ARS Aleut Analytical, LLC
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Anchorage, AK 99517
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5/18/2018

Kenai Watershed Forum
44129 Sterling Highway
Soldotna, AK 99669
Attn: Jeff Sires

Work Order #: A1804327
Date: 5/18/2018
Work ID: USFWS
Date Received: 4/24/2018
Proj #: USFWS

**Sample Identification**

| Lab Sample Number | Client Description | Lab Sample Number | Client Description |
|---|---|---|---|
| A1804327-01 | RM 6.5 - Cunningham Park | A1804327-02 | Rm 10 - Beaver Creek |
| A1804327-03 | Rm 10.1 - Kenai River | A1804327-04 | RM 12.5 - Pillars |
| A1804327-05 | RM 18 - Poachers Grove | | |

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,

Jerry Baker
Project Manager

*"The Science of Analysis, The Art of Service"*

# Case Narrative

*ARS Aleut Analytical, LLC*

*Work Order: A1804327*

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 4/24/2018 12:33 PM at ARS Aleut Analytical – Anchorage. Samples were received at a temperature of 5.5 deg C.in cooler 1 at ARS Aleut Analytical. The samples were received in good condition and in order per chain of custody.

Samples requiring metals analyses were subcontracted to Test America - Denver and arrived 4/27/2018 9:10 AM and at a temperature of 16.7°C.

Samples requiring inorganic analyses were subcontracted to Test America - Houston and arrived 5/3/2018 10:06 AM. Please see sample results for individual analysis locations.

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.

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

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

The following were subcontracted tests and have been represented to us as having met criteria:

Test Method: 200.7 - Metals by ICP - 200.7 metals – Aqueous
MS/MSD and DUP OUTLIERS:
Iron was recovered outside the acceptance limits in the batch MS/MSD associated with this analysis.

Test Method: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals - Aqueous
MS/MSD and DUP OUTLIERS:
Copper and Zinc were recovered outside the acceptance limits in the batch MS/MSD associated with this analysis.
METHOD BLANK OUTLEIRS:
Copper and Zinc were recovered in the MB above the detection limit but below the reporting limit. The analytes may be biased high the associated samples. The data have been reported with a 'B' flag. All other QC was within acceptable limits.

# Case Narrative

*ARS Aleut Analytical, LLC*
*Work Order: A1804327*
*(continued)*

Test Method: SM4500-PE - Total Phos HACH 8190 - Aqueous

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

**Client Sample Name:** **RM 6.5 - Cunningham Park**

Matrix: Aqueous Collection Date: 4/24/2018 9:22:00AM

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

Lab Sample Number: A1804327-01A
Prep Date: 05-01-2018 15:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A180502005
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 5/1/2018 3:42:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: AAS/CS/JR
Prep Extract Vol: 25.00 ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | | **ND** | | mg/L | 0.10 | 0.028 | 1 |

The following test was conducted by: TestAmerica - Houston

Lab Sample Number: A1804327-01D
Prep Date: 05-10-2018 05:05
Analytical Method ID: SM4500-PE - Phos
Prep Method ID: 4500-PB
Prep Batch Number: R1805150600-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/10/2018 2:25:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SC1
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Phosphorous, Total | | **0.46** | | mg/L | 0.050 | 0.021 | 1 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-01C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/2/2018 6:32:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | **ND** | | ug/L | 5.0 | 0.50 | 1 |
| Cadmium | 7440-43-9 | **ND** | | ug/L | 1.0 | 0.040 | |
| Chromium | 7440-47-3 | **ND** | | ug/L | 3.0 | 0.88 | |
| Copper | 7440-50-8 | **4.4** | B | ug/L | 2.0 | 0.20 | |
| Lead | 7439-92-1 | **ND** | | ug/L | 1.0 | 0.10 | |

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

**Report Section:** **Client Sample Report**

**Client Sample Name:** **RM 6.5 - Cunningham Park**

Matrix: Aqueous Collection Date: 4/24/2018 9:22:00AM

Lab Sample Number: A1804327-01C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/7/2018 7:52:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Zinc | 7440-66-6 | **50.0** | B | ug/L | 10 | 2.0 | 2 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-01B
Prep Date: 05-03-2018 08:05
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals
Prep Method ID:
Prep Batch Number: R1805140617-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/3/2018 10:58:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SJS
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Calcium | 7440-70-2 | **11,000** | | ug/L | 200 | 35 | 1 |
| Magnesium | 7439-96-4 | **3,700** | | ug/L | 200 | 11 | |

Lab Sample Number: A1804327-01B
Prep Date: 05-03-2018 08:05
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals
Prep Method ID:
Prep Batch Number: R1805140617-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/8/2018 3:29:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SJS
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Iron | 7439-89-6 | **4,800** | | ug/L | 100 | 22 | 2 |

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 4/24/2018 10:01:00AM

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

Lab Sample Number: A1804327-02A
Prep Date: 05-01-2018 15:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A180502005
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 5/1/2018 3:42:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: AAS/CS/JR
Prep Extract Vol: 25.00 ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | | **ND** | | mg/L | 0.10 | 0.028 | 1 |

The following test was conducted by: TestAmerica - Houston

Lab Sample Number: A1804327-02D
Prep Date: 05-10-2018 05:05
Analytical Method ID: SM4500-PE - Phos
Prep Method ID: 4500-PB
Prep Batch Number: R1805150600-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/10/2018 2:25:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SC1
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Phosphorous, Total | | **0.14** | | mg/L | 0.050 | 0.021 | 1 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-02C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/2/2018 6:36:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | **ND** | | ug/L | 5.0 | 0.50 | 1 |
| Cadmium | 7440-43-9 | **ND** | | ug/L | 1.0 | 0.040 | |
| Chromium | 7440-47-3 | **ND** | | ug/L | 3.0 | 0.88 | |
| Copper | 7440-50-8 | **ND** | | ug/L | 2.0 | 0.20 | |
| Lead | 7439-92-1 | **ND** | | ug/L | 1.0 | 0.10 | |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 4/24/2018 10:01:00AM

Lab Sample Number: A1804327-02C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/7/2018 7:55:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Zinc | 7440-66-6 | **81.0** | B | ug/L | 10 | 2.0 | 2 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-02B
Prep Date: 05-03-2018 08:05
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals
Prep Method ID:
Prep Batch Number: R1805140617-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/3/2018 11:08:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SJS
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Calcium | 7440-70-2 | **9,500** | | ug/L | 200 | 35 | 1 |
| Magnesium | 7439-96-4 | **2,800** | | ug/L | 200 | 11 | |

Lab Sample Number: A1804327-02B
Prep Date: 05-03-2018 08:05
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals
Prep Method ID:
Prep Batch Number: R1805140617-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/8/2018 3:38:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SJS
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Iron | 7439-89-6 | **3,700** | | ug/L | 100 | 22 | 2 |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

**Client Sample Name:** **Rm 10.1 - Kenai River**

Matrix: Aqueous Collection Date: 4/24/2018 10:30:00AM

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

Lab Sample Number: A1804327-03A
Prep Date: 05-01-2018 15:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A180502005
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 5/1/2018 3:42:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: AAS/CS/JR
Prep Extract Vol: 25.00 ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | | **ND** | | mg/L | 0.10 | 0.028 | 1 |

The following test was conducted by: TestAmerica - Houston

Lab Sample Number: A1804327-03D
Prep Date: 05-10-2018 05:05
Analytical Method ID: SM4500-PE - Phos
Prep Method ID: 4500-PB
Prep Batch Number: R1805150600-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/10/2018 2:25:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SC1
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Phosphorous, Total | | **0.090** | | mg/L | 0.050 | 0.021 | 1 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-03C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/2/2018 6:39:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | **ND** | | ug/L | 5.0 | 0.50 | 1 |
| Cadmium | 7440-43-9 | **ND** | | ug/L | 1.0 | 0.040 | |
| Chromium | 7440-47-3 | **ND** | | ug/L | 3.0 | 0.88 | |
| Copper | 7440-50-8 | **ND** | | ug/L | 2.0 | 0.20 | |
| Lead | 7439-92-1 | **ND** | | ug/L | 1.0 | 0.10 | |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

**Client Sample Name:** **Rm 10.1 - Kenai River**

Matrix: Aqueous Collection Date: 4/24/2018 10:30:00AM

Lab Sample Number: A1804327-03C Analysis Date: 5/7/2018 7:59:00PM
Prep Date: 05-02-2018 07:05 Instrument:
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: R1805140617-7
Report Basis: As Received Analyst Initials: LMT
Sample prep wt./vol: Prep Extract Vol: ml
pH on receipt: < 2.00

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Zinc | 7440-66-6 | **61.0** | B | ug/L | 10 | 2.0 | 2 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-03B Analysis Date: 5/3/2018 11:10:00PM
Prep Date: 05-03-2018 08:05 Instrument:
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: R1805140617-6
Report Basis: As Received Analyst Initials: SJS
Sample prep wt./vol: Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Calcium | 7440-70-2 | **10,000** | | ug/L | 200 | 35 | 1 |
| Magnesium | 7439-96-4 | **2,100** | | ug/L | 200 | 11 | |

Lab Sample Number: A1804327-03B Analysis Date: 5/8/2018 3:41:00PM
Prep Date: 05-03-2018 08:05 Instrument:
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: R1805140617-6
Report Basis: As Received Analyst Initials: SJS
Sample prep wt./vol: Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Iron | 7439-89-6 | **1,300** | | ug/L | 100 | 22 | 2 |

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 4/24/2018 10:57:00AM

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

Lab Sample Number: A1804327-04A
Prep Date: 05-01-2018 15:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A180502005
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 5/1/2018 3:42:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: AAS/CS/JR
Prep Extract Vol: 25.00 ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | | ND | | mg/L | 0.10 | 0.028 | 1 |

The following test was conducted by: TestAmerica - Houston

Lab Sample Number: A1804327-04D
Prep Date: 05-10-2018 05:05
Analytical Method ID: SM4500-PE - Phos
Prep Method ID: 4500-PB
Prep Batch Number: R1805150600-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/10/2018 2:25:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SC1
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Phosphorous, Total | | 0.066 | | mg/L | 0.050 | 0.021 | 1 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-04C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/2/2018 6:57:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | ND | | ug/L | 5.0 | 0.50 | 1 |
| Cadmium | 7440-43-9 | ND | | ug/L | 1.0 | 0.040 | |
| Chromium | 7440-47-3 | ND | | ug/L | 3.0 | 0.88 | |
| Copper | 7440-50-8 | ND | | ug/L | 2.0 | 0.20 | |
| Lead | 7439-92-1 | ND | | ug/L | 1.0 | 0.10 | |

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 4/24/2018 10:57:00AM

Lab Sample Number: A1804327-04C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/7/2018 8:16:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Zinc | 7440-66-6 | **69.0** | B | ug/L | 10 | 2.0 | 2 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-04B
Prep Date: 05-03-2018 08:05
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals
Prep Method ID:
Prep Batch Number: R1805140617-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/3/2018 11:13:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SJS
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Calcium | 7440-70-2 | **10,000** | | ug/L | 200 | 35 | 1 |
| Magnesium | 7439-96-4 | **1,700** | | ug/L | 200 | 11 | |

Lab Sample Number: A1804327-04B
Prep Date: 05-03-2018 08:05
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals
Prep Method ID:
Prep Batch Number: R1805140617-6
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/8/2018 3:44:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SJS
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Iron | 7439-89-6 | **640** | | ug/L | 100 | 22 | 2 |

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 4/24/2018 11:32:00AM

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

Lab Sample Number: A1804327-05A
Prep Date: 05-08-2018 16:05
Analytical Method ID: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N
Prep Method ID:
Prep Batch Number: A180515002
Report Basis: As Received
Sample prep wt./vol: 25.00 ml

Analysis Date: 5/8/2018 4:35:00PM
Instrument: Thermospectr
File Name:
Dilution Factor: 1
Analyst Initials: AAS/CS
Prep Extract Vol: 25.00 ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | | **0.107** | | mg/L | 0.10 | 0.028 | 1 |

The following test was conducted by: TestAmerica - Houston

Lab Sample Number: A1804327-05D
Prep Date: 05-10-2018 05:05
Analytical Method ID: SM4500-PE - Phos
Prep Method ID: 4500-PB
Prep Batch Number: R1805150600-2
Report Basis: As Received
Sample prep wt./vol:

Analysis Date: 5/10/2018 2:25:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: SC1
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Phosphorous, Total | | **0.071** | | mg/L | 0.050 | 0.021 | 1 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-05C
Prep Date: 05-02-2018 07:05
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Prep Method ID:
Prep Batch Number: R1805140617-7
Report Basis: As Received
Sample prep wt./vol:
pH on receipt: < 2.00

Analysis Date: 5/2/2018 7:01:00PM
Instrument:
File Name:
Dilution Factor: 1
Analyst Initials: LMT
Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | **ND** | | ug/L | 5.0 | 0.50 | 1 |
| Cadmium | 7440-43-9 | **ND** | | ug/L | 1.0 | 0.040 | |
| Chromium | 7440-47-3 | **ND** | | ug/L | 3.0 | 0.88 | |
| Copper | 7440-50-8 | **ND** | | ug/L | 2.0 | 0.20 | |
| Lead | 7439-92-1 | **ND** | | ug/L | 1.0 | 0.10 | |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Client Sample Report

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

Matrix: Aqueous Collection Date: 4/24/2018 11:32:00AM

Lab Sample Number: A1804327-05C Analysis Date: 5/7/2018 8:19:00PM
Prep Date: 05-02-2018 07:05 Instrument:
Analytical Method ID: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: R1805140617-7
Report Basis: As Received Analyst Initials: LMT
Sample prep wt./vol: Prep Extract Vol: ml
pH on receipt: < 2.00

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Zinc | 7440-66-6 | **58.0** | B | ug/L | 10 | 2.0 | 2 |

The following test was conducted by: TestAmerica - Denver

Lab Sample Number: A1804327-05B Analysis Date: 5/3/2018 11:15:00PM
Prep Date: 05-03-2018 08:05 Instrument:
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: R1805140617-6
Report Basis: As Received Analyst Initials: SJS
Sample prep wt./vol: Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Calcium | 7440-70-2 | **10,000** | | ug/L | 200 | 35 | 1 |
| Magnesium | 7439-96-4 | **1,600** | | ug/L | 200 | 11 | |

Lab Sample Number: A1804327-05B Analysis Date: 5/8/2018 3:46:00PM
Prep Date: 05-03-2018 08:05 Instrument:
Analytical Method ID: 200. 7 - Metals by ICP - 200.7 metals File Name:
Prep Method ID: Dilution Factor: 1
Prep Batch Number: R1805140617-6
Report Basis: As Received Analyst Initials: SJS
Sample prep wt./vol: Prep Extract Vol: ml

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Iron | 7439-89-6 | **610** | | ug/L | 100 | 22 | 2 |

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Method Blank Report

**Client Sample Name:** **MB**

Matrix: Aqueous Collection Date: 5/1/2018 3:42:00PM

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

| | | | |
|---|---|---|---|
| Lab Sample Number: | A180502005-MB | Analysis Date: | 5/1/2018 3:42:00PM |
| Prep Date: | 05-01-2018 15:05 | Instrument: | Thermospectr |
| Analytical Method ID: | SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N | File Name: | |
| Prep Method ID: | | Dilution Factor: | 1 |
| Prep Batch Number: | A180502005 | | |
| Report Basis: | As Received | Analyst Initials: | AAS/CS/JR |
| Sample prep wt./vol: | 25.00 ml | Prep Extract Vol: | 25.00 ml |
| pH on receipt: | 0.00 | | |

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | | ND | | mg/L | 0.10 | 0.028 | 1 |

| | | | |
|---|---|---|---|
| Lab Sample Number: | A180515002-MB | Analysis Date: | 5/8/2018 4:35:00PM |
| Prep Date: | 05-08-2018 16:05 | Instrument: | Thermospectr |
| Analytical Method ID: | SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method - N | File Name: | |
| Prep Method ID: | | Dilution Factor: | 1 |
| Prep Batch Number: | A180515002 | | |
| Report Basis: | As Received | Analyst Initials: | AAS/CS |
| Sample prep wt./vol: | 25.00 ml | Prep Extract Vol: | 25.00 ml |
| pH on receipt: | 0.00 | | |

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | | ND | | mg/L | 0.10 | 0.028 | 1 |

## Detailed Analytical Report

ARS Aleut Analytical, LLC

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Method Blank Report

**Client Sample Name:** **MB 600-238187/3-A**

Matrix: Collection Date: 5/10/2018 5:12:00AM

The following test was conducted by: TestAmerica - Houston

| | | | |
|---|---|---|---|
| Lab Sample Number: | MB 600-238187/3-A | Analysis Date: | 5/10/2018 2:25:00PM |
| Prep Date: | 05-10-2018 05:05 | Instrument: | |
| Analytical Method ID: | SM4500-PE - Phos | File Name: | |
| Prep Method ID: | 4500-PB | Dilution Factor: | 1 |
| Prep Batch Number: | R1805150600-2 | | |
| Report Basis: | As Received | Analyst Initials: | SC1 |
| Sample prep wt./vol: | | Prep Extract Vol: | ml |

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Phosphorous, Total | | **ND** | | mg/L | 0.050 | 0.021 | 1 |
| Phosphorous, Total | | **ND** | | mg/L | 0.050 | 0.021 | |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

## Report Section: Method Blank Report

**Client Sample Name:** **MB 280-413330/1-A**

Matrix: Collection Date: 5/3/2018 8:41:00AM

The following test was conducted by: TestAmerica - Denver

| | | | |
|---|---|---|---|
| Lab Sample Number: | MB 280-413330/1-A | Analysis Date: | 5/3/2018 10:31:00PM |
| Prep Date: | 05-03-2018 08:05 | Instrument: | |
| Analytical Method ID: | 200. 7 - Metals by ICP - 200.7 metals | File Name: | |
| Prep Method ID: | | Dilution Factor: | 1 |
| Prep Batch Number: | R1805140617-6 | | |
| Report Basis: | As Received | Analyst Initials: | SJS |
| Sample prep wt./vol: | | Prep Extract Vol: | ml |

| Analyte | CASNo | Result | Flags | Units | PQL | MDL | run #: |
|---|---|---|---|---|---|---|---|
| Calcium | 7440-70-2 | **ND** | | ug/L | 200 | 35 | 1 |
| Magnesium | 7439-96-4 | **ND** | | ug/L | 200 | 11 | |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A1804327

Project: USFWS

Project Number:

# QUALITY CONTROL REPORT

Prep Batch: **A180515002**

## LCS REPORT

Analysis: SM4500-NO3E - Nitrogen (Nitrate), Cadmium Reduction Method -MB: A180515002-MB

Prep Date: 5/8/2018

MB Anal. Date: 5/8/2018 4:35:00PM Units: mg/L

LCS Anal. Date: 5/8/2018 4:35:00PM Matrix: Aqueous

| Analyte Name | SampResult | LCSRes. | SPLev | Recov. | Recov Lim | RPDLim | Flag |
|---|---|---|---|---|---|---|---|
| Nitrate-Nitrite as Nitrogen | ND | 0.694 | 0.690 | 100.5 | 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): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

Tests Run at: TestAmerica - Denver
Workorder (SDG): A1804327
Project: USFWS
Project Number:

# QUALITY CONTROL REPORT

Prep Batch: **R1805140617-6**

## LCS REPORT

Analysis: 200. 7 - Metals by ICP - 200.7 metals
MB: MB 280-413330/1-A
Prep Date: 5/3/2018
MB Anal. Date: 5/3/2018 10:31:00PM
Units: ug/L
LCS Anal. Date: 5/3/2018 10:33:00PM
Matrix:

| Analyte Name | SampResult | LCSRes. | SPLev | Recov. | Recov Lim | RPDLim | Flag |
|---|---|---|---|---|---|---|---|
| Calcium | ND | 46,200 | 50,000 | 92.4 | 90 - 111 | | |
| Magnesium | ND | 50,800 | 50,000 | 101.6 | 90 - 113 | | |

## MS/MSD REPORT

Analysis: 200. 7 - Metals by ICP - 200.7 metals
Parent: A1804327-01B
Prep Date: 5/3/2018
Samp. Anal. Date: 5/3/2018 10:58:00PM
Units: ug/L
MS Anal. Date: 5/3/2018 11:03:00PM MSD Anal. Date: 5/3/2018 11:06:00PM
Matrix: Aqueous

| Analyte Name | SampResult | MSRes. | MSDRes | SPLev | SPDLev | Recov. | MSD Rec. | RPD | Recov Lim | RPDLim | Flag | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | 11,000 | 58,000 | 57,900 | 50,000 | 49,900 | 94.0 | 94.0 | 0.2 | 70 - 130 | 0 | | *RPD* |
| Iron | 4,800 | 5,380 | 5,240 | 921 | 917 | 63.0 | 48.0 | 2.6 | 70 - 130 | 0 | *NOTE 2* *NOTE 2* | *RPD* |
| Magnesium | 3,700 | 55,500 | 55,100 | 49,800 | 49,900 | 104.0 | 103.0 | 0.7 | 70 - 130 | 0 | | *RPD* |

Prep Batch: **R1805140617-7**

## MS/MSD REPORT

Analysis: 200.8 - Metals by ICP/MS - Dissolved 200.8 Metals
Parent: A1804327-03C
Prep Date: 5/2/2018
Samp. Anal. Date: 5/2/2018 6:39:00PM
Units: ug/L
MS Anal. Date: 5/2/2018 6:43:00PM MSD Anal. Date: 5/2/2018 6:46:00PM
Matrix: Aqueous

| Analyte Name | SampResult | MSRes. | MSDRes | SPLev | SPDLev | Recov. | MSD Rec. | RPD | Recov Lim | RPDLim | Flag | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 39.5 | 40.6 | 40.1 | 40.0 | 98.5 | 101.5 | 2.7 | 79 - 120 | 0 | | *RPD* |
| Lead | ND | 41.1 | 42.3 | 39.9 | 39.9 | 103.0 | 106.0 | 2.9 | 88 - 115 | 0 | | *RPD* |
| Copper | ND | 38.6 | 40.5 | 39.8 | 40.1 | 97.0 | 101.0 | 4.8 | 90 - 115 | 0 | | *RPD* |
| Cadmium | ND | 40.7 | 41.4 | 39.9 | 40.2 | 102.0 | 103.0 | 1.7 | 89 - 111 | 0 | | *RPD* |
| Zinc | 61.0 | 99.7 | 102 | 40.3 | 40.6 | 96.0 | 101.0 | 2.3 | 88 - 115 | 0 | | *RPD* |
| Chromium | ND | 39.6 | 40.5 | 40.0 | 40.1 | 99.0 | 101.0 | 2.2 | 86 - 115 | 0 | | *RPD* |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

Tests Run at: TestAmerica - Denver
Workorder (SDG): A1804327
Project: USFWS
Project Number:

# QUALITY CONTROL REPORT

Prep Batch: **R1805140617-7**

## MS/MSD REPORT

Prep Batch: **R1805150600-2**

## LCS REPORT

Analysis: SM4500-PE - Phos
MB: MB 600-238187/33-A
Prep Date: 5/10/2018
MB Anal. Date: 5/10/2018 2:25:00PM
Units: mg/L
LCS Anal. Date: 5/10/2018 2:25:00PM
Matrix:

| Analyte Name | SampResult | LCSRes. | SPLev | Recov. | Recov Lim | RPDLim | Flag |
|---|---|---|---|---|---|---|---|
| Phosphorous, Total | ND | 0.484 | 0.500 | 96.8 | 90 - 110 | | |

## MS/MSD REPORT

Analysis: SM4500-PE - Phos
Parent: A1804327-05D
Prep Date: 5/10/2018
Samp. Anal. Date: 5/10/2018 2:25:00PM
Units: mg/L
MS Anal. Date: 5/10/2018 2:25:00PM MSD Anal. Date: 5/10/2018 2:25:00PM
Matrix: Aqueous

| Analyte Name | SampResult | MSRes. | MSDRes | SPLev | SPDLev | Recov. | MSD Rec. | RPD | Recov Lim | RPDLim | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorous, Total | 0.0710 | 0.537 | 0.561 | 0.501 | 0.500 | 93.0 | 98.0 | 4.4 | 75 - 125 | 0 | *RPD* |

## 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): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

**QC BATCH ASSOCIATIONS - BY METHOD BLANK**

**Lab Project ID:** **194,278** **Lab Project Number:** **A1804327**

Prep Date: 5/1/2018

Lab Method Blank Id: A180502005-MB
Prep Batch ID: A180502005
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 |
|---|---|---|---|
| A1804322-01B | Batch QC | | 5/1/2018 3:42:00PM |
| A1804327-01A | RM 6.5 - Cunningham Park | | 5/1/2018 3:42:00PM |
| A1804327-02A | Rm 10 - Beaver Creek | | 5/1/2018 3:42:00PM |
| A1804327-03A | Rm 10.1 - Kenai River | | 5/1/2018 3:42:00PM |
| A1804327-04A | RM 12.5 - Pillars | | 5/1/2018 3:42:00PM |
| A180502005-LCS | LCS | | 5/1/2018 3:42:00PM |
| A1804322-01B-DUP | DUP | | 5/1/2018 3:42:00PM |
| A1804322-01B-MS | MS | | 5/1/2018 3:42:00PM |

Prep Date: 5/3/2018

Lab Method Blank Id: MB 280-413330/1-A
Prep Batch ID: R1805140617-6
Method: 200. 7 - Metals by ICP - 200.7 metals

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

| SampleNum | ClientSampleName | DataFile | AnalysisDate |
|---|---|---|---|
| A1804327-01B | RM 6.5 - Cunningham Park | | 5/3/2018 10:58:00PM |
| A1804327-01B | RM 6.5 - Cunningham Park | | 5/8/2018 3:29:00PM |
| A1804327-02B | Rm 10 - Beaver Creek | | 5/3/2018 11:08:00PM |
| A1804327-02B | Rm 10 - Beaver Creek | | 5/8/2018 3:38:00PM |
| A1804327-03B | Rm 10.1 - Kenai River | | 5/3/2018 11:10:00PM |
| A1804327-03B | Rm 10.1 - Kenai River | | 5/8/2018 3:41:00PM |
| A1804327-04B | RM 12.5 - Pillars | | 5/3/2018 11:13:00PM |
| A1804327-04B | RM 12.5 - Pillars | | 5/8/2018 3:44:00PM |
| A1804327-05B | RM 18 - Poachers Grove | | 5/3/2018 11:15:00PM |
| A1804327-05B | RM 18 - Poachers Grove | | 5/8/2018 3:46:00PM |
| LCS 280-413330/2-A | LCS 280-413330/2-A | | 5/3/2018 10:33:00PM |
| 280-109064-1 | A1804327-01B | | 5/3/2018 11:03:00PM |
| 280-109064-1 | A1804327-01B | | 5/8/2018 3:34:00PM |
| 280-109064-1 | A1804327-01B | | 5/3/2018 11:06:00PM |
| 280-109064-1 | A1804327-01B | | 5/8/2018 3:36:00PM |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

**QC BATCH ASSOCIATIONS - BY METHOD BLANK**

**Lab Project ID:** **194,278** **Lab Project Number:** **A1804327**

Prep Date: 5/10/2018

Lab Method Blank Id: MB 600-238187/3-A
Prep Batch ID: R1805150600-2
Method: SM4500-PE - Phos

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

| SampleNum | ClientSampleName | DataFile | AnalysisDate |
|---|---|---|---|
| A1804327-01D | RM 6.5 - Cunningham Park | | 5/10/2018 2:25:00PM |
| A1804327-01D | RM 6.5 - Cunningham Park | | 5/10/2018 2:25:00PM |
| A1804327-02D | Rm 10 - Beaver Creek | | 5/10/2018 2:25:00PM |
| A1804327-02D | Rm 10 - Beaver Creek | | 5/10/2018 2:25:00PM |
| A1804327-03D | Rm 10.1 - Kenai River | | 5/10/2018 2:25:00PM |
| A1804327-03D | Rm 10.1 - Kenai River | | 5/10/2018 2:25:00PM |
| A1804327-04D | RM 12.5 - Pillars | | 5/10/2018 2:25:00PM |
| A1804327-04D | RM 12.5 - Pillars | | 5/10/2018 2:25:00PM |
| A1804327-05D | RM 18 - Poachers Grove | | 5/10/2018 2:25:00PM |
| A1804327-05D | RM 18 - Poachers Grove | | 5/10/2018 2:25:00PM |
| LCS 600-238187/34-A | LCS 600-238187/34-A | | 5/10/2018 2:25:00PM |
| LCS 600-238187/34-A | LCS 600-238187/34-A | | 5/10/2018 2:25:00PM |
| LCS 600-238187/4-A | LCS 600-238187/4-A | | 5/10/2018 2:25:00PM |
| LCS 600-238187/4-A | LCS 600-238187/4-A | | 5/10/2018 2:25:00PM |
| 280-109106-5 | A1804327-05D | | 5/10/2018 2:25:00PM |
| 280-109106-5 | A1804327-05D | | 5/10/2018 2:25:00PM |
| 280-109106-5 | A1804327-05D | | 5/10/2018 2:25:00PM |
| 280-109106-5 | A1804327-05D | | 5/10/2018 2:25:00PM |

Prep Date: 5/8/2018

Lab Method Blank Id: A180515002-MB
Prep Batch ID: A180515002
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 |
|---|---|---|---|
| A1804327-05A | RM 18 - Poachers Grove | | 5/8/2018 4:35:00PM |
| A1804328-01A | Batch QC | | 5/8/2018 4:35:00PM |
| A180515002-LCS | LCS | | 5/8/2018 4:35:00PM |
| A1804328-01A-DUP | DUP | | 5/8/2018 4:35:00PM |
| A1804328-01A-MS | MS | | 5/8/2018 4:35:00PM |

Workorder (SDG): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

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): A1804327

**Project:** **USFWS**

**Client:** **Kenai Watershed Forum**

**Client Project Number:** **USFWS**

**REPORTING CONVENTIONS FOR THIS REPORT**

A1804327

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

# AAA Chain of Custody

**Custody form MUST be signed**
**Please provide as much information as possible**


Anchorage Laboratory
3710 Woodland Dr. Suite 900
Anchorage, AK 99517
907.258.2155
907.258.6634 fax

Mat-Su Service Center
701 East Parks Highway #206
Wasilla, AK 99654
907.373.5440

Fairbanks Laboratory
475 Hall Street
Fairbanks, AK 99701
907.456.3116
907.456.3125 fax

ARS Corporate Office
2609 North River Road
Port Allen, LA 70767
225.381.2991
225.381.2996 fax


**Sampling Event ID:**

**Client/Company Name & Address:**
Kenai Watershed Forum
44129 Sterling HWY
Soldotna, AK 99669

Contact Person:
Phone No:
Fax No:
E-mail:

**Team ID:** USFWS
**Project Name:** KWF Baseline Monitoring April 2018

**Turnaround Time (TAT) for Results**
☐ Standard ☐ **Expedited** (prior authorization required for < 10 days)
*please specify due date below; additional charges may apply*
**Requested Date for Results:**
**Results to STATE:** ☐ Yes ☐ No ☐ Routine ☐ Non-Routine

**Section To Be Completed by AAA**
**Quote Number:** **LGN:** A1804327
**Account #:** **Check** **Credit**
**Invoice Contact Name & Address & Phone:**

**PO/Contract No.:**

Special Instructions/Requirements:

**Kit Preparation/Shipping Charge:**

**Requested Analysis/Method**

| | Client Sample Identification (Name, Designation, Location, etc.) | Date Sampled | Time Sampled | Matrix (Aqueous, DW-Drinking Water, WW-Waste Water, Soil/Solid, Other) | No. of Containers | Nitrate -SM4500 NO3E Preservative Lot# ✓2 | 200.7 Metals Preservative Lot# | 200.8 Dissolved Metals Preservative Lot# ✓2 | Total Phos SM4500 Preservative Lot# ✓2 | Preservative Lot# | Preservative Lot# | Field Preserved | Field Filtered | Use for MS/MSD | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RM 6.5 -Cunningham Park | 4/24/18 | 9:22 am | Aqu | 4 | X | X | X | X | | | | | | |
| 2 | RM 10 -Beaver Creek | 4/24/18 | 10:01 am | Aqu | 4 | X | X | X | X | | | | | | |
| 3 | RM 10.1 -Kenai River | 4/24/18 | 10:30am | Aqu | 4 | X | X | X | X | | | | | | |
| 4 | RM 12.5 -Pillars | 4/24/18 | 10:57am | Aqu | 4 | X | X | X | X | | | | | | |
| 5 | RM 18 -Poachers Cove | 4/24/18 | 11:32am | Aqu | 4 | X | X | X | X | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| KCG | 4/24/18 | 12:33pm | WSI | 4/24/18 | 12:33pm |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| | | | | | |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| | | | | | |
| **Name of Sampler: (printed)** | KYLE GRAHAM | | | | |

**Section To Be Completed by AAA**
Condition of Custody Seal: Intact Broken Absent
Receiving location: ANC
Temperature on arrival: 5.5 °C ____ °C
Thermometer ID # 058
Measurement method: Temp Blank Other
Shipping method/Tracking number: ARS