



Analytica Group, LLC-Anchorage
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5/22/2015

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

Work Order #: A1505065
Date: 5/22/2015
Work ID: KWF Baseline Monitoring 2015
Date Received: 5/5/2015
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
A1505065-01	RM 6.5-Cunningham Park	A1505065-02	RM 10-Beaver Creek
A1505065-03	RM 10.1-Kenai River	A1505065-04	RM 12.5-Pillars
A1505065-05	RM 12.5-Pillars Duplicate	A1505065-06	RM 18-Poachers Cove

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,

A handwritten signature in blue ink that reads 'Becky Nichols'.

Becky Nichols
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

ARS Aleut Analytical

Work Order: A1505065

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, 21st Edition, 2005.

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

SAMPLE RECEIPT:

Six (6) samples were received on 5/5/2015 5:20:00 PM at a temperature of 3.9°C at Analytica-Anchorage. Samples were received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH ANALYTICA 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: SM 4500-NO3 E - Nitrogen (Nitrate), Cadmium Reduction Method - Nitrate+Nitrite pres - Aqueous

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

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

Test Method: SM 4500-PE - Phos - Aqueous

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 6.5-Cunningham Park

Matrix: Aqueous

Collection Date: 5/5/2015 9:30:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1505065-01A

Prep Date: 5/17/2015

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

Prep Method ID:

Prep Batch Number: A150518001

Report Basis: As Received

Sample prep wt./vol: 25.00 ml

Analysis Date: 5/17/2015 8:00:00AM

Instrument: Thermospectr

File Name:

Dilution Factor: 1

Analyst Initials: TR

Prep Extract Vol: 25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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: A1505065-01C

Prep Date: 5/9/2015

Analytical Method ID: SM4500-PE - Phos

Prep Method ID: 4500-PB

Prep Batch Number: R1505211149-28

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/11/2015 11:26:00AM

Instrument:

File Name:

Dilution Factor: 5

Analyst Initials: SLC

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Phosphorous, Total		0.60		mg/L	0.050	0.016	1

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

Lab Sample Number: A1505065-01D

Prep Date: 5/7/2015

Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals

Prep Method ID:

Prep Batch Number: R1505211150-29

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/8/2015 1:03:00PM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: ACF

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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	3.7		ug/L	1.0	0.31	
Lead	7439-92-1	ND		ug/L	0.20	0.062	
Zinc	7440-66-6	14		ug/L	5.0	2.5	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 6.5-Cunningham Park

Matrix: Aqueous Collection Date: 5/5/2015 9:30:00AM

Lab Sample Number: A1505065-01B

Analysis Date: 5/8/2015 12:33:00PM

Prep Date: 5/7/2015

Instrument:

Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: R1505211147-27

Report Basis: As Received

Analyst Initials: ACF

Sample prep wt./vol:

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Calcium	7440-70-2	14,000		ug/L	500	150	1
Iron	7439-89-6	19,000		ug/L	250	78	
Magnesium	7439-96-4	8,400		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **RM 10-Beaver Creek**

Matrix: Aqueous

Collection Date: 5/5/2015 10:45:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1505065-02A

Prep Date: 5/17/2015

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

Prep Method ID:

Prep Batch Number: A150518001

Report Basis: As Received

Sample prep wt./vol: 25.00 ml

Analysis Date: 5/17/2015 8:00:00AM

Instrument: Thermospectr

File Name:

Dilution Factor: 1

Analyst Initials: TR

Prep Extract Vol: 25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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: A1505065-02C

Prep Date: 5/9/2015

Analytical Method ID: SM4500-PE - Phos

Prep Method ID: 4500-PB

Prep Batch Number: R1505211149-28

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/11/2015 10:46:00AM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: SLC

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Phosphorous, Total		0.11		mg/L	0.010	0.0031	1

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

Lab Sample Number: A1505065-02D

Prep Date: 5/7/2015

Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals

Prep Method ID:

Prep Batch Number: R1505211150-29

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/8/2015 1:05:00PM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: ACF

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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	3.1		ug/L	1.0	0.31	
Lead	7439-92-1	ND		ug/L	0.20	0.062	
Zinc	7440-66-6	66		ug/L	5.0	2.5	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 10-Beaver Creek

Matrix: Aqueous

Collection Date: 5/5/2015 10:45:00AM

Lab Sample Number: A1505065-02B

Analysis Date: 5/8/2015 12:35:00PM

Prep Date: 5/7/2015

Instrument:

Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: R1505211147-27

Report Basis: As Received

Analyst Initials: ACF

Sample prep wt./vol:

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Calcium	7440-70-2	14,000		ug/L	500	150	1
Iron	7439-89-6	3,700		ug/L	250	78	
Magnesium	7439-96-4	4,100		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 10.1-Kenai River

Matrix: Aqueous

Collection Date: 5/5/2015 10:11:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1505065-03A

Prep Date: 5/17/2015

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

Prep Method ID:

Prep Batch Number: A150518001

Report Basis: As Received

Sample prep wt./vol: 25.00 ml

Analysis Date: 5/17/2015 8:00:00AM

Instrument: Thermospectr

File Name:

Dilution Factor: 1

Analyst Initials: TR

Prep Extract Vol: 25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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: A1505065-03C

Prep Date: 5/9/2015

Analytical Method ID: SM4500-PE - Phos

Prep Method ID: 4500-PB

Prep Batch Number: R1505211149-28

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/11/2015 10:50:00AM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: SLC

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Phosphorous, Total		0.035		mg/L	0.010	0.0031	1

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

Lab Sample Number: A1505065-03D

Prep Date: 5/7/2015

Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals

Prep Method ID:

Prep Batch Number: R1505211150-29

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/8/2015 1:08:00PM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: ACF

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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	3.4		ug/L	1.0	0.31	
Lead	7439-92-1	ND		ug/L	0.20	0.062	
Zinc	7440-66-6	36		ug/L	5.0	2.5	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 10.1-Kenai River

Matrix: Aqueous

Collection Date: 5/5/2015 10:11:00AM

Lab Sample Number: A1505065-03B

Analysis Date: 5/8/2015 12:38:00PM

Prep Date: 5/7/2015

Instrument:

Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: R1505211147-27

Report Basis: As Received

Analyst Initials: ACF

Sample prep wt./vol:

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Calcium	7440-70-2	11,000		ug/L	500	150	1
Iron	7439-89-6	890		ug/L	250	78	
Magnesium	7439-96-4	1,700		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 12.5-Pillars

Matrix: Aqueous

Collection Date: 5/5/2015 11:40:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1505065-04A

Prep Date: 5/17/2015

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

Prep Method ID:

Prep Batch Number: A150518001

Report Basis: As Received

Sample prep wt./vol: 25.00 ml

Analysis Date: 5/17/2015 8:00:00AM

Instrument: Thermospectr

File Name:

Dilution Factor: 1

Analyst Initials: TR

Prep Extract Vol: 25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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: A1505065-04C

Prep Date: 5/9/2015

Analytical Method ID: SM4500-PE - Phos

Prep Method ID: 4500-PB

Prep Batch Number: R1505211149-28

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/11/2015 10:38:00AM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: SLC

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Phosphorous, Total		0.022		mg/L	0.010	0.0031	1

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

Lab Sample Number: A1505065-04D

Prep Date: 5/7/2015

Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals

Prep Method ID:

Prep Batch Number: R1505211150-29

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/8/2015 1:10:00PM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: ACF

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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	2.6		ug/L	1.0	0.31	
Lead	7439-92-1	ND		ug/L	0.20	0.062	
Zinc	7440-66-6	19		ug/L	5.0	2.5	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 12.5-Pillars

Matrix: Aqueous

Collection Date: 5/5/2015 11:40:00AM

Lab Sample Number: A1505065-04B

Analysis Date: 5/8/2015 12:48:00PM

Prep Date: 5/7/2015

Instrument:

Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: R1505211147-27

Report Basis: As Received

Analyst Initials: ACF

Sample prep wt./vol:

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Calcium	7440-70-2	11,000		ug/L	500	150	1
Iron	7439-89-6	490		ug/L	250	78	
Magnesium	7439-96-4	1,500		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **RM 12.5-Pillars Duplicate**

Matrix: Aqueous

Collection Date: 5/5/2015 11:58:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1505065-05A

Prep Date: 5/17/2015

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

Prep Method ID:

Prep Batch Number: A150518001

Report Basis: As Received

Sample prep wt./vol: 25.00 ml

Analysis Date: 5/17/2015 8:00:00AM

Instrument: Thermospectr

File Name:

Dilution Factor: 1

Analyst Initials: TR

Prep Extract Vol: 25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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: A1505065-05C

Prep Date: 5/9/2015

Analytical Method ID: SM4500-PE - Phos

Prep Method ID: 4500-PB

Prep Batch Number: R1505211149-28

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/11/2015 10:40:00AM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: SLC

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Phosphorous, Total		0.025		mg/L	0.010	0.0031	1

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

Lab Sample Number: A1505065-05D

Prep Date: 5/7/2015

Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals

Prep Method ID:

Prep Batch Number: R1505211150-29

Report Basis: As Received

Sample prep wt./vol:

Analysis Date: 5/8/2015 1:12:00PM

Instrument:

File Name:

Dilution Factor: 1

Analyst Initials: ACF

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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	3.2		ug/L	1.0	0.31	
Lead	7439-92-1	ND		ug/L	0.20	0.062	
Zinc	7440-66-6	38		ug/L	5.0	2.5	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 12.5-Pillars Duplicate

Matrix: Aqueous

Collection Date: 5/5/2015 11:58:00AM

Lab Sample Number: A1505065-05B

Analysis Date: 5/8/2015 12:51:00PM

Prep Date: 5/7/2015

Instrument:

Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: R1505211147-27

Report Basis: As Received

Analyst Initials: ACF

Sample prep wt./vol:

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Calcium	7440-70-2	11,000		ug/L	500	150	1
Iron	7439-89-6	520		ug/L	250	78	
Magnesium	7439-96-4	1,500		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **RM 18-Poachers Cove**

Matrix: Aqueous

Collection Date: 5/5/2015 8:14:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number:	A1505065-06A	Analysis Date:	5/17/2015 8:00:00AM
Prep Date:	5/17/2015	Instrument:	Thermospectr
Analytical Method ID:	SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method	File Name:	
Prep Method ID:		Dilution Factor:	1
Prep Batch Number:	A150518001		
Report Basis:	As Received	Analyst Initials:	TR
Sample prep wt./vol:	25.00 ml	Prep Extract Vol:	25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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:	A1505065-06C	Analysis Date:	5/11/2015 10:41:00AM
Prep Date:	5/9/2015	Instrument:	
Analytical Method ID:	SM4500-PE - Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	R1505211149-28		
Report Basis:	As Received	Analyst Initials:	SLC
Sample prep wt./vol:		Prep Extract Vol:	ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Phosphorous, Total		0.022		mg/L	0.010	0.0031	1

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

Lab Sample Number:	A1505065-06D	Analysis Date:	5/8/2015 1:15:00PM
Prep Date:	5/7/2015	Instrument:	
Analytical Method ID:	200.8 - Metals by ICP/MS - Dissolved 200.8 Metals	File Name:	
Prep Method ID:		Dilution Factor:	1
Prep Batch Number:	R1505211150-29		
Report Basis:	As Received	Analyst Initials:	ACF
Sample prep wt./vol:		Prep Extract Vol:	ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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	3.3		ug/L	1.0	0.31	
Lead	7439-92-1	ND		ug/L	0.20	0.062	
Zinc	7440-66-6	210		ug/L	5.0	2.5	

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: RM 18-Poachers Cove

Matrix: Aqueous Collection Date: 5/5/2015 8:14:00AM

Lab Sample Number: A1505065-06B

Analysis Date: 5/8/2015 1:00:00PM

Prep Date: 5/7/2015

Instrument:

Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: R1505211147-27

Report Basis: As Received

Analyst Initials: ACF

Sample prep wt./vol:

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Calcium	7440-70-2	10,000		ug/L	500	150	1
Iron	7439-89-6	490		ug/L	250	78	
Magnesium	7439-96-4	1,400		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

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: 5/17/2015 8:00:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A150518001-MB

Analysis Date: 5/17/2015 8:00:00AM

Prep Date: 5/17/2015

Instrument: Thermospectr

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

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: A150518001

Report Basis: As Received

Analyst Initials: TR

Sample prep wt./vol: 25.00 ml

Prep Extract Vol: 25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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: 1263619

Analysis Date: 5/11/2015 10:19:00AM

Prep Date: 5/9/2015

Instrument:

Analytical Method ID: SM4500-PE - Phos

File Name:

Prep Method ID: 4500-PB

Dilution Factor: 1

Prep Batch Number: R1505211149-28

Report Basis: As Received

Analyst Initials: SLC

Sample prep wt./vol:

Prep Extract Vol: ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Phosphorous, Total		ND		mg/L	0.010	0.0031	1

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Project Number:

Prep Batch: A150518001

QUALITY CONTROL REPORT

LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - MB: A150518001-MB

Prep Date: 5/17/2015

MB Anal. Date: 5/17/2015 8:00:00AM

Units: mg/L

LCS Anal. Date: 5/17/2015 8:00:00AM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>LCSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Nitrate-Nitrite as Nitrogen	ND	0.397	0.406	97.9	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 significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

Tests Run at: SGS Environmental Services Inc.

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Project Number:

Prep Batch: R1505211149-28

QUALITY CONTROL REPORT

LCS/LCSD REPORT

Analysis: SM4500-PE - Phos

MB: 1263619

Prep Date: 5/9/2015

MB Anal. Date: 5/11/2015 10:19:00AM

Units: mg/L

LCS Anal. Date: 5/11/2015 10:20:00AM LCSD Anal. Date: 5/11/2015 10:22:00AM Matrix:

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Phosphorous, Total	ND	0.207	0.207	0.200	0.200	104	103	0.19	75 - 125	25.00	

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 significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 170,463 Lab Project Number: A1505065

Prep Date: 5/17/2015

Lab Method Blank Id: A150518001-MB

Prep Batch ID: A150518001

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

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

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
A1505065-01A	RM 6.5-Cunningham Park		5/17/2015 8:00:00AM
A1505065-02A	RM 10-Beaver Creek		5/17/2015 8:00:00AM
A1505065-03A	RM 10.1-Kenai River		5/17/2015 8:00:00AM
A1505065-04A	RM 12.5-Pillars		5/17/2015 8:00:00AM
A1505065-05A	RM 12.5-Pillars Duplicate		5/17/2015 8:00:00AM
A1505065-06A	RM 18-Poachers Cove		5/17/2015 8:00:00AM
A1505107-04A	Batch QC		5/17/2015 8:00:00AM
A150518001-LCS	LCS		5/17/2015 8:00:00AM
A1505107-04A-DUP	DUP		5/17/2015 8:00:00AM
A1505107-04A-MS	MS		5/17/2015 8:00:00AM

Prep Date: 5/9/2015

Lab Method Blank Id: 1263619

Prep Batch ID: R1505211149-28

Method: SM4500-PE - Phos

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

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
A1505065-01C	RM 6.5-Cunningham Park		5/11/2015 11:26:00AM
A1505065-02C	RM 10-Beaver Creek		5/11/2015 10:46:00AM
A1505065-03C	RM 10.1-Kenai River		5/11/2015 10:50:00AM
A1505065-04C	RM 12.5-Pillars		5/11/2015 10:38:00AM
A1505065-05C	RM 12.5-Pillars Duplicate		5/11/2015 10:40:00AM
A1505065-06C	RM 18-Poachers Cove		5/11/2015 10:41:00AM
1263620	LCS for HBN 1708523 [WXX/11020		5/11/2015 10:20:00AM
1263621	LCSD for HBN 1708523 [WXX/1102		5/11/2015 10:22:00AM
1263622	1151876001 MS FOR [WXX11020]		5/11/2015 11:24:00AM
1263623	1151876001 MSD FOR [WXX11020]		5/11/2015 11:25:00AM

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1505065

Project: KWF Baseline Monitoring 2015

Client: Kenai Watershed Forum

Client Project Number: none

REPORTING CONVENTIONS FOR THIS REPORT

A1505065

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
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) - Phos	As Received	2	Report to PQL



Analytica Chain of Custody Form

Page ____ of ____

4307 Arctic Blvd. 1325 W. 121st Avenue 475 Hall Street 701 W. Parks Hwy, #203
Anchorage, AK 99503 Westminister, CO 80234 Fairbanks, AK 99701 Wasilla, AK 99654
(907) 258-2155 (907) 456-8968 (907) 456-3116 (907) 373-5440
(907) 258-6634 fax 719 213 2478 fax (907) 456-3125 fax (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

Fax No: (907) 260-5412

E-mail: branden@kenaiwatershed.org

Special Instructions/Comments:

TEAM ID: TBD

Project Name: Kenai River Baseline Project - May 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:

P.O. or Contract

Section To be Completed by Analytica

Quote ID No: A15040012

IGN:

A1505065

Account #:

Cash

Credit Card:

Invoice to Name & Address:

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 ?

Requested Analysis/Method

Collected/Relinquished by:

Date

Time

Received by:

Date

Time

Chain-of-Custody Seal?:

THO

ANC

JUN

FBKS

Initialled By:

Temp/Loc:

Thermo ID#:

Shipping Via:

Relinquished by:

Date

Time

Received by:

Date

Time

Chain-of-Custody Seal?:

THO

ANC

JUN

FBKS

Initialled By:

Temp/Loc:

Thermo ID#:

Shipping Via:

Relinquished by:

Date

Time

Received by:

Date

Time

Chain-of-Custody Seal?:

THO

ANC

JUN

FBKS

Initialled By:

Temp/Loc:

Thermo ID#:

Shipping Via:

Name of Sampler: (printed)

Date

Time

Received by:

Date

Time

Chain-of-Custody Seal?:

THO

ANC

JUN

FBKS

Initialled By:

Temp/Loc:

Thermo ID#:

Shipping Via: