

Tuesday, December 22, 2015

Richard Caschette
CSU Civil Engineering
1301 Campus Delivery
Fort Collins, CO 08523

Re: ALS Workorder: 1512203
Project Name: Colorado Water Watch
Project Number:

Dear Mr. Caschette:

One water sample was received from CSU Civil Engineering, on 12/11/2015. The sample was scheduled for the following analyses:

Dissolved Gasses

GC/MS Volatiles

Inorganics

Metals

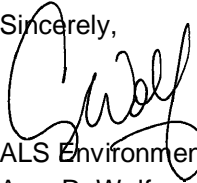
Total Extractable Petroleum Hydrocarbons (Diesel)

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,



ALS Environmental
Amy R. Wolf
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280



1512203

The sample was received at ambient temperature.

GC/MS Volatiles:

The sample was analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C. The sample was also analyzed for Gasoline Range Organics (GRO).

The sample had a pH > 2 at the time of analysis.

All acceptance criteria were met.

Dissolved Gasses:

The sample was prepared and analyzed according to method RSK-175 procedures and the current revision of SOP 449.

All acceptance criteria were met.

DRO:

The sample was analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.

All acceptance criteria were met.

Metals:

The sample was analyzed following Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures. Analysis by ICPMS followed method 200.8 and the current revision of SOP 827.

The sample was to be analyzed for dissolved metals. The sample was filtered through a 0.45 micron filter and preserved with nitric acid to a pH less than 2 prior to analysis.

All acceptance criteria were met.



Inorganics:

The sample was analyzed following MCAWW, EMSL and Standard Method procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Alkalinity	SM2320B	1106
Bicarbonate	SM2320B	1106
Carbonate	SM2320B	1106
pH	SM4500-H ⁺ B	1126
Total phosphorus	365.2	1119
Specific conductance	SM2510B	1128
TDS	SM2540C	1101
Bromide	300.0 Revision 2.1	1113
Chloride	300.0 Revision 2.1	1113
Fluoride	300.0 Revision 2.1	1113
Nitrate as N	300.0 Revision 2.1	1113
Nitrite as N	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

The sample was prepared and analyzed within the established hold time for each analysis except nitrate as N and nitrite as N. The sample was analyzed approximately one day and six hours out of hold.

All remaining acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1512203

Client Name: CSU Civil Engineering

Client Project Name: Colorado Water Watch

Client Project Number:

Client PO Number: 467333

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Sand Creek 2	1512203-1		WATER	11-Dec-15	11:00

PROJECT NAME Colorado Water Watch
PROJECT NO.
COMPANY NAME CSU
SEND REPORT TO Ken Carlson
ADDRESS CSU
CITY/STATE/ZIP Fort Collins, CO 80523
PHONE
FAX
E-MAIL * Richard.Caschette@colorado.edu

TURNAROUND TIME
SAMPLER
SITE ID
EDD FORMAT
PURCHASE ORDER 467333
BILL TO COMPANY Colorado State University
INVOICE ATTN TO Ken Carlson
ADDRESS 1372 Campus Delivery
CITY/STATE/ZIP Fort Collins, CO 80523
PHONE
FAX
E-MAIL

PARAMETER/METHOD REQUEST FOR ANALYSIS
 A BTEX + GRO
 B DRO
 C Dissolved Gases (MEP)
 D PH, SP, TDS, ALK, Anions
 E DS metals
 F Total Phosphorus
 G
 H
 I
 J

LAB ID	FIELD ID	MATRIX	SAMPLE DATE	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	QC	A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
1	Sand Creek 2	W	12/11	11AM	13													

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

Form 2020B

REPORT LEVEL / QC REQUIRED	RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
Summary (Standard QC)		[Signature]	Drew Caschette	12/11	12:53
LEVEL II (Standard QC)	RECEIVED BY	[Signature]	Steph Malby	12/11	12:52
LEVEL III (Std QC + forms)	RELINQUISHED BY				
LEVEL IV (Std QC + forms + raw)	RECEIVED BY				
	RELINQUISHED BY				
	RECEIVED BY				



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CSU

Workorder No: 1512203

Project Manager: ARW

Initials: RUM Date: 12/11/15

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	<input checked="" type="radio"/> NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	<input checked="" type="radio"/> DROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<input checked="" type="radio"/> YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	<input checked="" type="radio"/> YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <input checked="" type="checkbox"/> < green pea <input checked="" type="checkbox"/> > green pea	N/A	YES	<input checked="" type="radio"/> NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4		YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AM13</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>N/A</u>			
Background µR/hr reading: <u>N/A</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / <input checked="" type="radio"/> NA (If no, see Form 008.)			

RUM
12/11/15

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

14) one voc had headspace < green pea, 1 voc had > green pea

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 12/11/15

Client: CSU Civil Engineering
 Project: Colorado Water Watch
 Sample ID: Sand Creek 2
 Legal Location:
 Collection Date: 12/11/2015 11:00

Date: 22-Dec-15
 Work Order: 1512203
 Lab ID: 1512203-1
 Matrix: WATER
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Alkalinity as Calcium Carbonate						
			SM2320B		Prep Date: 12/16/2015	PrepBy: TLB
TOTAL ALKALINITY AS CaCO3	250		20	MG/L	1	12/16/2015
BICARBONATE AS CaCO3	230		20	MG/L	1	12/16/2015
CARBONATE AS CaCO3	ND		20	MG/L	1	12/16/2015
Diesel Range Organics						
			SW8015M		Prep Date: 12/16/2015	PrepBy: JFN
Diesel Range Organics	ND		0.58	MG/L	1	12/16/2015 19:10
Surr: O-TERPHENYL	109		63-126	%REC	1	12/16/2015 19:10
Dissolved Gasses						
			RSK175		Prep Date: 12/21/2015	PrepBy: JFN
METHANE	16000		10	UG/L	10	12/21/2015 13:38
ETHANE	8700		20	UG/L	10	12/21/2015 13:38
PROPANE	4600		10	UG/L	10	12/21/2015 13:38
GC/MS Volatiles						
			SW8260_25		Prep Date: 12/16/2015	PrepBy: JXK
BENZENE	ND		1	UG/L	1	12/16/2015 16:45
TOLUENE	ND		1	UG/L	1	12/16/2015 16:45
ETHYLBENZENE	ND		1	UG/L	1	12/16/2015 16:45
M+P-XYLENE	ND		1	UG/L	1	12/16/2015 16:45
O-XYLENE	ND		1	UG/L	1	12/16/2015 16:45
TOTAL XYLENES	ND		1	UG/L	1	12/16/2015 16:45
Surr: 4-BROMOFLUOROBENZENE	110		85-115	%REC	1	12/16/2015 16:45
Surr: DIBROMOFLUOROMETHANE	99		84-118	%REC	1	12/16/2015 16:45
Surr: TOLUENE-D8	98		85-115	%REC	1	12/16/2015 16:45
GASOLINE RANGE ORGANICS	290	Z	100	UG/L	1	12/16/2015 16:45
Ion Chromatography						
			EPA300.0		Prep Date: 12/11/2015	PrepBy: DRH
BROMIDE	ND		1	MG/L	5	12/14/2015 16:38
CHLORIDE	25		1	MG/L	5	12/14/2015 16:38
FLUORIDE	ND		0.5	MG/L	5	12/14/2015 16:38
NITRATE AS N	ND		1	MG/L	5	12/14/2015 16:38
NITRITE AS N	ND		0.5	MG/L	5	12/14/2015 16:38
SULFATE	320		5	MG/L	5	12/14/2015 16:38
Dissolved Metals by 200.8						
			EPA200.8		Prep Date: 12/15/2015	PrepBy: CDR
BARIUM	0.015		0.001	MG/L	10	12/16/2015 22:51
BORON	0.067		0.05	MG/L	10	12/16/2015 22:51
CALCIUM	20		1	MG/L	10	12/16/2015 22:51
IRON	ND		0.1	MG/L	10	12/16/2015 22:51
MAGNESIUM	4.9		0.1	MG/L	10	12/16/2015 22:51
MANGANESE	0.067		0.002	MG/L	10	12/16/2015 22:51
POTASSIUM	2.2		1	MG/L	10	12/16/2015 22:51
SELENIUM	ND		0.001	MG/L	10	12/16/2015 22:51
SODIUM	240		1	MG/L	10	12/16/2015 22:51
STRONTIUM	0.52		0.001	MG/L	10	12/16/2015 22:51
pH						
			SM4500-H		Prep Date: 12/12/2015	PrepBy: TLB
PH	8.69		0.1	pH	1	12/12/2015
Specific Conductance in Water						
			SM2510B		Prep Date: 12/12/2015	PrepBy: TLB
SPECIFIC CONDUCTIVITY	1131		1	umhos/cm	1	12/12/2015

Client: CSU Civil Engineering
Project: Colorado Water Watch
Sample ID: Sand Creek 2
Legal Location:
Collection Date: 12/11/2015 11:00

Date: 22-Dec-15
Work Order: 1512203
Lab ID: 1512203-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids TOTAL DISSOLVED SOLIDS	740		SM2540C 20	MG/L	1	Prep Date: 12/11/2015 PrepBy: TLB 12/14/2015
Total Phosphorus as P TOTAL PHOSPHORUS	0.071		EPA365.2 0.05	MG/L	1	Prep Date: 12/15/2015 PrepBy: TLB 12/15/2015

Client: CSU Civil Engineering
Project: Colorado Water Watch
Sample ID: Sand Creek 2
Legal Location:
Collection Date: 12/11/2015 11:00

Date: 22-Dec-15
Work Order: 1512203
Lab ID: 1512203-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- U or ND - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
- G - Sample density differs by more than 15% of LCS density.
- D - DER is greater than Control Limit
- M - Requested MDC not met.
- LT - Result is less than requested MDC but greater than achieved MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits
- NC - Not Calculated for duplicate results less than 5 times MDC
- B - Analyte concentration greater than MDC.
- B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

- B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
- U or ND - Indicates that the compound was analyzed for but not detected.
- E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
- M - Duplicate injection precision was not met.
- N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
- Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
- * - Duplicate analysis (relative percent difference) not within control limits.
- S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

- U or ND - Indicates that the compound was analyzed for but not detected.
- B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
- E - Analyte concentration exceeds the upper level of the calibration range.
- J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- A - A tentatively identified compound is a suspected aldol-condensation product.
- X - The analyte was diluted below an accurate quantitation level.
- * - The spike recovery is equal to or outside the control criteria used.
- + - The relative percent difference (RPD) equals or exceeds the control criteria.
- G - A pattern resembling gasoline was detected in this sample.
- D - A pattern resembling diesel was detected in this sample.
- M - A pattern resembling motor oil was detected in this sample.
- C - A pattern resembling crude oil was detected in this sample.
- 4 - A pattern resembling JP-4 was detected in this sample.
- 5 - A pattern resembling JP-5 was detected in this sample.
- H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

ALS Environmental -- FC

Date: 12/22/2015 4:37

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **HC151216-100-1** Instrument ID: **FUELS-1** Method: **SW8015M**

LCS Sample ID: **HC151216-100** Units: **MG/L** Analysis Date: **12/16/2015 16:36**

Client ID: Run ID: **HC151216-7A** Prep Date: **12/16/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	8.36	0.576	8		105	36-150				20	
Surr: O-TERPHENYL	0.824		0.8		103	63-126					

MB Sample ID: **HC151216-100** Units: **MG/L** Analysis Date: **12/16/2015 15:34**

Client ID: Run ID: **HC151216-7A** Prep Date: **12/16/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	ND	0.58									
Surr: O-TERPHENYL	0.818		0.802		102	63-126					

The following samples were analyzed in this batch:

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **HC151221-9-2** Instrument ID: **MEE-1** Method: **RSK175**

LCS		Sample ID: HC151221-9			Units: UG/L		Analysis Date: 12/21/2015 12:38				
Client ID:		Run ID: HC151221-9A			Prep Date: 12/21/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	147	1	142		103	80-120				25	
ETHANE	276	2	267		104	80-120				25	
PROPANE	396	1	391		101	80-120				25	

LCSD		Sample ID: HC151221-9			Units: UG/L		Analysis Date: 12/21/2015 13:24				
Client ID:		Run ID: HC151221-9A			Prep Date: 12/21/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	154	1	142		108	80-120		147	4	25	
ETHANE	291	2	267		109	80-120		276	5	25	
PROPANE	417	1	391		107	80-120		396	5	25	

MB		Sample ID: HC151221-9			Units: UG/L		Analysis Date: 12/21/2015 12:42				
Client ID:		Run ID: HC151221-9A			Prep Date: 12/21/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	ND	1									
ETHANE	ND	2									
PROPANE	ND	1									

The following samples were analyzed in this batch:

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **IP151215-1-2** Instrument ID: **ICPMS2** Method: **EPA200.8**

LCS		Sample ID: FM151215-1			Units: MG/L		Analysis Date: 12/16/2015 22:37				
Client ID:		Run ID: IM151216-10A8			Prep Date: 12/15/2015		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	0.105	0.001	0.1		105	85-115				20	
BORON	0.974	0.05	1		97	85-115				20	
CALCIUM	10.7	1	10		107	85-115				20	
IRON	4.98	0.1	5		100	85-115				20	
MAGNESIUM	9.97	0.1	10		100	85-115				20	
MANGANESE	0.103	0.002	0.1		103	85-115				20	
POTASSIUM	4.61	1	5		92	85-115				20	
SELENIUM	0.105	0.001	0.1		105	85-115				20	
SODIUM	10.1	1	10		101	85-115				20	
STRONTIUM	0.11	0.001	0.1		110	85-115				20	

MB		Sample ID: FP151215-1			Units: MG/L		Analysis Date: 12/16/2015 22:30				
Client ID:		Run ID: IM151216-10A8			Prep Date: 12/15/2015		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	ND	0.001									
BORON	ND	0.05									
CALCIUM	ND	1									
IRON	ND	0.1									
MAGNESIUM	ND	0.1									
MANGANESE	ND	0.002									
POTASSIUM	ND	1									
SELENIUM	ND	0.001									
SODIUM	ND	1									
STRONTIUM	ND	0.001									

The following samples were analyzed in this batch:

1512203-1

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: VL151216-3-6 Instrument ID: HPV1 Method: SW8260_25

LCS		Sample ID: VL151216-3			Units: %REC		Analysis Date: 12/16/2015 12:25				
Client ID:		Run ID: VL151216-3A			Prep Date: 12/16/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	26.2		25		105	85-115					
Surr: DIBROMOFLUOROMETHANE	24.7		25		99	84-118					
Surr: TOLUENE-D8	24.5		25		98	85-115					
BENZENE	10.9	1	10		109	83-117				20	
TOLUENE	10.4	1	10		104	82-113				20	
ETHYLBENZENE	9.94	1	10		99	81-113				20	
M+P-XYLENE	19.6	1	20		98	82-115				20	
O-XYLENE	9.79	1	10		98	81-115				20	

LCSD		Sample ID: VL151216-3			Units: %REC		Analysis Date: 12/16/2015 12:46				
Client ID:		Run ID: VL151216-3A			Prep Date: 12/16/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	26.3		25		105	85-115			0		
Surr: DIBROMOFLUOROMETHANE	24.8		25		99	84-118			0		
Surr: TOLUENE-D8	24.9		25		100	85-115			2		
BENZENE	10.9	1	10		109	83-117		10.9	0	20	
TOLUENE	10.4	1	10		104	82-113		10.4	0	20	
ETHYLBENZENE	9.81	1	10		98	81-113		9.94	1	20	
M+P-XYLENE	19	1	20		95	82-115		19.6	3	20	
O-XYLENE	9.5	1	10		95	81-115		9.79	3	20	

MB		Sample ID: VL151216-3			Units: %REC		Analysis Date: 12/16/2015 15:19				
Client ID:		Run ID: VL151216-3A			Prep Date: 12/16/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	27.2		25		109	85-115					
Surr: DIBROMOFLUOROMETHANE	24.4		25		98	84-118					
Surr: TOLUENE-D8	24.4		25		97	85-115					
BENZENE	ND	1									
TOLUENE	ND	1									
ETHYLBENZENE	ND	1									
M+P-XYLENE	ND	1									
O-XYLENE	ND	1									
TOTAL XYLENES	ND	1									

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: VL151216-3-8 Instrument ID: HPV1 Method: SW8260_25

LCS		Sample ID: VL151216-6			Units: UG/L			Analysis Date: 12/16/2015 13:53			
Client ID:		Run ID: VL151216-3A			Prep Date: 12/16/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	984	100	1000		98	80-120				20	

LCSD		Sample ID: VL151216-6			Units: UG/L			Analysis Date: 12/16/2015 14:15			
Client ID:		Run ID: VL151216-3A			Prep Date: 12/16/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	918	100	1000		92	80-120		984	7	20	

MB		Sample ID: VL151216-3			Units: UG/L			Analysis Date: 12/16/2015 15:19			
Client ID:		Run ID: VL151216-3A			Prep Date: 12/16/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	ND	100									

The following samples were analyzed in this batch:

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **AK151216-1-2** Instrument ID: **Balance** Method: **SM2320B**

LCS		Sample ID: AK151216-1			Units: MG/L		Analysis Date: 12/16/2015				
Client ID:		Run ID: AK151216-1A1			Prep Date: 12/16/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	97.4	5	100		97	85-115				15	

MB		Sample ID: AK151216-1			Units: MG/L		Analysis Date: 12/16/2015				
Client ID:		Run ID: AK151216-1A1			Prep Date: 12/16/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	ND	5									
BICARBONATE AS CaCO3	ND	5									
CARBONATE AS CaCO3	ND	5									

The following samples were analyzed in this batch:

1512203-1

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **IC151211-1-2** Instrument ID: **IC-2** Method: **EPA300.0**

LCS Sample ID: **IC151211-1** Units: **MG/L** Analysis Date: **12/14/2015 15:23**
 Client ID: Run ID: **IC151213-1A3** Prep Date: **12/11/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BROMIDE	4.79	0.2	5		96	90-110				15	
CHLORIDE	4.91	0.2	5		98	90-110				15	
FLUORIDE	1.94	0.1	2		97	90-110				15	
NITRATE AS N	4.92	0.2	5		98	90-110				15	
NITRITE AS N	1.84	0.1	2		92	90-110				15	
SULFATE	19.6	1	20		98	90-110				15	

MB Sample ID: **IC151211-1** Units: **MG/L** Analysis Date: **12/14/2015 15:38**
 Client ID: Run ID: **IC151213-1A3** Prep Date: **12/11/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
BROMIDE	ND	0.2									
CHLORIDE	ND	0.2									
FLUORIDE	ND	0.1									
NITRATE AS N	ND	0.2									
NITRITE AS N	ND	0.1									
SULFATE	ND	1									

The following samples were analyzed in this batch:

1512203-1

Client: CSU Civil Engineering
Work Order: 1512203
Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **SC151212-1-2** Instrument ID: **pH-2** Method: **SM2510B**

DUP Sample ID: **1512203-1** Units: **umhos/cm** Analysis Date: **12/12/2015**
Client ID: **Sand Creek 2** Run ID: **SC151212-1A1** Prep Date: **12/12/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	1133	1						1131	0	10	

The following samples were analyzed in this batch:

1512203-1

Client: CSU Civil Engineering
 Work Order: 1512203
 Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **TD151211-3-2** Instrument ID: **Balance** Method: **SM2540C**

DUP		Sample ID: 1512203-1		Units: MG/L			Analysis Date: 12/14/2015				
Client ID: Sand Creek 2		Run ID: TD151214-1A1			Prep Date: 12/11/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	741	20						740	0	5	

LCS		Sample ID: TD151211-3		Units: MG/L			Analysis Date: 12/14/2015				
Client ID:		Run ID: TD151214-1A1			Prep Date: 12/11/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	397	20	400		99	85-115				5	

MB		Sample ID: TD151211-3		Units: MG/L			Analysis Date: 12/14/2015				
Client ID:		Run ID: TD151214-1A1			Prep Date: 12/11/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	ND	20									

The following samples were analyzed in this batch:

Client: CSU Civil Engineering
Work Order: 1512203
Project: Colorado Water Watch

QC BATCH REPORT

Batch ID: **TP151215-1-1** Instrument ID: **Spec** Method: **EPA365.2**

LCS	Sample ID: TP151215-1					Units: MG/L	Analysis Date: 12/15/2015				
Client ID:		Run ID: TP151215-1A1				Prep Date: 12/15/2015		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.545	0.05	0.5		109	80-120				20	

MB	Sample ID: TP151215-1					Units: MG/L	Analysis Date: 12/15/2015				
Client ID:		Run ID: TP151215-1A1				Prep Date: 12/15/2015		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	ND	0.05									

The following samples were analyzed in this batch:

1512203-1
