

Wednesday, June 10, 2015

Richard Caschette

CSU Civil Engineering
1301 Campus Delivery
Fort Collins, CO 08523

Re: ALS Workorder: 1506058
Project Name: Colorado Water Watch
Project Number:

Dear Mr. Caschette:

Two water samples were received from CSU Civil Engineering, on 6/3/2015. The samples were 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
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
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



1506058

GC/MS Volatiles:

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

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

All acceptance criteria were met.

Dissolved Gasses:

The samples were 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 samples were analyzed following Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures. Analysis by ICPMS followed method 6020A and the current revision of SOP 827.

The samples were to be analyzed for dissolved metals. The samples were 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 samples were 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

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1506058

Client Name: CSU Civil Engineering

Client Project Name: Colorado Water Watch

Client Project Number:

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Boxelder	1506058-2		WATER	02-Jun-15	



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CSU

Workorder No: 1506058

Project Manager: _____

Initials: ECP Date: 6/3/15

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	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?	ECP	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> 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: <u>X</u> < green pea <u> </u> > green pea	N/A	YES	<input checked="" type="radio"/> NO
* 15. Do any water samples contain sediment? Amount	N/A	<input checked="" type="radio"/> YES	NO
Amount of sediment: <u> </u> dusting <u> </u> moderate <u> </u> heavy			
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 #: 1 2

Temperature (°C): AMB →

No. of custody seals on cooler: 0 →

External µR/hr reading: NA →

Background µR/hr reading: 11

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES NO NA (If no, see Form 008.)

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

14) 1-11, 1-12.

5) No sample time provided.

15) 1-1, 1-2, 1-3.

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

Project Manager Signature / Date: [Signature] 6/8/15

Client: CSU Civil Engineering
Project: Colorado Water Watch
Sample ID: Boxelder
Legal Location:
Collection Date: 6/2/2015

Date: 10-Jun-15
Work Order: 1506058
Lab ID: 1506058-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Alkalinity as Calcium Carbonate						
TOTAL ALKALINITY AS CaCO3	220		20	MG/L	1	6/4/2015
BICARBONATE AS CaCO3	220		20	MG/L	1	6/4/2015
CARBONATE AS CaCO3	ND		20	MG/L	1	6/4/2015
Diesel Range Organics						
Diesel Range Organics	ND		0.72	MG/L	1	6/10/2015 05:19
Surr: O-TERPHENYL	104		54-123	%REC	1	6/10/2015 05:19
Dissolved Gasses						
METHANE	ND		1	UG/L	1	6/5/2015 14:52
ETHANE	ND		2	UG/L	1	6/5/2015 14:52
PROPANE	ND		1	UG/L	1	6/5/2015 14:52
GC/MS Volatiles						
BENZENE	ND		1	UG/L	1	6/8/2015 19:06
TOLUENE	ND		1	UG/L	1	6/8/2015 19:06
ETHYLBENZENE	ND		1	UG/L	1	6/8/2015 19:06
M+P-XYLENE	ND		1	UG/L	1	6/8/2015 19:06
O-XYLENE	ND		1	UG/L	1	6/8/2015 19:06
TOTAL XYLENES	ND		1	UG/L	1	6/8/2015 19:06
Surr: 4-BROMOFLUOROBENZENE	106		85-115	%REC	1	6/8/2015 19:06
Surr: DIBROMOFLUOROMETHANE	96		84-118	%REC	1	6/8/2015 19:06
Surr: TOLUENE-D8	94		85-115	%REC	1	6/8/2015 19:06
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	6/8/2015 19:06
Ion Chromatography						
BROMIDE	ND		0.4	MG/L	2	6/4/2015 03:22
CHLORIDE	190		4	MG/L	20	6/4/2015 03:37
FLUORIDE	0.95		0.2	MG/L	2	6/4/2015 03:22
NITRATE AS N	1.3		0.4	MG/L	2	6/4/2015 03:22
NITRITE AS N	ND		0.2	MG/L	2	6/4/2015 03:22
SULFATE	240		20	MG/L	20	6/4/2015 03:37
Dissolved Metals by 200.8						
BARIUM	0.043		0.001	MG/L	10	6/9/2015 13:55
BORON	0.23		0.05	MG/L	10	6/9/2015 13:55
CALCIUM	120		1	MG/L	10	6/9/2015 13:55
IRON	ND		0.1	MG/L	10	6/9/2015 13:55
MAGNESIUM	27		0.1	MG/L	10	6/9/2015 13:55
MANGANESE	0.0078		0.002	MG/L	10	6/9/2015 13:55
POTASSIUM	3.6		1	MG/L	10	6/9/2015 13:55
SELENIUM	0.002		0.001	MG/L	10	6/9/2015 13:55
SODIUM	160		1	MG/L	10	6/9/2015 13:55
STRONTIUM	1.4		0.001	MG/L	10	6/9/2015 13:55
pH						
PH	7.7		0.1	pH	1	6/5/2015
Specific Conductance in Water						
SPECIFIC CONDUCTIVITY	1478		1	umhos/cm	1	6/5/2015

Client: CSU Civil Engineering
Project: Colorado Water Watch
Sample ID: Boxelder
Legal Location:
Collection Date: 6/2/2015

Date: 10-Jun-15
Work Order: 1506058
Lab ID: 1506058-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Total Dissolved Solids TOTAL DISSOLVED SOLIDS	910		SM2540C	40 MG/L	1	Prep Date: 6/5/2015 PrepBy: JAC 6/8/2015
Total Phosphorus as P TOTAL PHOSPHORUS	0.19		EPA365.2	0.05 MG/L	1	Prep Date: 6/10/2015 PrepBy: AJD 6/10/2015

