Analytica Group, LLC-Anchorage
4307 Arctic Boulevard
Anchorage, AK 99503
Phone: 907-258-2155
Fax: 907-258-6634

ANALYTICA
Environmental Laboratories

5/13/2014

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

Work Order #: A1404516
Date: 5/13/2014
Work ID: KWF Baseline Monitoring 2014
Date Received: 4/29/2014
Proj #: None

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
A1404516-01	RM 70 - Jim's Landing	A1404516-02	RM 74 - Russian River
A1404516-03	RM 82 - Kenai Lake Bridge		

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 Toon
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Group, LLC - Anchorage

Work Order: A1404516

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:
Three (3) samples were received on 4/29/2014 6:20:00 PM, at a temperature of 6.9°C, at Analytica-Anchorage. The samples were received in good condition and in order per chain of custody.

Comments: The samples were received on ice on the collection date.

The samples were transferred for metals and total phosphorus analysis 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 5/1/2014.

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: 200.8 - Metals by ICP/MS - Total/TR - Aqueous

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

Test Method: SM4500-PE - Total Phos - Aqueous

Workorder (SDG): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

Client Sample Name: **RM 70 - Jim's Landing**

Matrix: Aqueous Collection Date: 4/29/2014 9:40:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1404516-01A
Prep Date: 05-07-2014 10:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140508009
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 5/7/2014 10:10:00AM
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		**0.315**		mg/L	0.10	0.015	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1404516-01B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/6/2014 3:06:13PM
Instrument: AgilentICPMS
File Name: 050614A.csv
Dilution Factor: 10
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**14.1**		mg/L	1.0	0.030	1

Lab Sample Number: A1404516-01B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/6/2014 6:02:09PM
Instrument: AgilentICPMS
File Name: 050614A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Magnesium	7439-96-4	**1.07**		mg/L	0.050	0.00020	2

Lab Sample Number: A1404516-01B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/7/2014 1:46:36PM
Instrument: AgilentICPMS
File Name: 050714A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Iron	7439-89-6	**0.148**		mg/L	0.010	0.00071	3

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Anchorage

Workorder (SDG): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

Client Sample Name: **RM 70 - Jim's Landing**

Matrix: Aqueous

Collection Date: 4/29/2014 9:40:00AM

Lab Sample Number:	A1404516-01C	Analysis Date:	5/8/2014 4:00:00PM
Prep Date:	05-08-2014 15:05	Instrument:	Hach DR 3900
Analytical Method ID:	SM4500-PE - Total Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	T140509001		
Report Basis:	As Received	Analyst Initials:	CRB
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): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

Client Sample Name: **RM 74 - Russian River**

Matrix: Aqueous Collection Date: 4/29/2014 9:00:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1404516-02A
Prep Date: 05-09-2014 12:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140512015
Report Basis: As Received
Sample prep wt./vol: 12.50 ml

Analysis Date: 5/9/2014 12:45:00PM
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		**0.566**		mg/L	0.20	0.030	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1404516-02B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/6/2014 3:08:38PM
Instrument: AgilentICPMS
File Name: 050614A.csv
Dilution Factor: 10
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**18.8**		mg/L	1.0	0.030	1

Lab Sample Number: A1404516-02B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/6/2014 6:04:35PM
Instrument: AgilentICPMS
File Name: 050614A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Magnesium	7439-96-4	**1.18**		mg/L	0.050	0.00020	2

Lab Sample Number: A1404516-02B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/7/2014 1:49:01PM
Instrument: AgilentICPMS
File Name: 050714A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Iron	7439-89-6	**0.0248**		mg/L	0.010	0.00071	3

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Anchorage

Workorder (SDG): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

Client Sample Name: **RM 74 - Russian River**

Matrix: Aqueous

Collection Date: 4/29/2014 9:00:00AM

Lab Sample Number:	A1404516-02C	Analysis Date:	5/8/2014 4:00:00PM
Prep Date:	05-08-2014 15:05	Instrument:	Hach DR 3900
Analytical Method ID:	SM4500-PE - Total Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	T140509001		
Report Basis:	As Received	Analyst Initials:	CRB
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): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

Client Sample Name: **RM 82 - Kenai Lake Bridge**

Matrix: Aqueous Collection Date: 4/29/2014 8:13:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A1404516-03A
Prep Date: 05-09-2014 12:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A140512015
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 5/9/2014 12:45:00PM
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		**0.246**		mg/L	0.10	0.015	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A1404516-03B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/6/2014 3:11:08PM
Instrument: AgilentICPMS
File Name: 050614A.csv
Dilution Factor: 10
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**12.6**		mg/L	1.0	0.030	1

Lab Sample Number: A1404516-03B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/6/2014 6:06:57PM
Instrument: AgilentICPMS
File Name: 050614A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Magnesium	7439-96-4	**0.972**		mg/L	0.050	0.00020	2

Lab Sample Number: A1404516-03B
Prep Date: 05-06-2014
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR
Prep Method ID: 200.8
Prep Batch Number: T140506006
Report Basis: As Received
Sample prep wt./vol: 50.00 ml

Analysis Date: 5/7/2014 1:51:32PM
Instrument: AgilentICPMS
File Name: 050714A.csv
Dilution Factor: 1
Analyst Initials: RM
Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Iron	7439-89-6	**0.154**		mg/L	0.010	0.00071	3

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Anchorage

Workorder (SDG): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Report Section: Client Sample Report

Client Sample Name: **RM 82 - Kenai Lake Bridge**

Matrix: Aqueous

Collection Date: 4/29/2014 8:13:00AM

Lab Sample Number:	A1404516-03C	Analysis Date:	5/8/2014 4:00:00PM
Prep Date:	05-08-2014 15:05	Instrument:	Hach DR 3900
Analytical Method ID:	SM4500-PE - Total Phos	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	T140509001		
Report Basis:	As Received	Analyst Initials:	CRB
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): A1404516

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: 5/7/2014 10:10:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A140508009-MB Analysis Date: 5/7/2014 10:10:00AM
Prep Date: 05-07-2014 10:05 Instrument: Thermospectr
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: A140508009
Report Basis: As Received Analyst Initials: MC
Sample prep wt./vol: 25.00 ml 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: A140512015-MB Analysis Date: 5/9/2014 12:45:00PM
Prep Date: 05-09-2014 12:05 Instrument: Thermospectr
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: A140512015
Report Basis: As Received Analyst Initials: MC
Sample prep wt./vol: 25.00 ml 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: T140506006-MB Analysis Date: 5/6/2014 1:04:50PM
Prep Date: 05-06-2014 Instrument: AgilentICPMS
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR File Name: 050614A.csv
Prep Method ID: 200.8 Dilution Factor: 1
Prep Batch Number: T140506006
Report Basis: As Received Analyst Initials: RM
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	ND		ug/L	100	3.0	1
Magnesium	7439-96-4	ND		ug/L	50	0.20	

Lab Sample Number: T140506006-MB Analysis Date: 5/7/2014 11:58:33AM
Prep Date: 05-06-2014 Instrument: AgilentICPMS
Analytical Method ID: 200.8 - Metals by ICP/MS - Total/TR File Name: 050714A.csv
Prep Method ID: 200.8 Dilution Factor: 1
Prep Batch Number: T140506006
Report Basis: As Received Analyst Initials: RM
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Iron	7439-89-6	ND		ug/L	10	0.71	3

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Group, LLC - Thornton

Workorder (SDG): A1404516

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: 5/8/2014 3:00:00PM

Lab Sample Number: T140509001-MB

Prep Date: 05-08-2014 15:05

Analytical Method ID: SM4500-PE - Total Phos

Prep Method ID: 4500-PB

Prep Batch Number: T140509001

Report Basis: As Received

Sample prep wt./vol: 10.00 ml

Analysis Date: 5/8/2014 4:00:00PM

Instrument: Hach DR 3900

File Name:

Dilution Factor: 1

Analyst Initials: CRB

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): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A1404516

Project: KWF Baseline Monitoring 2014

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **A140508009**

LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - MB: A140508009-MB

Prep Date: 5/7/2014

MB Anal. Date: 5/7/2014 10:10:00AM Units: mg/L

LCS Anal. Date: 5/7/2014 10:10:00AM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Nitrate-Nitrite as Nitrogen	ND	5.48	5.16	106.2	90 - 110		

Prep Batch: **A140512015**

SAMPLE DUPLICATE REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - Base Sample: A1404516-03A

Prep Date: 5/9/2014

Samp. Anal. Date: 5/9/2014 12:45:00PM Units: mg/L

DUP Anal. Date: 5/9/2014 12:45:00PM Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Nitrate-Nitrite as Nitrogen	0.246	0.238	3.3	20	

LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - MB: A140512015-MB

Prep Date: 5/9/2014

MB Anal. Date: 5/9/2014 12:45:00PM Units: mg/L

LCS Anal. Date: 5/9/2014 12:45:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Nitrate-Nitrite as Nitrogen	ND	5.63	5.16	109.1	90 - 110		

MS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - Parent: A1404516-03A

Prep Date: 5/9/2014

Samp. Anal. Date: 5/9/2014 12:45:00PM Units: mg/L

MS Anal. Date: 5/9/2014 12:45:00PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Nitrate-Nitrite as Nitrogen	0.246	0.467	0.206	107.1	80 - 120	

Workorder (SDG): A1404516

Project: **KWF Baseline Monitoring 2014**

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): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): A1404516

Project: KWF Baseline Monitoring 2014

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T140506006**

LCS REPORT

Analysis: 200.8 - Metals by ICP/MS - Total/TR

MB: T140506006-MB

Prep Date: 5/6/2014

MB Anal. Date: 5/6/2014 1:04:50PM

Units: ug/L

LCS Anal. Date: 5/6/2014 1:09:45PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Calcium	ND	5,050	5,000	101.0	85 - 115		
Magnesium	ND	5,210	5,000	104.2	85 - 115		
Iron	ND	4,730	5,000	94.6	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): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): A1404516

Project: KWF Baseline Monitoring 2014

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T140509001**

LCS REPORT

Analysis: SM4500-PE - Total Phos

MB: T140509001-MB

Prep Date: 5/8/2014

MB Anal. Date: 5/8/2014 4:00:00PM

Units: mg/L

LCS Anal. Date: 5/8/2014 4:00:00PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Phosphorus, Total and Ortho	ND	0.510	0.500	102.0	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): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **159,720** **Lab Project Number:** **A1404516**

Prep Date: 5/6/2014

Lab Method Blank Id: T140506006-MB
Prep Batch ID: T140506006
Method: 200.8 - Metals by ICP/MS - Total/TR

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1404516-01B	RM 70 - Jim's Landing	050614A.csv	5/6/2014 3:06:13PM
A1404516-01B	RM 70 - Jim's Landing	050614A.csv	5/6/2014 6:02:09PM
A1404516-02B	RM 74 - Russian River	050614A.csv	5/6/2014 3:08:38PM
A1404516-02B	RM 74 - Russian River	050614A.csv	5/6/2014 6:04:35PM
A1404516-03B	RM 82 - Kenai Lake Bridge	050614A.csv	5/6/2014 3:11:08PM
A1404516-03B	RM 82 - Kenai Lake Bridge	050614A.csv	5/6/2014 6:06:57PM
F1404239-01C	Batch QC	050614A.csv	5/6/2014 6:09:18PM
T140506006-LCS	LCS	050614A.csv	5/6/2014 1:09:45PM
F1404239-01C-DUP	DUP	050614A.csv	5/6/2014 6:11:44PM
F1404239-01C-MS	MS	050614A.csv	5/6/2014 6:26:21PM
F1404239-01C-MSD	MSD	050614A.csv	5/6/2014 6:28:43PM
A1404516-01B	RM 70 - Jim's Landing	050714A.csv	5/7/2014 1:46:36PM
A1404516-02B	RM 74 - Russian River	050714A.csv	5/7/2014 1:49:01PM
A1404516-03B	RM 82 - Kenai Lake Bridge	050714A.csv	5/7/2014 1:51:32PM
F1404239-01C	Batch QC	050714A.csv	5/7/2014 1:53:58PM
F1404239-01C-DUP	DUP	050714A.csv	5/7/2014 1:56:24PM
F1404239-01C-MS	MS	050714A.csv	5/7/2014 1:58:55PM
F1404239-01C-MSD	MSD	050714A.csv	5/7/2014 2:01:20PM

Prep Date: 5/7/2014

Lab Method Blank Id: A140508009-MB
Prep Batch ID: A140508009
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
A1404283-02A	Batch QC		5/7/2014 10:10:00AM
A1404512-01A	Batch QC		5/7/2014 10:10:00AM
A1404516-01A	RM 70 - Jim's Landing		5/7/2014 10:10:00AM
A140508009-LCS	LCS		5/7/2014 10:10:00AM
A1404283-02A-DUP	DUP		5/7/2014 10:10:00AM
A1404512-01A-MS	MS		5/7/2014 10:10:00AM

Workorder (SDG): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **159,720** **Lab Project Number:** **A1404516**

Prep Date: 5/8/2014

Lab Method Blank Id: T140509001-MB
Prep Batch ID: T140509001
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
A1404515-01C	Batch QC		5/8/2014 4:00:00PM
A1404516-01C	RM 70 - Jim's Landing		5/8/2014 4:00:00PM
A1404516-02C	RM 74 - Russian River		5/8/2014 4:00:00PM
A1404516-03C	RM 82 - Kenai Lake Bridge		5/8/2014 4:00:00PM
T140509001-LCS	LCS		5/8/2014 4:00:00PM
A1404515-01C-DUP	DUP		5/8/2014 4:00:00PM
A1404515-01C-MS	MS		5/8/2014 4:00:00PM

Prep Date: 5/9/2014

Lab Method Blank Id: A140512015-MB
Prep Batch ID: A140512015
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
A1404516-02A	RM 74 - Russian River		5/9/2014 12:45:00PM
A1404516-03A	RM 82 - Kenai Lake Bridge		5/9/2014 12:45:00PM
A140512015-LCS	LCS		5/9/2014 12:45:00PM
A1404516-03A-DUP	DUP		5/9/2014 12:45:00PM
A1404516-03A-MS	MS		5/9/2014 12:45:00PM

Workorder (SDG): A1404516

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): A1404516

Project: **KWF Baseline Monitoring 2014**

Client: **Kenai Watershed Forum**

Client Project Number: **None**

REPORTING CONVENTIONS FOR THIS REPORT

A1404516

TestPkgName	Basis	# Sig Figs	Reporting Limit
200.8/200.8 (Aqueous) - Total/TR	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**

TEAM ID: US Forest Service
Project Name: Kenai River Baseline Project - April 2014

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

Special Instructions/Comments:
Received on ice KMA 4/29/14 pH<2 all samples

Section To be Completed by Analytica
Quote ID No: A14040019 **LGN:** A14045I6
Account #: Cash: Credit Card:

Invoice to Name & Address:

P.O. or Contract

Requested Analysis/Method

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	200.7 Metals by ICP-Total TR Lot #: Pres: HNO3	Total Phos Lot #: Pres: H2SO4	Lot #: Pres:	Lot #: Pres:	Lot #: Pres:	Lot #: Pres:	Field Preserved	Field Filtered	MS/MSD ?
RM 70- Jim's Landing	4/29/14	0945	Aq	4	X	X	X							
RM 74- Russian River	4/29/14	0900	Aq	4	X	X	X							
RM 82- Kenai Lake Bridge	4/29/14	0813	Aq	4	X	X	X							

Collected/Relinquished by:	Date	Time	Received by:	Date	Time
	04/29/2014	10:47		04/29/14	10:47
Relinquished by:	Date	Time	Received by:	Date	Time
	4/29/14	15:04		4/29/14	15:04
Relinquished by:	Date	Time	Received by:	Date	Time
DAVID PEARSON	4/29/14	6:20P		4/29/14	6:20
Name of Sampler: (printed)	DAVID PEARSON				

To be Completed by Analytica

	THO	ANC	JUN	FBKS
Chain-of-Custody Seal?:		Abs		
Initialed By:				
Temp/Loc:		6.9		
Thermo ID#:		83135		
Shipping Via:		Analytica		