

ARS Aleut Analytical, LLC 3710 Woodland Dr. Suite 900 Anchorage, AK 99517 Phone: 907-258-2155 Fax: 907-258-6634

8/17/2017

Kenai Watershed Forum 44129 Sterling Highway Soldotna, AK 99669 Attn: Jeff Sires Work Order #: A1707351 Date: 8/17/2017

Work ID: KWF Baseline Monitoring July 2017

Date Received: 7/25/2017

Proj #: KWF Baseline Monitoring July 2017

Sample Identification

 Lab Sample Number
 Client Description
 Lab Sample Number
 Client Description

 A1707351-01
 RM79.5 -Juneau Creek

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Mary Curry Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

ARS Aleut Analytical, LLC Work Order: A1707351

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Standard Methods for the Examination of Water and Wastewater, 22nd Edition, 2012.

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

SAMPLE RECEIPT:

One (1) sample was received on 7/25/2017 11:00:00 AM at a temperature of 7.8° C at AAA - Anchorage. The sample was received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH AAA QA PLAN A summary of our review is shown below.

All analytical results contained in this report have been reviewed under AAA's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries, is kept on file in our office and is available upon request.

All method specifications were met for the following tests, unless otherwise noted:

Test Method: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - nitrate+nitrite pres f - Aqueous

Test Method: SM4500-PE - Total Phos HACH 8190 - Aqueous

The following are subcontracted tests and have been represented to us as having met criteria, unless otherwise noted:

Test Method: 200. 7 - Metals by ICP - 200.7 metals - Aqueous

ARS Aleut Analytical, LLC

1

Workorder (SDG): A1707351

KWF Baseline Monitoring July 2017 Project:

Client: Kenai Watershed Forum

Client Project Number: KWF Baseline Monitoring July 2017 Report Section: Client Sample Report

Client Sample Name: RM79.5 -Juneau Creek

Matrix:	Aqueous	Collection Date:	7/25/2017 9:22:00AM
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The following test was conducted by: (ARS) American Radiation Service

A1707351-01B Lab Sample Number: Analysis Date: 8/2/2017 3:54:00PM

08-02-2017 Instrument: Prep Date: Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals File Name:

Dilution Factor: Prep Method ID:

R1708161449-24 Prep Batch Number:

CBAILEY Report Basis: As Received **Analyst Initials:**

Sample prep wt./vol: Prep Extract Vol: ml

POL MDL Analyte **CASNo** Result Flags Units run#: Calcium 7440-70-2 ug/L 300 100 15,100 Iron 7439-89-6 35.20 ug/L 60 20 ug/L 60 20

The following test was conducted by: ARS Aleut Analytical, LLC

7439-96-4

Lab Sample Number: A1707351-01D Analysis Date: 8/10/2017 12:55:00PM

08-10-2017 12:08 Instrument: Spectrophoto Prep Date:

Analytical Method ID: SM4500-PE - Total Phos HACH 8190 File Name:

1,180

Prep Method ID: 4500-PE Dilution Factor:

Prep Batch Number: F170810003

SC Report Basis: As Received **Analyst Initials:**

Sample prep wt./vol: 5.00 ml Prep Extract Vol: 5.00 ml

< 2.00pH on receipt:

Magnesium

CASNo <u>run #:</u> Result Flags Units PQL MDL 0.10 0.025 Phosphorous, Total ND mg/L 1

The following test was conducted by: ARS Aleut Analytical, LLC

A1707351-01A 8/8/2017 12:20:00PM Lab Sample Number: Analysis Date:

Prep Date: 08-08-2017 12:08 Instrument: Spectrophoto

Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - nFile Name:

Prep Method ID: Dilution Factor: 1

F170810005 Prep Batch Number:

As Received SC Report Basis: **Analyst Initials:**

Sample prep wt./vol: 25.00 Prep Extract Vol: 25.00 ml ml

< 2.00pH on receipt:

Analyte <u>run #:</u> **CASNo** Result Flags Units PQL MDL Nitrate-Nitrite as Nitrogen ND mg/L 0.10 0.015 1

ARS Aleut Analytical, LLC

Workorder (SDG): A1707351

Project: KWF Baseline Monitoring July 2017

Client: Kenai Watershed Forum

Client Project Number: KWF Baseline Monitoring July 2017
Report Section: Method Blank Report

Client Sample Name:

Matrix:						(Collection Date:	8/2/2017	3:21:00PM
The following test was	conducted by: (ARS) Ame	rican Radiat	ion Ser	vice					
Lab Sample Number:	ARS1-B17-01617-03						Analysis Date:	8/2/2017	7 3:21:00PM
Prep Date:	08-02-2017						Instrument:		
Analytical Method ID:	200. 7 - Metals by ICP - 2	200.7 metals					File Name:		
Prep Method ID:							Dilution Factor:	1	
Prep Batch Number:	R1708161449-24								
Report Basis:	As Received						Analyst Initials:	CBAILE	Y
Sample prep wt./vol:							Prep Extract Vol:		ml
Analyte	CASNo	Result	Flags	<u>Units</u>	POL	MDL			<u>run #:</u>
Calcium	7440-70-2	ND		ug/L	300	100			1
Iron	7439-89-6	ND		ug/L	60	20			
Magnesium	7439-96-4	ND		ug/L	60	20			
The following test was	conducted by: ARS Aleut	Analytical,L	LC						
Lab Sample Number:	F170810003-MB						Analysis Date:	8/10/20	17 12:55:00PM
Prep Date:	08-10-2017 12:08						Instrument:	Spectro	photo
Analytical Method ID:	SM4500-PE - Total Phos	HACH 8190)				File Name:		
Prep Method ID:	4500-PE						Dilution Factor:	1	
Prep Batch Number:	F170810003								
Report Basis:	As Received						Analyst Initials:	SC	
Sample prep wt./vol:	5.00 ml						Prep Extract Vol:	5.00	ml
pH on receipt:	0.00								
<u>Analyte</u>	CASNo	Result	Flags	Units	PQL	MDL			<u>run #:</u>
Phosphorous, Total		ND		mg/L	0.10	0.025	5		1
The following test was	conducted by: ARS Aleut	Analytical,L	LC						
Lab Sample Number:	F170810005-MB	•					Analysis Date:	8/8/201	7 12:20:00PM
Prep Date:	08-08-2017 12:08						Instrument:	Spectro	photo
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - nFile Name:									
Prep Method ID:							Dilution Factor:	1	
Prep Batch Number:	F170810005								
Report Basis:	As Received						Analyst Initials:	SC	
							r tildiy st illitidis.		

PQL MDL

0.015

0.10

<u>run #:</u>

1

pH on receipt:

Nitrate-Nitrite as Nitrogen

Analyte

0.00

CASNo

Result

ND

Flags Units

mg/L

ARS Aleut Analytical, LLC

Workorder (SDG): A1707351

Project: KWF Baseline Monitoring July 2017

Client: Kenai Watershed Forum

Client Project Number: KWF Baseline Monitoring July 2017

Tests Run at:

Workorder (SDG): A1707351

Project: KWF Baseline Monitoring July 2017

Project Number: QUALITY CONTROL REPORT

Prep Batch: **F170810005**

LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - MB: F170810005-MB

Prep Date: 8/8/2017

Analyte Name SampResult LCSRes. SPLev Recov. Recov. Recov Lim RPDLim Flag

Nitrate-Nitrite as Nitrogen ND 0.351 0.328 107.0 90 - 110

Prep Batch: **F170810003**

LCS REPORT

Analysis: SM4500-PE - Total Phos HACH 8190 MB: F170810003-MB

Prep Date: 8/10/2017

MB Anal. Date: 8/10/2017 12:55:00PM Units: mg/L LCS Anal. Date: 8/10/2017 12:55:00PM Matrix: Aqueous

Analyte Name SampResult LCSRes. SPLev Recov. Recov Lim RPDLim Flag

Phosphorous, Total ND 0.293 0.320 91.7 90 - 110

FOOTNOTES TO OC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

ARS Aleut Analytical, LLC

Workorder (SDG): A1707351

Project: KWF Baseline Monitoring July 2017

Client: Kenai Watershed Forum

Client Project Number: KWF Baseline Monitoring July 2017

ARS Aleut Analytical, LLC

Workorder (SDG): A1707351

Project: **KWF Baseline Monitoring July 2017**

Client: Kenai Watershed Forum

KWF Baseline Monitoring July 2017 Client Project Number:

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID:	188,887	Lab Project Number:	A1707351		
				Prep Date: 8/10/2017	
Lab Method Blank Id:	F170810003-MB				
Prep Batch ID:	F170810003				
Method:	SM4500-PE - Total	Phos HACH 8190			
This Method blank and	sample preparation batch a	are associated with the following s	amples, spikes, and du	plicates:	
<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>		<u>AnalysisDate</u>	
A1707350-01D	Batch QC			8/10/2017 12:55:00PM	
A1707351-01D	RM79.5 -Juneau Creek	ζ		8/10/2017 12:55:00PM	
F170810003-LCS	LCS			8/10/2017 12:55:00PM	
A1707350-01D-DUP	DUP			8/10/2017 12:55:00PM	
A1707350-01D-MS	MS			8/10/2017 12:55:00PM	
A1707350-01D-MSD	MSD			8/10/2017 12:55:00PM	
				Prep Date: 8/8/2017	
Lab Method Blank Id:	F170810005-MB			11cp Date. 0/0/2017	
Prep Batch ID:	F170810005				
Method:	Method: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method -				
This Method blank and	This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:				

D-4-E:1

<u>SampleNum</u>	ClientSampleName	<u>DataFile</u>	<u>AnalysisDate</u>
A1707350-01A	Batch QC		8/8/2017 12:20:00PM
A1707351-01A	RM79.5 -Juneau Creek		8/8/2017 12:20:00PM
F170810005-LCS	LCS		8/8/2017 12:20:00PM
A1707350-01A-DUP	DUP		8/8/2017 12:20:00PM
A1707350-01A-MS	MS		8/8/2017 12:20:00PM

Prep Date: 8/2/2017

Lab Method Blank Id: ARS1-B17-01617-03 Prep Batch ID: R1708161449-24

200. 7 - Metals by ICP - 200.7 metals Method:

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

DataFile SampleNum ClientSampleName **AnalysisDate**

A1707351-01B RM79.5 - Juneau Creek 8/2/2017 3:54:00PM

ARS Aleut Analytical, LLC

Workorder (SDG): A1707351

Project: KWF Baseline Monitoring July 2017

Client: Kenai Watershed Forum

Client Project Number: KWF Baseline Monitoring July 2017

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

ARS Aleut Analytical, LLC

Workorder (SDG): A1707351

Project: KWF Baseline Monitoring July 2017

Client: Kenai Watershed Forum

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REPORTING CONVENTIONS FOR THIS REPORT

A1707351

	111707331		
<u>TestPkgName</u>	Basis	# Sig Figs	Reporting Limit
200.7 (Aqueous) - 200.7 metals	As Received	3	Report to MDL, J qual below PQL
4500-NO3E (Aqueous) - nitrate+nitrite pres f	As Received	3	Report to PQL
4500-PE/4500-PE (Aqueous) - Total Phos HACH 8	8190 As Received	2	Report to PQL

Fax No: E-mail:

AAA Chain of Custody

Please provide as much information as possible Custody form MUST be signed

Anchorage Laboratory Mat-Su Service Center 3710 Woodland Dr. Suite 900'01 East Parks Highway #206 Anchorage, AK 99517 Wasilia, AK 99654 907.258.2155 907.258 6534

mid Right 2nd shelf

Fairbanks, AK 99701 475 Hall Street

ARS Corporate Office 2609 North River Road Port Allen, LA 70767 225.381.2991 225.381.2996 fax

907.456.3116 907.456.3125 fax

Temperature on arrival: 00 Measurement method: Temp Blank Other Comments Credit LGN: A170735 Jse for MS/MSD Section To Be Completed by AAA Field Filtered Broken Check nvoice Contact Name & Address & Phone: Section To Be Completed by AAA Field Preserved Sampling Event ID: #10reservative Receiving location: Received on ice Requested Analysis/Method 87335 #10 Preservative Shipping method/Tracking number: A17040002 * Quote Number: PO/Contract No.: #107 Condition of Custody Seal: Soldetha Preservative Account #: Thermometer ID # Preservative H2SO4 Total Phos SM4500 please specify due date below; additional charges may apply Routine | Non-Routine Expedited (prior authorization required for < 10 days) Preservative @LAB 200.7 Total Metals **Turnaround Time (TAT) for Results** Kenai River Baseline Project -July 2017 3 Time Time Time Nitrate SM4500-N03E Preservative H2504 Lot# PH2504 1100 No. of Containers m Soil/Solid Other 1/52/ Date Date Date **№** Ad Matrix Requested Date for Results: Results to STATE: Tes Time KWF 922 ☐ Standard Project Name: SINCLAIR Received by: Received by Received by: Date Sampled 7-25-17 TEAM ID: 110091 Time Time Time S BRCK 7.25-17 (Name, Designation, Location, etc.) Date Date Date Client Sample Identification RM 79.5 -Juneau Creek 907-260-5449 c:953-9635 jeff@kenaiwatershed.org Client/Company Name & Address: Special Instructions/Requirements: 907-260-5412 Kit Preparation/Shipping Charge: Jeff Sires Name of Sampler: (printed) Kenai Watershed Forum Soldotna, AK 99669 44129 Sterling Hwy Contact Person: Refinduished by Relinquished by: Relinquished by Phone No:

dehna

to

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