ARS Aleut Analytical, LLC
4307 Arctic Boulevard
Anchorage, AK 99503
Phone: 907-258-2155
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8/5/2015

Kenai Watershed Forum
44129 Sterling Highway
Soldotna, AK 99669
Attn: Branden Bornemann

Work Order #: A1507366
Date: 8/5/2015
Work ID: KWF Baseline Monitoring 2015
Date Received: 7/21/2015
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
A1507366-01	RM 19-Slikok Creek	A1507366-02	RM 21-Soldotna Bridge
A1507366-03	RM 22-Soldotna Creek	A1507366-04	RM 23-Swiftwater Park

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,

Carissa Cumine
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

ARS Aleut Analytical

Work Order: A1507366

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

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

Standard Methods for the Examination of Water and Wastewater, 21st Edition, 2005.

SAMPLE RECEIPT:
Eight (8) samples were received on 7/21/2015 6:05:00 PM at a temperature of 5.6°C at AAA - Anchorage. The samples were received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH ARS Aleut Analytical 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 - Aqueous
Test Method: SM4500-PE - Total Phos HACH 8190 - Aqueous

The following were subcontracted tests and have been represented to us as meeting criteria:
Test Method: 200.8 - Metals by ICP/MS - 200.8 Metals - Aqueous
Test Method: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals - Aqueous

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 19-Slikok Creek**

Matrix: Aqueous Collection Date: 7/21/2015 1:00:00PM

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

Lab Sample Number: A1507366-01A
Prep Date: 7/23/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724011
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/23/2015 9:00:00AM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: RT
Prep Extract Vol: 25.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.312**		mg/L	0.10	0.015	1

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-01B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:22:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**ND**		ug/L	5.0	1.5	1
Cadmium	7440-43-9	**ND**		ug/L	0.50	0.15	
Chromium	7440-47-3	**ND**		ug/L	2.0	0.62	
Copper	7440-50-8	**1.6**		ug/L	1.0	0.31	
Lead	7439-92-1	**ND**		ug/L	0.20	0.062	
Zinc	7440-66-6	**61**		ug/L	5.0	2.5	

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-01C
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-1
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:12:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**18,000**		ug/L	500	150	1
Iron	7439-89-6	**2,100**		ug/L	250	78	
Magnesium	7439-96-4	**5,800**		ug/L	50	15	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 19-Slikok Creek**

Matrix: Aqueous Collection Date: 7/21/2015 1:00:00PM

Lab Sample Number:	A1507366-01D	Analysis Date:	7/24/2015 5:00:00PM
Prep Date:	7/24/2015	Instrument:	Spectrophoto
Analytical Method ID:	SM4500-PE - Total Phos HACH 8190	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	F150727004		
Report Basis:	As Received	Analyst Initials:	EW
Sample prep wt./vol:	5.00 ml	Prep Extract Vol:	5.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorous, Total		**ND**		mg/L	0.10	0.025	1

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 21-Soldotna Bridge**

Matrix: Aqueous Collection Date: 7/21/2015 10:06:00AM

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

Lab Sample Number: A1507366-02A
Prep Date: 7/23/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724011
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/23/2015 9:00:00AM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: RT
Prep Extract Vol: 25.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.169**		mg/L	0.10	0.015	1

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-02B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:24:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**ND**		ug/L	5.0	1.5	1
Cadmium	7440-43-9	**ND**		ug/L	0.50	0.15	
Chromium	7440-47-3	**ND**		ug/L	2.0	0.62	
Copper	7440-50-8	**ND**		ug/L	1.0	0.31	
Lead	7439-92-1	**ND**		ug/L	0.20	0.062	
Zinc	7440-66-6	**37**		ug/L	5.0	2.5	

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-02C
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-1
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:15:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**10,000**		ug/L	500	150	1
Iron	7439-89-6	**420**		ug/L	250	78	
Magnesium	7439-96-4	**1,000**		ug/L	50	15	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 21-Soldotna Bridge**

Matrix: Aqueous

Collection Date: 7/21/2015 10:06:00AM

Lab Sample Number:	A1507366-02D	Analysis Date:	7/24/2015 5:00:00PM
Prep Date:	7/24/2015	Instrument:	Spectrophoto
Analytical Method ID:	SM4500-PE - Total Phos HACH 8190	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	F150727004		
Report Basis:	As Received	Analyst Initials:	EW
Sample prep wt./vol:	5.00 ml	Prep Extract Vol:	5.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorous, Total		**ND**		mg/L	0.10	0.025	1

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 22-Soldotna Creek**

Matrix: Aqueous Collection Date: 7/21/2015 9:15:00AM

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

Lab Sample Number: A1507366-03A
Prep Date: 7/23/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724011
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/23/2015 9:00:00AM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: RT
Prep Extract Vol: 25.00 ml

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

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-03B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:31:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**8.9**		ug/L	5.0	1.5	1
Cadmium	7440-43-9	**ND**		ug/L	0.50	0.15	
Chromium	7440-47-3	**ND**		ug/L	2.0	0.62	
Copper	7440-50-8	**1.7**		ug/L	1.0	0.31	
Lead	7439-92-1	**ND**		ug/L	0.20	0.062	
Zinc	7440-66-6	**39**		ug/L	5.0	2.5	

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-03C
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-1
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:17:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**16,000**		ug/L	500	150	1
Iron	7439-89-6	**800**		ug/L	250	78	
Magnesium	7439-96-4	**4,900**		ug/L	50	15	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 22-Soldotna Creek**

Matrix: Aqueous Collection Date: 7/21/2015 9:15:00AM

Lab Sample Number:	A1507366-03D	Analysis Date:	7/24/2015 5:00:00PM
Prep Date:	7/24/2015	Instrument:	Spectrophoto
Analytical Method ID:	SM4500-PE - Total Phos HACH 8190	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	F150727004		
Report Basis:	As Received	Analyst Initials:	EW
Sample prep wt./vol:	5.00 ml	Prep Extract Vol:	5.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorous, Total		**0.11**		mg/L	0.10	0.025	1

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 23-Swiftwater Park**

Matrix: Aqueous Collection Date: 7/21/2015 11:30:00AM

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

Lab Sample Number: A1507366-04A
Prep Date: 7/24/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724012
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/24/2015 8:30:00AM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: RT
Prep Extract Vol: 25.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.178**		mg/L	0.10	0.015	1

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-04B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:34:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**ND**		ug/L	5.0	1.5	1
Cadmium	7440-43-9	**ND**		ug/L	0.50	0.15	
Chromium	7440-47-3	**ND**		ug/L	2.0	0.62	
Copper	7440-50-8	**ND**		ug/L	1.0	0.31	
Lead	7439-92-1	**ND**		ug/L	0.20	0.062	
Zinc	7440-66-6	**ND**		ug/L	5.0	2.5	

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: A1507366-04C
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-1
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:19:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**10,000**		ug/L	500	150	1
Iron	7439-89-6	**410**		ug/L	250	78	
Magnesium	7439-96-4	**990**		ug/L	50	15	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 23-Swiftwater Park**

Matrix: Aqueous

Collection Date: 7/21/2015 11:30:00AM

Lab Sample Number:	A1507366-04D	Analysis Date:	7/24/2015 5:00:00PM
Prep Date:	7/24/2015	Instrument:	Spectrophoto
Analytical Method ID:	SM4500-PE - Total Phos HACH 8190	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	F150727004		
Report Basis:	As Received	Analyst Initials:	EW
Sample prep wt./vol:	5.00 ml	Prep Extract Vol:	5.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorous, Total		**ND**		mg/L	0.10	0.025	1

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 7/23/2015 9:00:00AM

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

Lab Sample Number: A150724011-MB
Prep Date: 7/23/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724011
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/23/2015 9:00:00AM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: RT
Prep Extract Vol: 25.00 ml

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

Lab Sample Number: A150724012-MB
Prep Date: 7/24/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724012
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/24/2015 8:30:00AM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: RT
Prep Extract Vol: 25.00 ml

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

The following test was conducted by: SGS Environmental Services Inc.

Lab Sample Number: 1278736
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507301225-1
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 6:03:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	ND		ug/L	500	150	1
Iron	7439-89-6	ND		ug/L	250	78	
Magnesium	7439-96-4	ND		ug/L	50	15	

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

Lab Sample Number: F150727004-MB
Prep Date: 7/24/2015
Analytical Method ID: SM4500-PE - Total Phos HACH 8190
Prep Method ID: 4500-PB
Prep Batch Number: F150727004
Report Basis: As Received
Sample prep wt./vol: 5.00 ml

Analysis Date: 7/24/2015 5:00:00PM
Instrument: Spectrophoto
File Name:
Dilution Factor: 1
Analyst Initials: EW
Prep Extract Vol: 5.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous

Collection Date: 7/24/2015 5:00:00PM

Lab Sample Number: F150727004-MB

Prep Date: 7/24/2015

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

Prep Method ID: 4500-PB

Prep Batch Number: F150727004

Report Basis: As Received

Sample prep wt./vol: 5.00 ml

Analysis Date: 7/24/2015 5:00:00PM

Instrument: Spectrophoto

File Name:

Dilution Factor: 1

Analyst Initials: EW

Prep Extract Vol: 5.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorous, Total		**ND**		mg/L	0.10	0.025	1

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A1507366

Project: KWF Baseline Monitoring 2015

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **A150724011**

LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - MB: A150724011-MB

Prep Date: 7/23/2015

MB Anal. Date: 7/23/2015 9:00:00AM Units: mg/L

LCS Anal. Date: 7/23/2015 9:00:00AM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Nitrate-Nitrite as Nitrogen	ND	0.414	0.406	102	90 - 110		

Prep Batch: **A150724012**

SAMPLE DUPLICATE REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - Base Sample: A1507366-04A

Prep Date: 7/24/2015

Samp. Anal. Date: 7/24/2015 8:30:00AM Units: mg/L

DUP Anal. Date: 7/24/2015 8:30:00AM Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Nitrate-Nitrite as Nitrogen	0.178	0.176	1.1	20	

LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - MB: A150724012-MB

Prep Date: 7/24/2015

MB Anal. Date: 7/24/2015 8:30:00AM Units: mg/L

LCS Anal. Date: 7/24/2015 8:30:00AM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Nitrate-Nitrite as Nitrogen	ND	0.448	0.406	110	90 - 110		

MS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - Parent: A1507366-04A

Prep Date: 7/24/2015

Samp. Anal. Date: 7/24/2015 8:30:00AM Units: mg/L

MS Anal. Date: 7/24/2015 8:30:00AM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Nitrate-Nitrite as Nitrogen	0.178	0.406	0.211	108	80 - 120	

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

FOOTNOTES TO QC 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 signifcance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Tests Run at: SGS Environmental Services Inc.
Workorder (SDG): A1507366
Project: KWF Baseline Monitoring 2015
Project Number:

QUALITY CONTROL REPORT

Prep Batch: **R1507301225-1**

LCS REPORT

Analysis: 200.8 - Metals by ICP/MS - 200.8 Metals
MB Anal. Date: 7/27/2015 6:03:00PM
LCS Anal. Date: 7/27/2015 6:05:00PM

MB: 1278736
Prep Date: 7/23/2015
Units: ug/L
Matrix:

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Calcium	ND	10,500	10,000	105	85 - 115		
Iron	ND	5,070	5,000	101	85 - 115		
Magnesium	ND	10,400	10,000	104	85 - 115		

FOOTNOTES TO QC 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 signifcance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Tests Run at:

Workorder (SDG): A1507366

Project: KWF Baseline Monitoring 2015

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **F150727004**

LCS REPORT

Analysis:	SM4500-PE - Total Phos HACH 8190	MB:	F150727004-MB
		Prep Date:	7/24/2015
MB Anal. Date:	7/24/2015 5:00:00PM	Units:	mg/L
LCS Anal. Date:	7/24/2015 5:00:00PM	Matrix:	Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Phosphorous, Total	ND	0.333	0.333	100	90 - 110		

FOOTNOTES TO QC 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 signifcance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **172,472** **Lab Project Number:** **A1507366**

Prep Date: 7/23/2015

Lab Method Blank Id: A150724011-MB
Prep Batch ID: A150724011
Method: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method -

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507357-01E	Batch QC		7/23/2015 9:00:00AM
A1507366-01A	RM 19-Slikok Creek		7/23/2015 9:00:00AM
A1507366-02A	RM 21-Soldotna Bridge		7/23/2015 9:00:00AM
A1507366-03A	RM 22-Soldotna Creek		7/23/2015 9:00:00AM
A150724011-LCS	LCS		7/23/2015 9:00:00AM
A1507357-01E-DUP	DUP		7/23/2015 9:00:00AM
A1507357-01E-MS	MS		7/23/2015 9:00:00AM

Prep Date: 7/24/2015

Lab Method Blank Id: A150724012-MB
Prep Batch ID: A150724012
Method: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method -

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507366-04A	RM 23-Swiftwater Park		7/24/2015 8:30:00AM
A150724012-LCS	LCS		7/24/2015 8:30:00AM
A1507366-04A-DUP	DUP		7/24/2015 8:30:00AM
A1507366-04A-MS	MS		7/24/2015 8:30:00AM

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **172,472** **Lab Project Number:** **A1507366**

Prep Date: 7/24/2015

Lab Method Blank Id: F150727004-MB
Prep Batch ID: F150727004
Method: SM4500-PE - Total Phos HACH 8190

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507329-01E	Batch QC		7/24/2015 5:00:00PM
A1507366-01D	RM 19-Slikok Creek		7/24/2015 5:00:00PM
A1507366-02D	RM 21-Soldotna Bridge		7/24/2015 5:00:00PM
A1507366-03D	RM 22-Soldotna Creek		7/24/2015 5:00:00PM
A1507366-04D	RM 23-Swiftwater Park		7/24/2015 5:00:00PM
F150727004-LCS	LCS		7/24/2015 5:00:00PM
A1507329-01E-DUP	DUP		7/24/2015 5:00:00PM
A1507329-01E-MS	MS		7/24/2015 5:00:00PM
A1507329-01E-MSD	MSD		7/24/2015 5:00:00PM

Prep Date: 7/23/2015

Lab Method Blank Id: 1278736
Prep Batch ID: R1507301225-1
Method: 200.8 - Metals by ICP/MS - 200.8 Metals

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507366-01C	RM 19-Slikok Creek		7/27/2015 6:12:00PM
A1507366-02C	RM 21-Soldotna Bridge		7/27/2015 6:15:00PM
A1507366-03C	RM 22-Soldotna Creek		7/27/2015 6:17:00PM
A1507366-04C	RM 23-Swiftwater Park		7/27/2015 6:19:00PM
1278737	LCS for HBN 1714427 [MXX/28912		7/27/2015 6:05:00PM
1278738	1278941 MS FOR [MXX28912]		7/27/2015 6:10:00PM
1278739	1278942 MS FOR [MXX28912]		7/27/2015 6:41:00PM

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

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

Workorder (SDG): A1507366

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

REPORTING CONVENTIONS FOR THIS REPORT

A1507366

TestPkgName	Basis	# Sig Figs	Reporting Limit
200.8 (Aqueous) - 200.8 Metals	As Received	2	Report to PQL
200.8 (Aqueous) - Dissolved 200.8 Metals	As Received	2	Report to PQL
4500-NO3E (Aqueous) - Nitrate+Nitrite pres	As Received	3	Report to PQL
4500-PE/4500-PB (Aqueous) - Total Phos HACH 8190	As Received	2	Report to PQL

AAA Chain of Custody Form

ARS Aleut Analytical

4307 Arctic Blvd. Anchorage, AK 99503 (907) 258-2155 (907) 258-6634 fax
1325 W. 121st Avenue Westminster, CO 80234 303.469.8868 719.213.2478 fax
475 Hall Street Fairbanks, AK 99701 (907) 456-3116 (907) 456-3125 fax
701 W. Parks Hwy. #203 Wasilla, AK 99654 (907) 373-5440 (907) 258-6634 fax

Chain of Custody No:

Client Name & Address:
Kenai Watershed Forum
44129 Sterling Hwy
Soldotna, AK 99669

Contact Person: Branden Bornemann
Phone No: 907-260-5449 c:953.2605
Fax No: (907) 260-5412
E-mail: branden@kenaiwatershed.org

TEAM ID: ADF&G Habitat Division
Project Name: Kenai River Baseline Project - July 2015

Turnaround Time for Results (TAT)
___ Standard ___ Expedited (< 10 days, prior authorization required) *(please specify due date below; add'l charges may apply)*
Results Due Date:

Special Instructions/Comments:
add. HNO3 added to RM22 Total Metals. pH<2

Section To be Completed by AAA
Quote ID No: A15040012
LGN: A150736b
Account #: Cash: Credit Card:
Invoice to Name & Address:
P.O. or Contract

Lab Bottle Order No:

Client Sample Identification / Location	Date Sampled	Time Sampled	Matrix (S-DW-WW-Other)	No. of Containers	Nitrate SM4500-NO3E Lot #: Pres: H2SO4	200.8 Metals by ICP-Total TR Lot #: Pres: HNO3	200.8 Dissolved Metals Lot #: Pres: HNO3	Total Phos SM4500 Lot #: Pres: H2SO4	Lot #: Pres:	Lot #: Pres:	Lot #: Pres:	Field Preserved	Field Filtered	MS/MSD ?
RM 19 - Slikok Creek	7/21/15	~~10:26 A~~ EK 1:00PM	Aq	4	X	X	X	X						
RM 21 - Soldotna Bridge	7/21/15	10:06 A	Aq	4	X	X	X	X						
RM 22 - Soldotna Creek	7/21/15	~~10:06 A~~ 9:15 A	Aq	4	X	X	X	X						
Rm 23 - Swiftwater Park	7/21/15	10:06 A	Aq	4	X	X	X	X						
	"	11:30 A												

Collected/Relinquished by:	Date	Time	Received by:	Date	Time
Beyer Harris	7/21/15	1:50pm		7/21/15	2:15
Relinquished by:	Date	Time	Received by:	Date	Time
	7/21/15	2:20		7/21/15	1805
Relinquished by:	Date	Time	Received by:	Date	Time
Name of Sampler: (printed)	Beyer Harris				

To be Completed by Analytica

	WES	ANC	WAS	FBKS
Chain-of-Custody Seal?:		—		
Initialed By:		—		
Temp/Loc:		5.6		
Thermo ID#:		Cal109		
Shipping Via:		Employee		