

# Organic Carbon Case Narrative

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## Colorado Oil & Gas Conservation Commission Box Elder Creek

Work Order Number: 1508348

1. This report consists of 2 water samples.
2. The samples were received cool and intact by ALS on 08/21/15.
3. The samples had been correctly preserved for the requested analysis.
4. The samples were prepared for analysis based on Methods for the Chemical Analysis of Waters and Wastes (MCAWW), May 1994 procedures.
5. The samples were analyzed following MCAWW procedures for the current revision of the following SOP and method:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
TOC (Total Organic Carbon)	415.1	670

6. All standards and solutions were used within their recommended shelf life.
7. The samples were prepared and analyzed within the established hold time for TOC analysis.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.
  - n A preparation (method) blank, laboratory control sample (LCS), and laboratory control sample duplicate (LCSD) were prepared and analyzed with the samples in this preparation batch.
  - n The method blank associated with this batch was below the reporting limit for the requested analyte.



- n All laboratory control sample criteria were met.
- n All initial and continuing calibration verifications were within the acceptance criteria for the requested analyte.

9. Matrix specific quality control procedures.

Samples 1508348-1 and -2 were designated as the quality control samples for this analysis.

Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

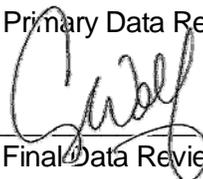
- n Matrix spikes (MS) and matrix spike duplicates (MSD) were prepared and analyzed with this batch. All guidance criteria for precision and accuracy were met.

10. Sample dilutions were not required for the requested analysis.

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.

  
\_\_\_\_\_  
Megan Johnstone  
Organics Primary Data Reviewer

8/25/15  
Date

  
\_\_\_\_\_  
Organics Final Data Reviewer

8/31/15  
Date



### **Data Reporting Qualifiers**

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Concentration qualifier -- A “J” is entered if the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to ALS’s Method Detection Limit. If the analyte was analyzed for but not detected a “U” is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
  - N - Spiked sample recovery not within control limits.
  - \* - Duplicate analysis (relative percent difference) not within control limits.
  - B - The method blank for the analysis contained the analyte of interest above the reporting limit.

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1508348

**Client Name:** Colorado Oil & Gas Conservation Commission

**Client Project Name:** Box Elder Creek

**Client Project Number:**

**Client PO Number:**

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Box Elder Down	1508348-1		WATER	20-Aug-15	11:48
Box Elder Up	1508348-2		WATER	20-Aug-15	14:05
Trip Blank	1508348-3		WATER	20-Aug-15	7:00



**ALS Laboratory Group**

225 Commerce Drive, Fort Collins, Colorado 80524  
 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

**Chain-of-Custody**

Form 2026b

WORKORDER # 1508348

PROJECT NAME	PROJECT No.	SAMPLER SITE ID	DATE	TURNAROUND	PAGE	By Lab - or	Return to Client
Box Elder Creek			27 Aug 2005		1		
EDD FORMAT							
PURCHASE ORDER							
BILL TO COMPANY							
INVOICE ATTN TO							
ADDRESS							
CITY / STATE / ZIP							
PHONE							
FAX							
E-MAIL							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC
①	Box Elder Down	W	26 Aug 11:48	11:48	6	HC	X
↓	Box Elder Down	W	26 Aug 11:48	11:48	5	E	
②	Box Elder Down	W	26 Aug 11:48	11:48	1	B	
↓	Box Elder Up	W	26 Aug 14:05	14:05	3	HL	
↓	Box Elder Up	W	26 Aug 14:05	14:05	5	E	
↓	Box Elder Up	W	26 Aug 14:05	14:05	1	B	
③	Trin Blak	W	26 Aug 07:00	07:00	3	I	
	NEA at GRC 3 day if possible						
	rest 14 days						

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

For metals or anions, please detail analytes below.

**Comments:** Filtered 10 group metals on receipt = dissolved  
 26.7-6000-11 Box 2007-1000  
 26.6-6000-16 Box 2007-11-200.8  
 Attention = Box 11, F, A, C, N, S, 504

QC PACKAGE (check below)
<input checked="" type="checkbox"/> LEVEL II (Standard QC)
<input type="checkbox"/> LEVEL III (Std QC + forms)
<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>[Signature]</i>	Peter Contantinos	7/27/05	08:05
RELINQUISHED BY	<i>[Signature]</i>	Zach D. Galvan	8/11/05	8:05
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

*[Handwritten signature]*



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1508348

Project Manager: AW

Initials: CDT Date: 8-21-15

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?	NONE	<input checked="" type="radio"/> 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?		<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: ___ < green pea ___ > 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?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4 <input checked="" type="radio"/> RAD ONLY		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>1.6</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>NA</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.)			

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

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If applicable, was the client contacted? YES / NO /  NA Contact: Guy Date/Time: 8/21/15

Project Manager Signature / Date: Guy 8/21/15

# Organic Carbon

Method EPA415.1

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1508348

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Box Elder Creek

Lab ID: MO150824-1MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 24-Aug-15

Date Analyzed: 24-Aug-15

Prep Batch: MO150824-3

QCBatchID: MO150824-3-1

Run ID: MO150824-3A1

Cleanup: NONE

Basis: N/A

File Name: 08241130

Sample Aliquot: 40 ml

Final Volume: 40 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
10-35-5	TOTAL ORGANIC CARBON	1	1	1	0.3	U	

Data Package ID: MO1508348-1

Date Printed: Tuesday, August 25, 2015

ALS Environmental -- FC

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LIMS Version: 6.780

# TOTAL ORGANIC CARBON

## Method EPA415.1

### Sample Results

Lab Name: ALS Environmental -- FC

Client Name: Colorado Oil & Gas Conservation Commission

Client Project ID: Box Elder Creek

Work Order Number: 1508348

Final Volume: 40 ml

Reporting Basis: As Received

Matrix: WATER

Analyst: Steven D. White

Result Units: MG/L

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Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/DL	Flag	Sample Aliquot
Box Elder Down	1508348-1	8/20/2015	8/24/2015	08/24/2015	N/A	1	9.1	1	0.3		40 ml
Box Elder Up	1508348-2	8/20/2015	8/24/2015	08/24/2015	N/A	1	9.1	1	0.3		40 ml

#### Comments:

- 
1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *MO1508348-1*

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Date Printed: Tuesday, August 25, 2015

ALS Environmental -- FC

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LIMS Version: 6.780

# Organic Carbon

## Method EPA415.1

### Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1508348

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Box Elder Creek

Lab ID: MO150824-1LCS

Sample Matrix: WATER  
% Moisture: N/A  
Date Collected: N/A  
Date Extracted: 08/24/2015  
Date Analyzed: 08/24/2015  
Prep Method: NONE

Prep Batch: MO150824-3  
QCBatchID: MO150824-3-1  
Run ID: MO150824-3A1  
Cleanup: NONE  
Basis: N/A  
File Name: 08241130

Sample Aliquot: 40 ml  
Final Volume: 40 ml  
Result Units: MG/L  
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
10-35-5	TOTAL ORGANIC CARBON	15	15.9	1		106	85 - 115%

Lab ID: MO150824-1LCSD

Sample Matrix: WATER  
% Moisture: N/A  
Date Collected: N/A  
Date Extracted: 08/24/2015  
Date Analyzed: 08/24/2015  
Prep Method: NONE

Prep Batch: MO150824-3  
QCBatchID: MO150824-3-1  
Run ID: MO150824-3A1  
Cleanup: NONE  
Basis: N/A  
File Name: 08241130

Sample Aliquot: 40 ml  
Final Volume: 40 ml  
Result Units: MG/L  
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
10-35-5	TOTAL ORGANIC CARBON	15	15.9	1		106	20	0

Data Package ID: MO1508348-1

# Organic Carbon

Method EPA415.1

## Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1508348

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Box Elder Creek

Field ID: Box Elder Down

LabID: 1508348-1MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Aug-15

Date Extracted: 24-Aug-15

Date Analyzed: 24-Aug-15

Prep Method: NONE

Prep Batch: MO150824-3

QCBatchID: MO150824-3-1

Run ID: MO150824-3A1

Cleanup: NONE

Basis: As Received

Sample Aliquot: 40 ml

Final Volume: 40 ml

Result Units: MG/L

File Name: 08241130

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
10-35-5	TOTAL ORGANIC CARBON	9.1		19.2		1	10	100	80 - 120%

Field ID: Box Elder Down

LabID: 1508348-1MSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Aug-15

Date Extracted: 24-Aug-15

Date Analyzed: 24-Aug-15

Prep Method: NONE

Prep Batch: MO150824-3

QCBatchID: MO150824-3-1

Run ID: MO150824-3A1

Cleanup: NONE

Basis: As Received

Sample Aliquot: 40 ml

Final Volume: 40 ml

Result Units: MG/L

File Name: 08241130

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
10-35-5	TOTAL ORGANIC CARBON	19.2		10	100	1	20	0

Data Package ID: MO1508348-1

# Organic Carbon

Method EPA415.1

## Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1508348

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Box Elder Creek

Field ID: Box Elder Up  
LabID: 1508348-2MS

Sample Matrix: WATER  
% Moisture: N/A  
Date Collected: 20-Aug-15  
Date Extracted: 24-Aug-15  
Date Analyzed: 24-Aug-15  
Prep Method: NONE

Prep Batch: MO150824-3  
QCBatchID: MO150824-3-1  
Run ID: MO150824-3A1  
Cleanup: NONE  
Basis: As Received

Sample Aliquot: 40 ml  
Final Volume: 40 ml  
Result Units: MG/L  
File Name: 08241130

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
10-35-5	TOTAL ORGANIC CARBON	9.1		19.4		1	10	103	80 - 120%

Field ID: Box Elder Up  
LabID: 1508348-2MSD

Sample Matrix: WATER  
% Moisture: N/A  
Date Collected: 20-Aug-15  
Date Extracted: 24-Aug-15  
Date Analyzed: 24-Aug-15  
Prep Method: NONE

Prep Batch: MO150824-3  
QCBatchID: MO150824-3-1  
Run ID: MO150824-3A1  
Cleanup: NONE  
Basis: As Received

Sample Aliquot: 40 ml  
Final Volume: 40 ml  
Result Units: MG/L  
File Name: 08241130

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
10-35-5	TOTAL ORGANIC CARBON	19.5		10	104	1	20	0

Data Package ID: MO1508348-1