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ANALYTICA
Environmental Laboratories

8/6/2014

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

Work Order #: A1407459
Date: 8/6/2014
Work ID: KWF Baseline Monitoring 2014
Date Received: 7/22/2014
Proj #: None

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
A1407459-01	RM 19 - Slikok Creek	A1407459-02	RM 21 - Soldotna Bridge
A1407459-03	RM 22 - Soldotna Creek	A1407459-04	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,

Claire K. Toon

Claire Toon
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Group, LLC - Anchorage
Work Order: A1407459

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:
Four (4) samples were received on 7/22/2014 4:35:00 PM, in two coolers, at temperatures of 9.1°C and 8.7°C, at Analytica-Anchorage. The samples were received in good condition and in order per chain of custody.

Comments: The samples were transported to the lab by Analytica staff. The samples were received on ice on the collection date.

The samples were transferred for various analyses to Analytica Environmental Laboratories (AEL), 12189 Pennsylvania St., Thornton, Colorado 80241, where they were received at a temperature of 3.5°C, in good condition and in order per chain of custody on 7/25/2014.

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 Analytica'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: 200.7 - Metals by ICP - Total/TR - Aqueous

Test Method: 200.8 - Metals by ICP/MS - Dissolved - Aqueous

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

Test Method: SM4500-PE - Total Phos - Aqueous

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 7/22/2014 10:54:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1407459-01A
Prep Date: 07-31-2014 12:07
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140801001
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/31/2014 12:25:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: MC
Prep Extract Vol: 25.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.211**		mg/L	0.10	0.015	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1407459-01B
Prep Date: 07-31-2014 11:07
Analytical Method ID: 200. 7 - Metals by ICP - Total/TR
Prep Method ID: 200.7
Prep Batch Number: T140731012
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/31/2014 1:58:43PM
Instrument: Optima7300Icp
File Name: 073114.csv
Dilution Factor: 1
Analyst Initials: AC
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**15.2**		mg/L	0.10	0.0020	1
Iron	7439-89-6	**1.10**		mg/L	0.050	0.0070	
Magnesium	7439-96-4	**4.63**		mg/L	0.10	0.010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1407459-01C
Prep Date: 07-28-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved
Prep Method ID: 200.8
Prep Batch Number: T140728006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/28/2014 4:37:50PM
Instrument: AgilentICPMS
File Name: 072814A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**0.00270**		mg/L	0.00015	0.000080	2
Cadmium	7440-43-9	**ND**		mg/L	0.00010	0.000070	
Chromium	7440-47-3	**ND**		mg/L	0.00050	0.00020	
Copper	7440-50-8	**0.00166**		mg/L	0.00025	0.000080	
Lead	7439-92-1	**ND**		mg/L	0.00020	0.000070	
Zinc	7440-66-6	**0.0394**		mg/L	0.0025	0.00055	

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Anchorage

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous

Collection Date: 7/22/2014 10:54:00AM

Lab Sample Number:	A1407459-01D	Analysis Date:	7/28/2014 1:00:00PM
Prep Date:	07-28-2014 10:07	Instrument:	Hach DR 3900
Analytical Method ID:	SM4500-PE - Total Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	T140728014		
Report Basis:	As Received	Analyst Initials:	KD
Sample prep wt./vol:	10.00 ml	Prep Extract Vol:	10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorus, Total and Ortho		**ND**		mg/L	0.051	0.026	1

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 7/22/2014 10:17:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1407459-02A
Prep Date: 07-31-2014 12:07
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140801001
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/31/2014 12:25:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: MC
Prep Extract Vol: 25.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.152**		mg/L	0.10	0.015	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1407459-02B
Prep Date: 07-31-2014 11:07
Analytical Method ID: 200. 7 - Metals by ICP - Total/TR
Prep Method ID: 200.7
Prep Batch Number: T140731012
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/31/2014 2:31:58PM
Instrument: Optima7300Icp
File Name: 073114.csv
Dilution Factor: 1
Analyst Initials: AC
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**10.1**		mg/L	0.10	0.0020	1
Iron	7439-89-6	**0.268**		mg/L	0.050	0.0070	
Magnesium	7439-96-4	**0.955**		mg/L	0.10	0.010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1407459-02C
Prep Date: 07-28-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved
Prep Method ID: 200.8
Prep Batch Number: T140728006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/28/2014 4:40:13PM
Instrument: AgilentICPMS
File Name: 072814A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**0.00114**		mg/L	0.00015	0.000080	2
Cadmium	7440-43-9	**ND**		mg/L	0.00010	0.000070	
Chromium	7440-47-3	**ND**		mg/L	0.00050	0.00020	
Copper	7440-50-8	**0.00187**		mg/L	0.00025	0.000080	
Lead	7439-92-1	**ND**		mg/L	0.00020	0.000070	
Zinc	7440-66-6	**0.0321**		mg/L	0.0025	0.00055	

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Anchorage

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous

Collection Date: 7/22/2014 10:17:00AM

Lab Sample Number:	A1407459-02D	Analysis Date:	7/28/2014 1:00:00PM
Prep Date:	07-28-2014 10:07	Instrument:	Hach DR 3900
Analytical Method ID:	SM4500-PE - Total Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	T140728014		
Report Basis:	As Received	Analyst Initials:	KD
Sample prep wt./vol:	10.00 ml	Prep Extract Vol:	10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorus, Total and Ortho		**ND**		mg/L	0.051	0.026	1

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 7/22/2014 8:30:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1407459-03A
Prep Date: 07-31-2014 12:07
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140801001
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/31/2014 12:25:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: MC
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: Analytica - Thornton

Lab Sample Number: A1407459-03B
Prep Date: 07-31-2014 11:07
Analytical Method ID: 200. 7 - Metals by ICP - Total/TR
Prep Method ID: 200.7
Prep Batch Number: T140731012
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/31/2014 2:34:38PM
Instrument: Optima7300Icp
File Name: 073114.csv
Dilution Factor: 1
Analyst Initials: AC
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**15.5**		mg/L	0.10	0.0020	1
Iron	7439-89-6	**1.11**		mg/L	0.050	0.0070	
Magnesium	7439-96-4	**4.48**		mg/L	0.10	0.010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1407459-03C
Prep Date: 07-28-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved
Prep Method ID: 200.8
Prep Batch Number: T140728006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/28/2014 4:42:38PM
Instrument: AgilentICPMS
File Name: 072814A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**0.0128**		mg/L	0.00015	0.000080	2
Cadmium	7440-43-9	**ND**		mg/L	0.00010	0.000070	
Chromium	7440-47-3	**ND**		mg/L	0.00050	0.00020	
Copper	7440-50-8	**0.000680**		mg/L	0.00025	0.000080	
Lead	7439-92-1	**ND**		mg/L	0.00020	0.000070	
Zinc	7440-66-6	**0.0325**		mg/L	0.0025	0.00055	

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Anchorage

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous

Collection Date: 7/22/2014 8:30:00AM

Lab Sample Number:	A1407459-03D	Analysis Date:	7/28/2014 1:00:00PM
Prep Date:	07-28-2014 10:07	Instrument:	Hach DR 3900
Analytical Method ID:	SM4500-PE - Total Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	T140728014		
Report Basis:	As Received	Analyst Initials:	KD
Sample prep wt./vol:	10.00 ml	Prep Extract Vol:	10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorus, Total and Ortho		**0.094**		mg/L	0.051	0.026	1

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 7/22/2014 9:13:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1407459-04A
Prep Date: 07-31-2014 12:07
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140801001
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/31/2014 12:25:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: MC
Prep Extract Vol: 25.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.134**		mg/L	0.10	0.015	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1407459-04B
Prep Date: 07-31-2014 11:07
Analytical Method ID: 200. 7 - Metals by ICP - Total/TR
Prep Method ID: 200.7
Prep Batch Number: T140731012
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/31/2014 2:37:28PM
Instrument: Optima7300Icp
File Name: 073114.csv
Dilution Factor: 1
Analyst Initials: AC
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**10.2**		mg/L	0.10	0.0020	1
Iron	7439-89-6	**0.292**		mg/L	0.050	0.0070	
Magnesium	7439-96-4	**0.963**		mg/L	0.10	0.010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1407459-04C
Prep Date: 07-28-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved
Prep Method ID: 200.8
Prep Batch Number: T140728006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/28/2014 4:45:05PM
Instrument: AgilentICPMS
File Name: 072814A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	**0.00115**		mg/L	0.00015	0.000080	2
Cadmium	7440-43-9	**ND**		mg/L	0.00010	0.000070	
Chromium	7440-47-3	**ND**		mg/L	0.00050	0.00020	
Copper	7440-50-8	**0.00192**		mg/L	0.00025	0.000080	
Lead	7439-92-1	**ND**		mg/L	0.00020	0.000070	
Zinc	7440-66-6	**0.0348**		mg/L	0.0025	0.00055	

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Anchorage

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

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

Matrix: Aqueous

Collection Date: 7/22/2014 9:13:00AM

Lab Sample Number:	A1407459-04D	Analysis Date:	7/28/2014 1:00:00PM
Prep Date:	07-28-2014 10:07	Instrument:	Hach DR 3900
Analytical Method ID:	SM4500-PE - Total Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	T140728014		
Report Basis:	As Received	Analyst Initials:	KD
Sample prep wt./vol:	10.00 ml	Prep Extract Vol:	10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorus, Total and Ortho		ND		mg/L	0.051	0.026	1

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 7/31/2014 12:25:00PM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A140801001-MB
Prep Date: 07-31-2014 12:07
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140801001
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 7/31/2014 12:25:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: MC
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: Analytica - Thornton

Lab Sample Number: T140731012-MB
Prep Date: 07-31-2014 11:07
Analytical Method ID: 200. 7 - Metals by ICP - Total/TR
Prep Method ID: 200.7
Prep Batch Number: T140731012
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/31/2014 1:46:21PM
Instrument: Optima7300Icp
File Name: 073114.csv
Dilution Factor: 1
Analyst Initials: AC
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	ND		mg/L	0.10	0.0020	2
Iron	7439-89-6	ND		mg/L	0.050	0.0070	
Magnesium	7439-96-4	ND		mg/L	0.10	0.010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T140728006-MB
Prep Date: 07-28-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved
Prep Method ID: 200.8
Prep Batch Number: T140728006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 7/28/2014 2:18:52PM
Instrument: AgilentICPMS
File Name: 072814A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Arsenic	7440-38-2	ND		ug/L	0.15	0.084	2
Cadmium	7440-43-9	ND		ug/L	0.10	0.066	
Chromium	7440-47-3	ND		ug/L	0.50	0.20	
Copper	7440-50-8	ND		ug/L	0.25	0.12	
Lead	7439-92-1	ND		ug/L	0.20	0.073	
Zinc	7440-66-6	ND		ug/L	2.5	0.55	

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Thornton

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous

Collection Date: 7/28/2014 10:15:00AM

Lab Sample Number: T140728014-MB

Prep Date: 07-28-2014 10:07

Analytical Method ID: SM4500-PE - Total Phos

Prep Method ID: 4500-PB

Prep Batch Number: T140728014

Report Basis: As Received

Sample prep wt./vol: 10.00 ml

Analysis Date: 7/28/2014 1:00:00PM

Instrument: Hach DR 3900

File Name:

Dilution Factor: 1

Analyst Initials: KD

Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Phosphorus, Total and Ortho		**ND**		mg/L	0.051	0.026	1

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A1407459

Project: KWF Baseline Monitoring 2014

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **A140801001**

LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - MB: A140801001-MB

Prep Date: 7/31/2014

MB Anal. Date: 7/31/2014 12:25:00PM Units: mg/L

LCS Anal. Date: 7/31/2014 12:25:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Nitrate-Nitrite as Nitrogen	ND	5.08	5.16	98.4	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): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): A1407459

Project: KWF Baseline Monitoring 2014

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T140728006**

LCS REPORT

Analysis: 200.8 - Metals by ICP/MS - Dissolved

MB: T140728006-MB

Prep Date: 7/28/2014

MB Anal. Date: 7/28/2014 2:18:52PM

Units: ug/L

LCS Anal. Date: 7/28/2014 2:21:18PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Copper	ND	49.4	50.0	98.8	85 - 115		
Arsenic	ND	51.6	50.0	103.2	85 - 115		
Chromium	ND	49.7	50.0	99.4	85 - 115		
Lead	ND	49.3	50.0	98.6	85 - 115		
Zinc	ND	49.4	50.0	98.8	85 - 115		
Cadmium	ND	49.0	50.0	98.0	85 - 115		

Prep Batch: **T140731012**

SAMPLE DUPLICATE REPORT

Analysis: 200. 7 - Metals by ICP - Total/TR

Base Sample: A1407459-01B

Prep Date: 7/31/2014

Samp. Anal. Date: 7/31/2014 1:58:43PM

Units: mg/L

DUP Anal. Date: 7/31/2014 2:01:28PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Calcium	15.2	14.9	2.0	20	
Iron	1.10	1.11	0.9	20	
Magnesium	4.63	4.71	1.7	20	

LCS REPORT

Analysis: 200. 7 - Metals by ICP - Total/TR

MB: T140731012-MB

Prep Date: 7/31/2014

MB Anal. Date: 7/31/2014 1:46:21PM

Units: mg/L

LCS Anal. Date: 7/31/2014 1:51:21PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Calcium	ND	9.37	10.0	93.7	85 - 115		
Iron	ND	1.01	1.00	101.0	85 - 115		
Magnesium	ND	9.82	10.0	98.2	85 - 115		

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): A1407459

Project: KWF Baseline Monitoring 2014

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T140731012**

MS/MSD REPORT

Analysis: 200. 7 - Metals by ICP - Total/TR Parent: A1407459-01B

Prep Date: 7/31/2014

Samp. Anal. Date: 7/31/2014 1:58:43PM Units: mg/L

MS Anal. Date: 7/31/2014 2:06:45PM MSD Anal. Date: 7/31/2014 2:09:27PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLev	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Calcium	15.2	23.7	24.1	10.0	10.0	85.0	89.0	1.7	70 - 130	20	
Iron	1.10	2.03	2.05	1.00	1.00	93.0	95.0	1.0	70 - 130	20	
Magnesium	4.63	14.1	14.5	10.0	10.0	94.7	98.7	2.8	70 - 130	20	

SERIAL DILUTION REPORT

Analysis: 200. 7 - Metals by ICP - Total/TR Base Sample: A1407459-01B

Prep Date: 7/31/2014

Samp. Anal. Date: 7/31/2014 1:58:43PM Units: mg/L

SER DIL. Date: 7/31/2014 2:04:13PM Matrix: Aqueous

Analyte Name	SampResult	PQL.	MDL.	SerialRes.	SerPQL.	RPD	Flag
Calcium	15.2	0.100	0.00200	14.4	0.500	5.4	
Iron	1.10	0.0500	0.00700	1.04	0.250	5.6	
Magnesium	4.63	0.100	0.01000	4.71	0.500	1.7	

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): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): A1407459

Project: KWF Baseline Monitoring 2014

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T140728014**

LCS REPORT

Analysis: SM4500-PE - Total Phos

MB: T140728014-MB

Prep Date: 7/28/2014

MB Anal. Date: 7/28/2014 1:00:00PM

Units: mg/L

LCS Anal. Date: 7/28/2014 1:00:00PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Phosphorus, Total and Ortho	ND	0.530	0.500	106.0	80 - 120		

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): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **162,322** **Lab Project Number:** **A1407459**

Prep Date: 7/28/2014

Lab Method Blank Id: T140728006-MB
Prep Batch ID: T140728006
Method: 200.8 - Metals by ICP/MS - Dissolved

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1407457-01C	Batch QC	072814A.csv	7/28/2014 3:42:05PM
A1407459-01C	RM 19 - Slikok Creek	072814A.csv	7/28/2014 4:37:50PM
A1407459-02C	RM 21 - Soldotna Bridge	072814A.csv	7/28/2014 4:40:13PM
A1407459-03C	RM 22 - Soldotna Creek	072814A.csv	7/28/2014 4:42:38PM
A1407459-04C	RM 23 - Swiftwater Park	072814A.csv	7/28/2014 4:45:05PM
T140728006-LCS	LCS	072814A.csv	7/28/2014 2:21:18PM
A1407457-01C-DUP	DUP	072814A.csv	7/28/2014 3:44:25PM
A1407457-01C-MS	MS	072814A.csv	7/28/2014 3:46:50PM
A1407457-01C-MSD	MSD	072814A.csv	7/28/2014 4:01:22PM

Prep Date: 7/28/2014

Lab Method Blank Id: T140728014-MB
Prep Batch ID: T140728014
Method: SM4500-PE - Total Phos

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1407459-01D	RM 19 - Slikok Creek		7/28/2014 1:00:00PM
A1407459-02D	RM 21 - Soldotna Bridge		7/28/2014 1:00:00PM
A1407459-03D	RM 22 - Soldotna Creek		7/28/2014 1:00:00PM
A1407459-04D	RM 23 - Swiftwater Park		7/28/2014 1:00:00PM
F1407144-01C	Batch QC		7/28/2014 1:00:00PM
T140728014-LCS	LCS		7/28/2014 1:00:00PM
F1407144-01C-DUP	DUP		7/28/2014 1:00:00PM
F1407144-01C-MS	MS		7/28/2014 1:00:00PM

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **162,322** **Lab Project Number:** **A1407459**

Prep Date: 7/31/2014

Lab Method Blank Id: T140731012-MB
Prep Batch ID: T140731012
Method: 200. 7 - Metals by ICP - Total/TR

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1407459-01B	RM 19 - Slikok Creek	073114.csv	7/31/2014 1:58:43PM
A1407459-02B	RM 21 - Soldotna Bridge	073114.csv	7/31/2014 2:31:58PM
A1407459-03B	RM 22 - Soldotna Creek	073114.csv	7/31/2014 2:34:38PM
A1407459-04B	RM 23 - Swiftwater Park	073114.csv	7/31/2014 2:37:28PM
T140731012-LCS	LCS	073114.csv	7/31/2014 1:51:21PM
A1407459-01B-DUP	DUP	073114.csv	7/31/2014 2:01:28PM
A1407459-01B-MS	MS	073114.csv	7/31/2014 2:06:45PM
A1407459-01B-MSD	MSD	073114.csv	7/31/2014 2:09:27PM

Prep Date: 7/31/2014

Lab Method Blank Id: A140801001-MB
Prep Batch ID: A140801001
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
A1407459-01A	RM 19 - Slikok Creek		7/31/2014 12:25:00PM
A1407459-02A	RM 21 - Soldotna Bridge		7/31/2014 12:25:00PM
A1407459-03A	RM 22 - Soldotna Creek		7/31/2014 12:25:00PM
A1407459-04A	RM 23 - Swiftwater Park		7/31/2014 12:25:00PM
A1407460-03A	Batch QC		7/31/2014 12:25:00PM
A140801001-LCS	LCS		7/31/2014 12:25:00PM
A1407460-03A-DUP	DUP		7/31/2014 12:25:00PM
A1407460-03A-MS	MS		7/31/2014 12:25:00PM

Workorder (SDG): A1407459

Project: **KWF Baseline Monitoring 2014**

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): A1407459

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

REPORTING CONVENTIONS FOR THIS REPORT

A1407459

TestPkgName	Basis	# Sig Figs	Reporting Limit
200.7/200.7 (Aqueous) - Total/TR	As Received	3	Report to PQL
200.8/200.8 (Aqueous) - Dissolved	As Received	3	Report to PQL
4500-NO3E (Aqueous) - Nitrate+Nitrite pres	As Received	3	Report to PQL
4500-PE/4500-PB (Aqueous) - Total Phos	As Received	2	Report to PQL

Analytica Chain of Custody Form

ANALYTICA GROUP

121889 Pennsylvania St. Thornton, CO 80241 (303) 469-8868

4307 Arctic Blvd. Anchorage, AK 99503 (907) 258-2155 (907) 258-6634 fax

475 Hall Street, Fairbanks, AK 99701 (907) 456-3116 (907) 456-3125 fax

1203 W. Parks Highway Wasilla, Alaska 99654 (907) 373-5440

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: ADF&G and KWF
Project Name: Kenai River Baseline Project - July 2014

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:

Section To be Completed by Analytica
Quote ID No: A14040019
LGN: A1407459
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	Requested Analysis/Method: Nitrate SM4500-NO3E; Lot #: Pres: H2SO4	200.7 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	7-22-14	10:54	Aq	4	✓	✓	✓	✓						
RM 21 - Soldotna Bridge	7-22-14	10:17	Aq	4	✓	✓	✓	✓						
RM 22 - Soldotna Creek	7-22-14	08:30	Aq	4	✓	✓	✓	✓						
Rm 23 - Swiftwater Park	7-22-14	09:13	Aq	4	✓	✓	✓	✓						

Collected/Relinquished by:	Date	Time	Received by:	Date	Time
	7-22-14	11:30		7-22-14	11:30
Relinquished by:	Date	Time	Received by:	Date	Time
	7-22-14	11:30		7/22/14	1130
Relinquished by:	Date	Time	Received by:	Date	Time
	7/22/14	1635		7/22/14	1635

Name of Sampler: (printed)

To be Completed by Analytica

	THO	ANC #1	~~JUN~~ANC #2	FBKS
Chain-of-Custody Seal?:		N/A	N/A	
Initialed By:		—	—	
Temp/Loc:		9.1*	8.7*	
Thermo ID#:		83135	83135	
Shipping Via:		Lab pick up		

* received on ice