ARS Aleut Analytical, LLC
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8/6/2015

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

Work Order #: A1507369
Date: 8/6/2015
Work ID: KWF Baseline Monitoring 2015
Date Received: 7/21/2015
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
A1507369-01	RM 40-Bing's Landing	A1507369-02	RM 43-Upstream of Dow Isla
A1507369-03	RM 44-Mouth of Kiley River	A1507369-04	RM 50-Skilak Lake Outflow
A1507369-05	Trip Blank		

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

Sincerely,

Carissa Cumine
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

ARS Aleut Analytical

Work Order: A1507369

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:
Five (5) samples were received on 7/21/2015 6:05:00 PM at a temperature of 5°C at AAA - Anchorage. The samples were received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH ARS Aleut Analytical QA PLAN
A summary of our review is shown below.

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

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

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

Test Method: SM4500-PE - Total Phos HACH 8190 - Aqueous
MS/MSD and DUP OUTLIERS:
The matrix spike and matrix spike duplicate recoveries shown below indicate a possible matrix effect. No corrective action was taken, as the recoveries of these compounds in the LCS/LCSD were acceptable.

Type	Client Sample	LabSample	Analyte	Recovery	LCL	UCL	Parent	Spike
MS	RM 44-Mouth of K	A1507369-03C	Phosphorous, Total	174	80	120	0.101	0.129
MSD	RM 44-Mouth of K	A1507369-03C	Phosphorous, Total	130	80	120	0.101	0.194

The following were subcontracted tests and have been represented to us as meeting criteria:
Test Method: 200.8 - Metals by ICP/MS - 200.8 Metals - Aqueous
Test Method: 624 - Purgeable Organics by GC/MS - VOCs by GC/MS - Aqueous

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 40-Bing's Landing**

Matrix: Aqueous Collection Date: 7/21/2015 11:32:00AM

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

Lab Sample Number: A1507369-01A
Prep Date: 7/24/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724012
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

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

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.174**		mg/L	0.10	0.015	1

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

Lab Sample Number: A1507369-01D
Prep Date: 7/24/2015
Analytical Method ID: 624 - Purgeable Organics by GC/MS - VOCs by GC/MS
Prep Method ID:
Prep Batch Number: R1507291556-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/24/2015 8:45:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: NRB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Benzene	71-43-2	**ND**		ug/L	0.40	0.12	1
Ethylbenzene	100-41-4	**ND**		ug/L	1.0	0.31	
m&p Xylenes	108-38-3/106-	**ND**		ug/L	2.0	0.62	
O-Xylene	95-47-6	**ND**		ug/L	1.0	0.31	
Toluene	108-88-3	**ND**		ug/L	1.0	0.31	

Surrogate	CASNo	Flags	% Recov	LCL	UCL	run #:
1,2-Dichloroethane-d4	17060-07-0		**115**	81	118	1
p-Bromofluorobenzene	460-00-4		**99.9**	85	114	
Toluene D-8	108-88-3D		**101**	89	112	

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

Lab Sample Number: A1507369-01B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507291556-5
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 3:36:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**9,700**		ug/L	500	150	1
Iron	7439-89-6	**380**		ug/L	250	78	
Magnesium	7439-96-4	**930**		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 40-Bing's Landing**

Matrix: Aqueous Collection Date: 7/21/2015 11:32:00AM

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

Lab Sample Number:	A1507369-01C	Analysis Date:	7/27/2015 11:35:00AM
Prep Date:	7/27/2015	Instrument:	Spectrophoto
Analytical Method ID:	SM4500-PE - Total Phos HACH 8190	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	F150728002		
Report Basis:	As Received	Analyst Initials:	MOC
Sample prep wt./vol:	5.00 ml	Prep Extract Vol:	5.00 ml

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 43-Upstream of Dow Island**

Matrix: Aqueous Collection Date: 7/21/2015 10:04:00AM

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

Lab Sample Number: A1507369-02A
Prep Date: 7/24/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724012
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

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

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.174**		mg/L	0.10	0.015	1

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

Lab Sample Number: A1507369-02D
Prep Date: 7/24/2015
Analytical Method ID: 624 - Purgeable Organics by GC/MS - VOCs by GC/MS
Prep Method ID:
Prep Batch Number: R1507291556-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/24/2015 9:01:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: NRB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Benzene	71-43-2	**ND**		ug/L	0.40	0.12	1
Ethylbenzene	100-41-4	**ND**		ug/L	1.0	0.31	
m&p Xylenes	108-38-3/106-	**ND**		ug/L	2.0	0.62	
O-Xylene	95-47-6	**ND**		ug/L	1.0	0.31	
Toluene	108-88-3	**ND**		ug/L	1.0	0.31	

Surrogate	CASNo	Flags	% Recov	LCL	UCL	run #:
1,2-Dichloroethane-d4	17060-07-0		**111**	81	118	1
p-Bromofluorobenzene	460-00-4		**100**	85	114	
Toluene D-8	108-88-3D		**100**	89	112	

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

Lab Sample Number: A1507369-02B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507291556-5
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 3:39:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**9,800**		ug/L	500	150	1
Iron	7439-89-6	**600**		ug/L	250	78	
Magnesium	7439-96-4	**1,100**		ug/L	50	15	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 43-Upstream of Dow Island**

Matrix: Aqueous Collection Date: 7/21/2015 10:04:00AM

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

Lab Sample Number:	A1507369-02C	Analysis Date:	7/27/2015 11:35:00AM
Prep Date:	7/27/2015	Instrument:	Spectrophoto
Analytical Method ID:	SM4500-PE - Total Phos HACH 8190	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	F150728002		
Report Basis:	As Received	Analyst Initials:	MOC
Sample prep wt./vol:	5.00 ml	Prep Extract Vol:	5.00 ml

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 44-Mouth of Kiley River**

Matrix: Aqueous Collection Date: 7/21/2015 9:30:00AM

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

Lab Sample Number: A1507369-03A
Prep Date: 7/24/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724012
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

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

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

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

Lab Sample Number: A1507369-03B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507291556-5
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 3:41:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**3,900**		ug/L	500	150	1
Iron	7439-89-6	**3,700**		ug/L	250	78	
Magnesium	7439-96-4	**1,900**		ug/L	50	15	

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

Lab Sample Number: A1507369-03C
Prep Date: 7/27/2015
Analytical Method ID: SM4500-PE - Total Phos HACH 8190
Prep Method ID: 4500-PB
Prep Batch Number: F150728002
Report Basis: As Received
Sample prep wt./vol: 5.00 ml

Analysis Date: 7/27/2015 11:35:00AM
Instrument: Spectrophoto
File Name:
Dilution Factor: 1
Analyst Initials: MOC
Prep Extract Vol: 5.00 ml

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **RM 50-Skilak Lake Outflow**

Matrix: Aqueous Collection Date: 7/21/2015 8:36:00AM

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

Lab Sample Number: A1507369-04A
Prep Date: 7/24/2015
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A150724012
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

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

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Nitrate-Nitrite as Nitrogen		**0.180**		mg/L	0.10	0.015	1

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

Lab Sample Number: A1507369-04B
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507291556-5
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 3:43:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Calcium	7440-70-2	**10,000**		ug/L	500	150	1
Iron	7439-89-6	**ND**		ug/L	250	78	
Magnesium	7439-96-4	**930**		ug/L	50	15	

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

Lab Sample Number: A1507369-04C
Prep Date: 7/27/2015
Analytical Method ID: SM4500-PE - Total Phos HACH 8190
Prep Method ID: 4500-PB
Prep Batch Number: F150728002
Report Basis: As Received
Sample prep wt./vol: 5.00 ml

Analysis Date: 7/27/2015 11:35:00AM
Instrument: Spectrophoto
File Name:
Dilution Factor: 1
Analyst Initials: MOC
Prep Extract Vol: 5.00 ml

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Client Sample Report

Client Sample Name: **Trip Blank**

Matrix: Aqueous

Collection Date: 7/21/2015 10:04:00AM

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

Lab Sample Number: A1507369-05A

Analysis Date: 7/24/2015 4:52:00PM

Prep Date: 7/24/2015

Instrument:

Analytical Method ID: 624 - Purgeable Organics by GC/MS - VOCs by GC/MS

File Name:

Prep Method ID:

Dilution Factor: 1

Prep Batch Number: R1507291556-6

Report Basis: As Received

Analyst Initials: NRB

Sample prep wt./vol:

Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Benzene	71-43-2	**ND**		ug/L	0.40	0.12	1
Ethylbenzene	100-41-4	**ND**		ug/L	1.0	0.31	
m&p Xylenes	108-38-3/106-	**ND**		ug/L	2.0	0.62	
O-Xylene	95-47-6	**ND**		ug/L	1.0	0.31	
Toluene	108-88-3	**ND**		ug/L	1.0	0.31	

Surrogate	CASNo	Flags	% Recov	LCL	UCL	run #:
1,2-Dichloroethane-d4	17060-07-0		**116**	81	118	1
p-Bromofluorobenzene	460-00-4		**100**	85	114	
Toluene D-8	108-88-3D		**98.7**	89	112	

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 7/24/2015 8:30:00AM

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

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

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

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

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

Lab Sample Number: 1279356
Prep Date: 7/24/2015
Analytical Method ID: 624 - Purgeable Organics by GC/MS - VOCs by GC/MS
Prep Method ID:
Prep Batch Number: R1507291556-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/24/2015 12:46:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: NRB
Prep Extract Vol: ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Benzene	71-43-2	**ND**		ug/L	0.40	0.12	2
Ethylbenzene	100-41-4	**ND**		ug/L	1.0	0.31	
m&p Xylenes	108-38-3/106-	**ND**		ug/L	2.0	0.62	
O-Xylene	95-47-6	**ND**		ug/L	1.0	0.31	
Toluene	108-88-3	**ND**		ug/L	1.0	0.31	

Surrogate	CASNo	Flags	% Recov	LCL	UCL	run #:
1,2-Dichloroethane-d4	17060-07-0		**112**	81	118	2
p-Bromofluorobenzene	460-00-4		**99.0**	85	114	
Toluene D-8	108-88-3D		**98.1**	89	112	

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

Lab Sample Number: 1278674
Prep Date: 7/23/2015
Analytical Method ID: 200.8 - Metals by ICP/MS - 200.8 Metals
Prep Method ID:
Prep Batch Number: R1507291556-5
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 7/27/2015 2:53:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: EAB
Prep Extract Vol: ml

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

Detailed Analytical Report

ARS Aleut Analytical

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 7/27/2015 11:35:00AM

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

Lab Sample Number:	F150728002-MB	Analysis Date:	7/27/2015 11:35:00AM
Prep Date:	7/27/2015	Instrument:	Spectrophoto
Analytical Method ID:	SM4500-PE - Total Phos HACH 8190	File Name:	
Prep Method ID:	4500-PB	Dilution Factor:	1
Prep Batch Number:	F150728002		
Report Basis:	As Received	Analyst Initials:	MOC
Sample prep wt./vol:	5.00 ml	Prep Extract Vol:	5.00 ml

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

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A1507369

Project: KWF Baseline Monitoring 2015

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **A150724012**

LCS REPORT

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

Prep Date: 7/24/2015

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

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

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

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.

Tests Run at: SGS Environmental Services Inc.
Workorder (SDG): A1507369
Project: KWF Baseline Monitoring 2015
Project Number:

QUALITY CONTROL REPORT

Prep Batch: **R1507291556-5**

LCS REPORT

Analysis: 200.8 - Metals by ICP/MS - 200.8 Metals
MB: 1278674
Prep Date: 7/23/2015
MB Anal. Date: 7/27/2015 2:53:00PM
Units: ug/L
LCS Anal. Date: 7/27/2015 2:56:00PM
Matrix:

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Calcium	ND	10,300	10,000	103	85 - 115		
Iron	ND	5,220	5,000	104	85 - 115		
Magnesium	ND	10,200	10,000	102	85 - 115		

Prep Batch: **R1507291556-6**

LCS/LCSD REPORT

Analysis: 624 - Purgeable Organics by GC/MS - VOCs by GC/MS
MB: 1279356
Prep Date: 7/24/2015
MB Anal. Date: 7/24/2015 12:46:00PM
Units: ug/L
LCS Anal. Date: 7/24/2015 2:07:00PM LCSD Anal. Date: 7/24/2015 2:52:00PM
Matrix:

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Benzene	ND	30.8	31.0	30.0	30.0	103	103		79 - 120	20.00	
Ethylbenzene	ND	30.4	30.7	30.0	30.0	101	102		79 - 121	20.00	
m&p Xylenes	ND	63.3	63.6	60.0	60.0	106	106		80 - 121	20.00	
O-Xylene	ND	31.4	31.1	30.0	30.0	105	104		78 - 122	20.00	
Toluene	ND	30.5	29.6	30.0	30.0	102	98.8		80 - 121	20.00	

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

FOOTNOTES TO QC REPORT

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

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

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

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

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska
Workorder (SDG): A1507369
Project: KWF Baseline Monitoring 2015
Project Number:

QUALITY CONTROL REPORT

Prep Batch: **F150728002**

SAMPLE DUPLICATE REPORT

Analysis: SM4500-PE - Total Phos HACH 8190
Base Sample: A1507369-03C
Prep Date: 7/27/2015
Samp. Anal. Date: 7/27/2015 11:35:00AM
Units: mg/L
DUP Anal. Date: 7/27/2015 11:35:00AM
Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Phosphorous, Total	0.101	ND	0.0	0	

LCS REPORT

Analysis: SM4500-PE - Total Phos HACH 8190
MB: F150728002-MB
Prep Date: 7/27/2015
MB Anal. Date: 7/27/2015 11:35:00AM
Units: mg/L
LCS Anal. Date: 7/27/2015 11:35:00AM
Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SPLev	Recov.	Recov Lim	RPDLim	Flag
Phosphorous, Total	ND	0.349	0.333	105	90 - 110		

MS/MSD REPORT

Analysis: SM4500-PE - Total Phos HACH 8190
Parent: A1507369-03C
Prep Date: 7/27/2015
Samp. Anal. Date: 7/27/2015 11:35:00AM
Units: mg/L
MS Anal. Date: 7/27/2015 11:35:00AM MSD Anal. Date: 7/27/2015 11:35:00AM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLev	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Phosphorous, Total	0.101	0.326	0.352	0.129	0.194	175	130		80 - 120	20	

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

FOOTNOTES TO QC REPORT

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

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

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

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

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

SURROGATE RECOVERY SUMMARY REPORT

Test Method: **624 - Purgeable Organics by GC/MS - VOCs by GC/MS**

Lab Sample #: A1507369-05A Dilution: 1
Analysis Date: 7/24/2015 4:52:00PM Client Sample: **Trip Blank**
Batch Number: R1507291556-6 Data File:

AnalyteName	SSRecov	LCL	UCL	SSFlag	Result Status
1,2-Dichloroethane-d4	116	81	118		Complete
p-Bromofluorobenzene	100	85	114		Complete
Toluene D-8	99	89	112		Complete

Lab Sample #: A1507369-01D Dilution: 1
Analysis Date: 7/24/2015 8:45:00PM Client Sample: **RM 40-Bing's Landing**
Batch Number: R1507291556-6 Data File:

AnalyteName	SSRecov	LCL	UCL	SSFlag	Result Status
1,2-Dichloroethane-d4	115	81	118		Complete
p-Bromofluorobenzene	100	85	114		Complete
Toluene D-8	101	89	112		Complete

Lab Sample #: A1507369-02D Dilution: 1
Analysis Date: 7/24/2015 9:01:00PM Client Sample: **RM 43-Upstream of Dow Island**
Batch Number: R1507291556-6 Data File:

AnalyteName	SSRecov	LCL	UCL	SSFlag	Result Status
1,2-Dichloroethane-d4	111	81	118		Complete
p-Bromofluorobenzene	100	85	114		Complete
Toluene D-8	100	89	112		Complete

Lab Sample #: 1279356 Dilution: 1
Analysis Date: 7/24/2015 12:46:00PM Client Sample: **MB for HBN 1714880 [VXX/27623]**
Batch Number: R1507291556-6 Data File:

AnalyteName	SSRecov	LCL	UCL	SSFlag	Result Status
1,2-Dichloroethane-d4	112	81	118		Complete
p-Bromofluorobenzene	99	85	114		Complete
Toluene D-8	98	89	112		Complete

Lab Sample #: 1279357 Dilution: 1
Analysis Date: 7/24/2015 2:07:00PM Client Sample: **LCS for HBN 1714880 [VXX/27623**
Batch Number: R1507291556-6 Data File:

AnalyteName	SSRecov	LCL	UCL	SSFlag	Result Status
1,2-Dichloroethane-d4	108	81	118		Complete
p-Bromofluorobenzene	102	85	114		Complete
Toluene D-8	99	89	112		Complete

Lab Sample #: 1279358 Dilution: 1
Analysis Date: 7/24/2015 2:52:00PM Client Sample: **LCSD for HBN 1714880 [VXX/2762**
Batch Number: R1507291556-6 Data File:

AnalyteName	SSRecov	LCL	UCL	SSFlag	Result Status
1,2-Dichloroethane-d4	111	81	118		Complete
p-Bromofluorobenzene	102	85	114		Complete
Toluene D-8	96	89	112		Complete

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **172,478** **Lab Project Number:** **A1507369**

Prep Date: 7/24/2015

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

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507366-04A	Batch QC		7/24/2015 8:30:00AM
A1507369-01A	RM 40-Bing's Landing		7/24/2015 8:30:00AM
A1507369-02A	RM 43-Upstream of Dow Island		7/24/2015 8:30:00AM
A1507369-03A	RM 44-Mouth of Kiley River		7/24/2015 8:30:00AM
A1507369-04A	RM 50-Skilak Lake Outflow		7/24/2015 8:30:00AM
A150724012-LCS	LCS		7/24/2015 8:30:00AM
A1507366-04A-DUP	DUP		7/24/2015 8:30:00AM
A1507366-04A-MS	MS		7/24/2015 8:30:00AM

Prep Date: 7/27/2015

Lab Method Blank Id: F150728002-MB
Prep Batch ID: F150728002
Method: SM4500-PE - Total Phos HACH 8190

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507369-01C	RM 40-Bing's Landing		7/27/2015 11:35:00AM
A1507369-02C	RM 43-Upstream of Dow Island		7/27/2015 11:35:00AM
A1507369-03C	RM 44-Mouth of Kiley River		7/27/2015 11:35:00AM
A1507369-04C	RM 50-Skilak Lake Outflow		7/27/2015 11:35:00AM
F150728002-LCS	LCS		7/27/2015 11:35:00AM
A1507369-03C-DUP	DUP		7/27/2015 11:35:00AM
A1507369-03C-MS	MS		7/27/2015 11:35:00AM
A1507369-03C-MSD	MSD		7/27/2015 11:35:00AM

Workorder (SDG): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **172,478** **Lab Project Number:** **A1507369**

Prep Date: 7/23/2015

Lab Method Blank Id: 1278674
Prep Batch ID: R1507291556-5
Method: 200.8 - Metals by ICP/MS - 200.8 Metals

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507369-01B	RM 40-Bing's Landing		7/27/2015 3:36:00PM
A1507369-02B	RM 43-Upstream of Dow Island		7/27/2015 3:39:00PM
A1507369-03B	RM 44-Mouth of Kiley River		7/27/2015 3:41:00PM
A1507369-04B	RM 50-Skilak Lake Outflow		7/27/2015 3:43:00PM
1278675	LCS for HBN 1714415 [MXX/28911		7/27/2015 2:56:00PM
1278677	1278793 MS FOR [MXX28911]		7/27/2015 3:31:00PM

Prep Date: 7/24/2015

Lab Method Blank Id: 1279356
Prep Batch ID: R1507291556-6
Method: 624 - Purgeable Organics by GC/MS - VOCs by GC/MS

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

SampleNum	ClientSampleName	DataFile	AnalysisDate
A1507369-01D	RM 40-Bing's Landing		7/24/2015 8:45:00PM
A1507369-02D	RM 43-Upstream of Dow Island		7/24/2015 9:01:00PM
A1507369-05A	Trip Blank		7/24/2015 4:52:00PM
1279357	LCS for HBN 1714880 [VXX/27623		7/24/2015 2:07:00PM
1279358	LCSD for HBN 1714880 [VXX/2762		7/24/2015 2:52:00PM

Workorder (SDG): A1507369

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): A1507369

Project: **KWF Baseline Monitoring 2015**

Client: **Kenai Watershed Forum**

Client Project Number: **none**

REPORTING CONVENTIONS FOR THIS REPORT

A1507369

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

AAA Chain of Custody Form

ARS Aleut Analytical

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

Chain of Custody No:

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

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

TEAM ID: AK DNR and AK DEC
Project Name: Kenai River Baseline Project - July 2015

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

Special Instructions/Comments:
no Dis. metals recd; not sampled. pH<2

Section To be Completed by AAA
Quote ID No: A15040012
LGN: A1507369
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	200.8 Metals by ICP-Total TR; Lot #: Pres: HNO3	200.8 Dissolved Metals; Lot #: Pres: HNO3	Total Phos SM4500; Lot #: Pres: H2SO4	BTEX; Lot #: Pres: HCl	Lot #: Pres:	Lot #: Pres:	Field Preserved	Field Filtered	MS/MSD ?
RM 40- Bing's Landing	7/21/15	11:30	Aq	7	X	X	X	X	X					
RM 43- Upstream of Dow Island	7/21/15	10:04	Aq	7	X	X	X	X	X					
RM 44- Mouth of Kiley River	7/21/15	9:30	Aq	3	X	X	X	X						
RM 50- Skilak Lake Outflow c	7/21/15	8:36	Aq	3	X	X	X	X						
Trip Blank			Aq	2	X									

Collected/Relinquished by:	Date	Time	Received by:	Date	Time
Timothy Stevens	7/21/15	12:53	[illegible]	7/21/15	12:55
Relinquished by:	Date	Time	Received by:	Date	Time
[illegible]	7/21/15	12:56	[illegible]	7/21/15	1805
Relinquished by:	Date	Time	Received by:	Date	Time
Name of Sampler: (printed)	Tim Stevens				

To be Completed by AAA

	WES	ANC	WAS	FBKS
Chain-of-Custody Seal?:		—		
Initialed By:		—		
Temp/Loc:		5.0		
Thermo ID#:		61109		
Shipping Via:		Employee		