines for protection of marine aquatic life (CCME 2003; BC MOE 2017a, b).
- Fisheries and Oceans Canada Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO 2013).

Table B1: Meliadine Mine – Assumed Treated Groundwater Effluent Discharge Criteria

Parameter	Units	Discharge Criteria	
		Standard Based ⁽¹⁾	95 UCLM ⁽²⁾
pH (pH units)	pH units	-	7.634
Alkalinity (as CaCO ₃)	mg/L	-	71.35
Total Hardness (as CaCO ₃)	mg/L	-	14101
Turbidity	NTU	-	90.54
Total Dissolved Solids (TDS)	mg/L	-	58,165
Total Suspended Solids (TSS)	mg/L	15	159.4
Aluminium	mg/L	-	1.832
Ammonia (as N)	mg/L	5.91	35.47
Antimony	mg/L	-	0.0047
Arsenic	mg/L	0.0125	0.0193
Barium	mg/L	-	0.299
Beryllium	mg/L	-	0.00165
Bicarbonate (as CaCO ₃)	mg/L	-	69.09
Boron	mg/L	-	2.389
Total Organic Carbon (TOC)	mg/L	-	6.448
Dissolved Organic Carbon (DOC)	mg/L	-	5.69
Cadmium	mg/L	-	5.83E-04
Calcium	mg/L	-	2164
Chloride (dissolved)	mg/L	-	33274
Chromium	mg/L	-	<0.1 ⁽³⁾
Copper	mg/L	0.003	0.113

Table B1: Meliadine Mine – Assumed Treated Groundwater Effluent Discharge Criteria

Parameter	Units	Discharge Criteria	
		Standard Based ⁽¹⁾	95 UCLM ⁽²⁾
Cyanide (free)	mg/L	0.001	0.0494
Iron	mg/L	-	13.37
Lead	mg/L	0.14	0.00369
Lithium	mg/L	-	3.33
Magnesium	mg/L	-	2129
Manganese	mg/L	-	1.076
Mercury	mg/L	-	4.01E-05
Molybdenum	mg/L	-	0.0181
Nickel	mg/L	0.5	0.0208
Nitrate (as N)	mg/L	1500	35.65
Nitrite (as N)	mg/L	-	2.156
Total Kjeldahl Nitrogen (TKN)	mg/L	-	55.4
Phosphorus	mg/L	-	0.069
Potassium	mg/L	-	514.2
Radium-226 (Ra 226)	Bq/L	0.37	2.498
Selenium	mg/L	-	0.0457
Silica (reactive)	mg/L	-	19.77
Silver	mg/L	0.003	8.10E-04
Sodium	mg/L	-	14784
Strontium	mg/L	-	65.21
Sulfate	mg/L	-	3160
Thallium	mg/L	-	3.57E-04
Tin	mg/L	-	<0.5 ⁽³⁾
Titanium	mg/L	-	0.187
Uranium	mg/L	-	0.00168
Vanadium	mg/L	-	<0.5 ⁽³⁾
Zinc	mg/L	0.055	0.133

Notes:

"<" Concentration is below the reported detection limit (RDL).

- End of pipe discharge criteria is based on the minimum of the following (refer to Tables 8 and 9 of the FEIS Addendum):
Amended Metal and Diamond Mining Effluent Regulations (MDMER; GC 2017) Schedule 4 Authorized Limits of Deleterious Substances - Maximum Authorized Monthly Mean Concentration.
Canadian Council of Ministers of the Environment (CCME 2003) Short-term Water Quality Guidelines (WQG) for the Protection of Aquatic Life - Marine.
British Columbia Ministry of Environment (BC MOE 2017a) Approved Water Quality Guidelines for Marine Aquatic Life (Short-Term).
BC MOE Working Water Quality Guidelines for Marine Aquatic Life (BC MOE 2017b).
- 95% Upper Confidence Level of the Mean (UCLM) of the August 2016 to September 2017 diamond drillhole groundwater data provided by Agnico Eagle. 95% UCLM calculated using the US EPA ProUCL Version 5.1 software. Agnico Eagle will monitor groundwater quality and criteria will be updated as necessary based on observed changes.
- A 95% UCLM could not be calculated due to low detection rates within the dataset. The maximum concentration has been used for conservative purposes.

In addition to the above and since chloride ions mainly constitute the salt content in the marine water and ultimately the treated groundwater effluent plume, chloride guidelines are used to assess the near-field mixing zone. No local or federal guideline was available for chloride discharges in the marine environment, and therefore, the guideline published by the BC MOE (2017a) was used for the analysis. The guideline states:

“Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth”.

This indicates that the chloride concentration at the mixing zone boundary should not exceed the ambient chloride concentration of 15,900 mg/L by 1,590 mg/L (10%). The behavior of the discharge in the marine environment is influenced by density. For the purposes of this assessment, it is assumed that treatment of the groundwater will be such as to achieve a TDS concentration of the treated groundwater effluent that is +/- 10% (in line with the BC MOE 2017a guideline) of the maximum TDS concentration of 36,000 mg/L measured in September 2018 at Melvin Bay. Therefore, the assumed effluent TDS concentration will be up to approximately 39,600 mg/L. It is conservatively assumed that the chloride concentration of 33,300 mg/L remains unchanged in the treated groundwater effluent.

To reach a chloride concentration difference of no more than 10% at the edge of regulatory mixing zone, the required plume dilution factor via the diffuser is 11, per the equation below:

$$S = \frac{C_{eff} - C_a}{C_{edg} - C_a} = \frac{C_{eff} - C_a}{110\%C_a - C_a} = \frac{33,300 - 15,900}{110\% \times 15,900 - 15,900} = 11$$

where S is required dilution factor, C_{eff} is effluent chloride concentration (33,300 mg/L), C_a is ambient chloride concentration (15,900 mg/L), and C_{edg} is chloride concentration at the edge of regulatory mixing zone. Per the BC MOE (2017a) guideline, the upper bound of C_{edg} is 10% greater than ambient chloride concentration.

There are also no federal or provincial specific criteria for mixing zone discharges regarding thermal changes to the marine environment. However, per the BC MOE (2017a) guideline:

“Temperature at the mixing zone boundary should not change by more or less than 1°C from natural ambient background temperatures, and the hourly rate of change should not exceed 0.5°C.”

This is taken into consideration for the model, which conservatively assumes treated groundwater effluent discharge and ambient ocean temperatures of 0°C, to account for start and end of temperatures for the open water season.