

## Organic Carbon Case Narrative

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### Colorado Oil & Gas Conservation Commission TBAL

Work Order Number: 1308515

1. This report consists of 3 water samples.
2. The samples were received cool and intact by ALS on 08/29/13.
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. There were not more than 20 samples in this preparation batch.



- The method blank associated with this batch was/were below the reporting limit for the requested analyte. This indicates that no contaminants were introduced to the samples during preparation and analysis.
- The LCS was within the acceptance limits for TOC analysis.
- All continuing calibration verifications (CCV) associated with this batch were within the acceptance criteria for the requested analyte. This indicates a valid calibration and stable instrument conditions.

9. Matrix specific quality control procedures.

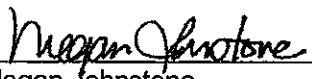
Sample 1308515-3 was designated as the quality control sample for this analysis.

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.

- A matrix spike (MS) and matrix spike duplicate (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

9/5/13  
Date

  
Organics Final Data Reviewer

9/5/13  
Date



### **Data Reporting Qualifiers**

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

- Concentration qualifier -- 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.



## **Chain of Custody**

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1308515

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

**Client Project Name:** TBAL

**Client Project Number:**

**Client PO Number:** PHA 14-22

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
McDonald 1	1308515-1		WATER	28-Aug-13	8:40
McDonald 2	1308515-2		WATER	28-Aug-13	9:10
752787 Earls	1308515-3		WATER	28-Aug-13	9:46



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

## Chain-of-Custody

Form 202r8

\*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.**

For metals or anions, please detail analytes below.					
Comments:	QC PACKAGE (check below)				
	LEVEL II (Standard QC)	LEVEL III (Std QC + forms)	LEVEL IV (Std QC + forms + raw data)		
Analytes = Br <sub>2</sub> , Cl <sub>2</sub> , F <sub>2</sub> , Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> dissolved = filter + preserve at lab metals list as all other TBAL			X		
6 of 43					

SIGNATURE	PRINTED NAME	DATE	TIME
[Signature]	Jacob Paddy	8/28/13	0930

**Preservative Key:** 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-NaHSO<sub>4</sub> 7-Other 8-4 degrees C 9-5035



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1308515

Project Manager: ARW

Initials: JLR Date: 8/29/13

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?	DROP OFF	<input checked="" type="radio"/> 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	<input checked="" type="radio"/> YES	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	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>4°C</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> 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.

If applicable, was the client contacted? YES / NO / ☒ Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: Cway 8/29/13

1308515

From: (719) 846-3091  
Peter Gintautas  
Coko. Oil & Gas Cons. Comm.  
213 Corundum RD

Origin ID: PUBA

**FedEx**  
Express



J13201308280326

Trinidad, CO 81082

SHIP TO: (970) 496-1511

BILL SENDER

**Amy Wolf**  
**ALS Laboratory Group**  
**225 COMMERCE DR**

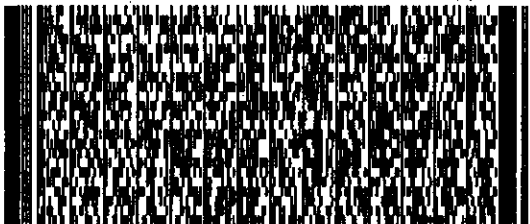
**FORT COLLINS, CO 80524**

Ship Date: 28AUG13  
ActWgt: 46.0 LB  
CAD: 4076443/NET3430

Delivery Address Bar Code



Ref #: Complaint 200247064  
Invoice #  
PO #  
Dept #



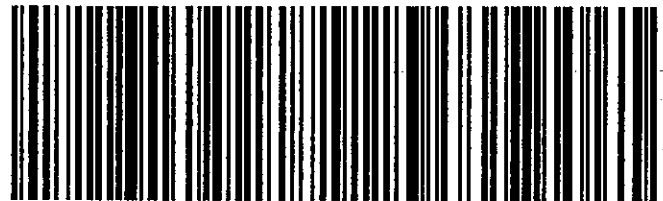
TRK# 7965 6650 5752  
0201

THU - 29 AUG 10:30A  
PRIORITY OVERNIGHT

**72 FTCA**

11  
2

**80524**  
CO-US  
**DEN**



51AG1/0969/1AGE





## Sample Results

# Organic Carbon

Method EPA415.1

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: MO130904-2MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 04-Sep-13

Date Analyzed: 04-Sep-13

Prep Method: NONE

Prep Batch: MO130904-2

QCBatchID: MO130904-2-1

Run ID: MO130904-2A

Cleanup: NONE

Basis: N/A

File Name: 09041906

Sample Aliquot: 40 ml

Final Volume: 40 ml

Result Units: MG/L

Clean DF: 1

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

Data Package ID: MO1308515-1

Date Printed: Thursday, September 05, 2013

ALS Environmental -- FC

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LIMS Version: 6.658

# TOTAL ORGANIC CARBON

Method EPA415.1

## Sample Results

**Lab Name:** ALS Environmental -- FC  
**Client Name:** Colorado Oil & Gas Conservation Commission  
**Client Project ID:** TBAL  
**Work Order Number:** 1308515      **Final Volume:** 40 ml  
**Reporting Basis:** As Received      **Matrix:** WATER  
**Prep Method:** NONE      **Result Units:** MG/L  
**Analyst:** Steven D. White

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit LOD/LOQ	Flag	Sample Aliquot
McDonald 1	1308515-1	08/28/2013	09/04/2013	09/05/2013	N/A	1	2.7	1		40 ml
McDonald 2	1308515-2	08/28/2013	09/04/2013	09/05/2013	N/A	1	1.7	1		40 ml
752787 Earls	1308515-3	08/28/2013	09/04/2013	09/05/2013	N/A	1	1.4	1		40 ml

### Comments:

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

**Data Package ID:** MO1308515-1

**Date Printed:** Thursday, September 05, 2013

**ALS Environmental -- FC**

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## **Summary Report Forms**

# Organic Carbon

## Method EPA415.1

### Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: MO130904-2LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/04/2013

Date Analyzed: 09/04/2013

Prep Method: NONE

Prep Batch: MO130904-2

QCBatchID: MO130904-2-1

Run ID: MO130904-2A

Cleanup: NONE

Basis: N/A

File Name: 09041906

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	15.1	1		100	85 - 115%

Lab ID: MO130904-2LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/04/2013

Date Analyzed: 09/04/2013

Prep Method: NONE

Prep Batch: MO130904-2

QCBatchID: MO130904-2-1

Run ID: MO130904-2A

Cleanup: NONE

Basis: N/A

File Name: 09041906

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	15.1	1		100	20	0

Data Package ID: MO1308515-1

Date Printed: Thursday, September 05, 2013

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# Organic Carbon

Method EPA415.1

## Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: 752787 Earls

LabID: 1308515-3MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 28-Aug-13

Date Extracted: 04-Sep-13

Date Analyzed: 05-Sep-13

Prep Method: NONE

Prep Batch: MO130904-2

QCBatchID: MO130904-2-1

Run ID: MO130904-2A

Cleanup: NONE

Basis: As Received

Sample Aliquot: 40 ml

Final Volume: 40 ml

Result Units: MG/L

File Name: 09041906

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	1.4		10.9		1	10	95	80 - 120%

Field ID: 752787 Earls

LabID: 1308515-3MSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 28-Aug-13

Date Extracted: 04-Sep-13

Date Analyzed: 05-Sep-13

Prep Method: NONE

Prep Batch: MO130904-2

QCBatchID: MO130904-2-1

Run ID: MO130904-2A

Cleanup: NONE

Basis: As Received

Sample Aliquot: 40 ml

Final Volume: 40 ml

Result Units: MG/L

File Name: 09041906

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
10-35-5	TOTAL ORGANIC CARBON	11		10	95	1	20	1

Data Package ID: MO1308515-1

Date Printed: Thursday, September 05, 2013

ALS Environmental -- FC

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# Prep Batch ID: MO130904-2

Start Date: 09/04/13

End Date: 09/05/13

Concentration Method: NONE

Batch Created By: sdw

Start Time: 19:14

End Time: 2:49

Extract Method: NONE

Date Created: 09/04/13

Prep Analyst: Steven D. White

Initial Volume Units: ml

Time Created: 18:49

**Comments:**

Final Volume Units: ml

Validated By: sdw

DOC / TOC analysis by EPA 415.1 (1 replicate)

Date Validated: 09/05/13

Time Validated: 9:15

QC Batch ID: MO130904-2-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
MO130904-2	RVS	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
MO130904-2	MB	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
MO130904-2	LCS	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
MO130904-2	LCSD	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
1308470-1	MS	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
1308515-3	MS	752787 Earls	WATER	8/28/2013	40	40	NONE	1	1308515
1308470-1	MSD	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
1308515-3	MSD	752787 Earls	WATER	8/28/2013	40	40	NONE	1	1308515
1308461-2	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308461
1308461-3	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308461
1308470-1	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
1308470-3	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308470
1308488-1	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308488
1308488-2	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308488
1308488-3	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308488
1308488-4	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308488
1308505-2	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308505
1308505-3	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308505
1308515-1	SMP	McDonald 1	WATER	8/28/2013	40	40	NONE	1	1308515
1308515-2	SMP	McDonald 2	WATER	8/28/2013	40	40	NONE	1	1308515
1308515-3	SMP	752787 Earls	WATER	8/28/2013	40	40	NONE	1	1308515
1308545-1	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308545
1308545-3	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308545
1308558-6	SMP	XXXXXX	WATER	XXXXXX	40	40	NONE	1	1308558

# TOTAL ORGANIC CARBON

Method EPA415.1

## Calibration Verifications

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Run ID: MO130904-2A

Result Units: MG/L

Lab ID	Verification Type	Date Analyzed	Time Analyzed	Spike Added	Result	Reporting Limit	Result Qualifier	% Rec.	Control Limits
ICV	Initial Calibration	10/24/2012	12:49	15	14.2	1	N/A	95	85 - 115
CCV1	Continuing Calibration	9/4/2013	20:02	10	10.4	1	N/A	104	85 - 115
CCV2	Continuing Calibration	9/4/2013	22:33	10	10.2	1	N/A	102	85 - 115
CCV3	Continuing Calibration	9/5/2013	0:17	10	10.3	1	N/A	103	85 - 115
CCV4	Continuing Calibration	9/5/2013	1:32	10	10.2	1	N/A	102	85 - 115

Data Package ID: *MO1308515-1*

Date Printed: Thursday, September 05, 2013

ALS Environmental -- FC

LIMS Version: 6.658

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## Raw Data

# DOC / TOC - Analysis Run Log

Calibration Date: 10/24/2012  
 Calibration Curve Filename: 10241021  
 File containing ICV for curve: 10241021  
 TOC-Talk Method Used: TOC Range 0.1 - 20 ppm C

Instrument: Phoenix 8000 # 01011007  
 SOP 670 Rev # 14  
 Analysis Date: 10/24/2012  
 Analyst: Phillip Schlueter

ppb C	ppm C	DNR	Position	Sample ID	Comment	Data Filename	Reps.	Initial Sample Volume (mL)	Final Vol. of Diluted Sample (mL)	Vol of 1000 ug/mL TOC Std Spiked* (mL)	NOTES:
283.5	0.2835	X	1	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	Timestamp: 10/24/2012 @ 1027
-70.0	-0.0700	X	2	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	
39.9	0.0399	X	3	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	
-11.0	-0.0110	X	4	Blank TC Range 2	DOC / TOC - Calibration	10241021	5	40	40	NA	
-12.8	-0.0128	X	5	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	
0.0		X	6	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	
0.0			7	0.000001 PPM	DOC / TOC - Calibration	10241021	1	40	40	NA	
0.0			8	0.1 PPM	DOC / TOC - Calibration	10241021	1	0.1	40	NA	
0.0			9	0.5 PPM	DOC / TOC - Calibration	10241021	1	0.5	40	NA	
0.0			10	1.0 PPM	DOC / TOC - Calibration	10241021	1	1	40	NA	
0.0			11	5.0 PPM	DOC / TOC - Calibration	10241021	1	5	40	NA	
0.0			12	10 PPM	DOC / TOC - Calibration	10241021	1	10	40	NA	
0.0			13	20 PPM	DOC / TOC - Calibration	10241021	1	20	40	NA	
22.1	0.0221	X	14	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	
24.8	0.0248	X	15	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	
14213.0	14.2130	X	16	ICV	DOC / TOC - Calibration	10241021	1	40	40	NA	
44.0	0.0440	X	17	BLANK	DOC / TOC - Calibration	10241021	1	40	40	NA	

EPT = Endpoint Timeout

Standard ID	Description	Method ID	Std. Vol. Used	Final Vol.	Exp. Date	Std. Conc.
ST120416-3	Calib. Std.	TOC Range 0.1 - 20 ppm C	NA	NA	4/16/13	40.0
ST120416-4	ICV	TOC Range 0.1 - 20 ppm C	0.6	40.0	4/16/13	1000.0
ST120416-3	RVS	TOC Range 0.1 - 20 ppm C	1.0	40.0	4/16/13	40.0
ST120914-2	CCV	TOC Range 0.1 - 20 ppm C	40.0	40.0	4/16/13	10.0
ST121009-2	LCS	TOC Range 0.1 - 20 ppm C	40.0	40.0	4/16/13	15.0
ST120416-2	*spike Std. for MS/MSD		0.4	40.0	4/16/13	1000.0
RG120916-1	12% Sodium Persulfate Reagent				4/26/13	
RG120720-1	Diluted Phosphoric Acid Reagent				7/20/13	

Double deionized water (DI) used for all dilutions and all run QC

A\* = 1,600X SERIAL DILUTION  
 1.0ml to 40mls FV = 40X  
 1.0ml to 40mls FV = 40X

B\* = 400X SERIAL DILUTION  
 0.4ml to 40mls FV = 100X  
 10ml to 40mls FV = 4X

C\* = 200X SERIAL DILUTION  
 0.4ml to 40mls FV = 100X  
 20ml to 40mls FV = 2X

Calibration Report Print Date/Time: 2012/10/24 14:54:41

Cal. Curve ID: 102412LOW  
 Created: 10/24/2012 14:47  
 Calibration Factor (m): 3.604e+05  
 Y Intercept (b): 23146  
 r-squared: 0.99916

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message Time	Date &
0.000001 PPM	212150	0.000	0.524		10/24/2012 11:25
0.1 PPM	335074	0.400	0.866		10/24/2012 11:33
0.5 PPM	847930	2.000	2.289		10/24/2012 11:42
1.0 PPM	1516877	4.000	4.145		10/24/2012 11:51
5.0 PPM	6915190	20.000	19.125		10/24/2012 12:00
10 PPM	13897066	40.000	38.499		10/24/2012 12:11
20 PPM	29196154	80.000	80.953	Endpoint Time	10/24/2012 12:22

Sample ID	Result	Std. Dev.	RSD	Mode	ALT
=====					
BLANK	0.2835		TOC		
BLANK	-0.0700		TOC		
BLANK	0.0399		TOC		
Blank TC Range 2.....	230257...	135667..	58.92...TC	..	
BLANK	-0.0110		TOC		
BLANK	-0.0128		TOC		
0.000001 PPM.....	212150...	..	...TOC	..	
0.1 PPM	335074		TOC		
0.5 PPM	847930		TOC		
1.0 PPM.....	1516877...	..	...TOC	..	
5.0 PPM	6915189		TOC		
10 PPM	13897066		TOC		
20 PPM.....	29196156...	..	...TOC	..	
BLANK	0.0221		TOC		
BLANK	0.0248		TOC		
ICV.....	14.2130...	..	...TOC	..	
BLANK	0.0440		TOC		

Method ID	Sample Type	Vial	Timestamp	Message
=====				
TOC Range 0.1 - 20 p	Sample	1	10/24/2012 10:27	
TOC Range 0.1 - 20 p	Sample	2	10/24/2012 10:35	
TOC Range 0.1 - 20 p	Sample	3	10/24/2012 10:43	
Blank TC Range 2	Blank TC Range 2	4	10/24/2012 11:02	..
TOC Range 0.1 - 20 p	Sample	5	10/24/2012 11:09	
TOC Range 0.1 - 20 p	Sample	6	10/24/2012 11:17	
TOC Range 0.1 - 20 p	TOC Standard	7	10/24/2012 11:25	..
TOC Range 0.1 - 20 p	TOC Standard	8	10/24/2012 11:33	
TOC Range 0.1 - 20 p	TOC Standard	9	10/24/2012 11:42	
TOC Range 0.1 - 20 p	TOC Standard	10	10/24/2012 11:51	..
TOC Range 0.1 - 20 p	TOC Standard	11	10/24/2012 12:00	
TOC Range 0.1 - 20 p	TOC Standard	12	10/24/2012 12:11	
TOC Range 0.1 - 20 p	TOC Standard	13	10/24/2012 12:22	..EndpointT imeout
TOC Range 0.1 - 20 p	Sample	14	10/24/2012 12:30	
TOC Range 0.1 - 20 p	Sample	15	10/24/2012 12:38	
TOC Range 0.1 - 20 p	Sample	16	10/24/2012 12:49	..
TOC Range 0.1 - 20 p	Sample	17	10/24/2012 12:57	

=====

Sample ID: BLANK Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
 Cal. Curve: 102412LOW Timestamp: 10/24/2012 10:27  
 Operator ID: pjs Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1	0.2835	1.1342	519898	12.565	13.056	86

=====

Sample ID: BLANK Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
 Cal. Curve: 102412LOW Timestamp: 10/24/2012 10:35  
 Operator ID: pjs Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1	-0.0700	-0.2798	180540	10.726	11.223	84

=====

Sample ID: BLANK Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
 Cal. Curve: 102412LOW Timestamp: 10/24/2012 10:43  
 Operator ID: pjs Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1	0.0399	0.1597	286030	10.672	11.171	102

=====

Sample ID: Blank TC Range 2 Mode: TC  
 Method: Blank TC Range 2 Filename: 10241021  
 Cal. Curve: default Timestamp: 10/24/2012 11:02  
 Operator ID: pjs Sample Type:Blank TC Range 2

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1		453640	11.218	11.717	121	
2		140720	11.425	11.921	95	
3		141684	11.612	12.111	94	
4		266078	11.808	12.306	137	
5		149161	12.118	12.617	96	

-----  
<<<Statistics>>> Mean: 230257 Std Dev: 135667 RSD: 58.92  
=====

Sample ID: BLANK Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 11:09  
Operator ID: pjs Sample Type:S ample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			Baseline	Baseline	Time	
1	-0.0110	-0.0441	175063	12.471	12.969	86

=====

Sample ID: BLANK Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 11:17  
Operator ID: pjs Sample Type:S ample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			Baseline	Baseline	Time	
1	-0.0128	-0.0513	173331	12.641	13.141	93

=====

Sample ID: 0.000001 PPM Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 11:25  
Operator ID: pjs Sample Type:T OC Standard

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			Baseline	Baseline	Time	
1		212150	13.360	13.856	91	

=====

Sample ID: 0.1 PPM Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 11:33  
Operator ID: pjs Sample Type:T OC Standard

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			Baseline	Baseline	Time	
1		335074	13.492	13.992	95	

=====

Sample ID: 0.5 PPM Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 11:42  
Operator ID: pjs Sample Type:T OC Standard

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1		847930	13.590	14.087	113	

=====

Sample ID: 1.0 PPM Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 11:51  
Operator ID: pjs Sample Type:T OC Standard

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1		1516877	13.946	14.443	124	

=====

Sample ID: 5.0 PPM Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 12:00  
Operator ID: pjs Sample Type:T OC Standard

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1		6915189	14.129	14.626	183	

=====

Sample ID: 10 PPM Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 12:11  
Operator ID: pjs Sample Type:T OC Standard

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1		13897066	14.329	14.828	232	

=====

Sample ID: 20 PPM Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 10241021  
Cal. Curve: 102412LOW Timestamp: 10/24/2012 12:22



Operator ID: pjs

Sample Type:T OC Standard

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1		29196156	14.840	15.416	251	

-----  
LastM essage: Endpoint Timeout  
=====

Sample ID: BLANK                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C      Filename: 10241021  
Cal. Curve: 102412LOW                  Timestamp: 10/24/2012 12:30  
Operator ID: pjs                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1	0.0221	0.0883	217468	14.795	15.292	91

=====

Sample ID: BLANK                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C      Filename: 10241021  
Cal. Curve: 102412LOW                  Timestamp: 10/24/2012 12:38  
Operator ID: pjs                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1	0.0248	0.0994	221448	15.071	15.571	90

=====

Sample ID: ICV                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C      Filename: 10241021  
Cal. Curve: 102412LOW                  Timestamp: 10/24/2012 12:49  
Operator ID: pjs                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseline	Begin ning	Ending	Integration
1	14.2130	56.8521	20673514	15.134	15.633	221

=====

Sample ID: BLANK                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C      Filename: 10241021  
Cal. Curve: 102412LOW                  Timestamp: 10/24/2012 12:57  
Operator ID: pjs                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseline	Beginning Baseline	Ending Time	Integration
1	0.0440	0.1760	249073	15.337	15.832	90

=====

# DOC / TOC - Analysis Run Log

Calibration Date: 10/24/2012  
 Calibration Curve Filename: 10241021  
 File containing ICV for curve: 10241021  
 TOC-Talk Method Used: TOC Range 0.1 - 20 ppm C

Instrument: Phoenix 8000 # 01011007  
 SOP 670 Rev # 14  
 Analysis 09/04/2013  
 Analyst: Steven D. White

ppb C	ppm C	DNR	Position	Sample ID	Comment	Data Filename	Reps.	Initial Sample Volume (mL)	Final Vol. of Diluted Sample (mL)	Vol of 1000 ug/mL TOC Std Spiked* (mL)	NOTES:
421.2	0.4212	X	1	BLANK	DOC / TOC - SW 9060	09041906	1	40	40	NA	Timestamp: 09/04/2013 @ 19:14 EPT
14916.2	14.9162	X	2	PRIME	DOC / TOC - SW 9060	09041906	1	40	40	NA	
298.6	0.2986	X	3	BLANK	DOC / TOC - SW 9060	09041906	1	40	40	NA	
			4	Blank TC Range 2	DOC / TOC - SW 9060	09041906	5	40	40	NA	
10412.0	10.4120		5	CCV1	DOC / TOC - SW 9060	09041906	1	40	40	NA	EPT
516.8	0.5168		6	MO130904-1MB	DOC / TOC - SW 9060	09041906	4	40	40	NA	
1057.6	1.0576		7	MO130904-1RVS	DOC / TOC - SW 9060	09041906	4	1	40	NA	
16162.5	16.1625		8	MO130904-1LCS	DOC / TOC - SW 9060	09041906	4	40	40	NA	
16091.4	16.0914		9	MO130904-1LCSD	DOC / TOC - SW 9060	09041906	4	40	40	NA	
3242.2	3.2422		10	1308510-1	DOC / TOC - SW 9060	09041906	4	40	40	NA	
1722.7	1.7227		11	1308568-11	DOC / TOC - SW 9060	09041906	4	40	40	NA	
10216.5	10.2165		12	CCV2	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
378.2	0.3782		13	MO130904-2MB	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
886.1	0.8861		14	MO130904-2RVS	DOC / TOC - EPA 415.1	09041906	1	1	40	NA	
15052.3	15.0523		15	MO130904-2LCS	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
15064.3	15.0643		16	MO130904-2LCSD	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
1755.2	1.7552		17	1308461-2	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
1794.3	1.7943		18	1308461-3	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
1581.6	1.5816		19	1308488-1	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
2205.9	2.2059		20	1308488-2	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
839.4	0.8394		21	1308488-3	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
601.4	0.6014		22	1308488-4	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
10286.2	10.2862		23	CCV3	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
2698.2	2.6982		24	1308515-1	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
1712.1	1.7121		25	1308515-2	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
1440.1	1.4401		26	1308515-3	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
10917.3	10.9173		27	1308515-3MS	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
10982.5	10.9825		28	1308515-3MSD	DOC / TOC - EPA 415.1	09041906	1	40	40	0.4 to 40	
822.6	0.8226		29	1308545-1	DOC / TOC - EPA 415.1	09041906	1	40	40	0.4 to 40	
551.6	0.5516		30	1308545-3	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
10203.9	10.2039		31	CCV4	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
277.6	0.2776		32	1308470-1	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
10623.9	10.6239		33	1308470-1MS	DOC / TOC - EPA 415.1	09041906	1	40	40	0.4 to 40	
10506.1	10.5061		34	1308470-1MSD	DOC / TOC - EPA 415.1	09041906	1	40	40	0.4 to 40	
368.8	0.3688		35	1308470-3	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
2417.2	2.4172		36	1308505-2	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
1866.3	1.8663		37	1308505-3	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
175.7	0.1757		38	1308558-6	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	
10282.8	10.2828		39	CCV5	DOC / TOC - EPA 415.1	09041906	1	40	40	NA	

A\* = 1,600X SERIAL DILUTION  
 1.0ml to 40mls FV = 40X  
 1.0ml to 40mls FV = 40X

B\* = 400X SERIAL DILUTION  
 1.0ml to 40mls FV = 40X  
 4.0ml to 40mls FV = 10X

C\* = 200X SERIAL DILUTION  
 1.0ml to 40mls FV = 40X  
 8.0ml to 40mls FV = 5X

EPT = Endpoint Timeout

Standard ID	Description	Calib. Std.	Std. Vol. Used	Final Vol.	Exp. Date	Std. Conc.
ST120416-3	ICV	TOC Range 0.1 - 20 ppm C	NA	4/16/13	40.0	1000.0
ST130501-2	RVS	TOC Range 0.1 - 20 ppm C	0.6	5/1/14	40.0	1000.0
ST130501-5	CCV	TOC Range 0.1 - 20 ppm C	40.0	5/1/14	40.0	10.0
ST130501-4	LCS	TOC Range 0.1 - 20 ppm C	40.0	5/1/14	15.0	1000.0
ST130501-1	*spike Std. for MS/MSD		0.4	8/26/14	7/29/14	
RG130826-1	12% Sodium Persulfate Reagent					
RG130729-1	Diluted Phosphoric Acid Reagent					

Double deionized water (DI) used for all dilutions and all run QC

# DOC / TOC - QC Recovery Calculations

Analysis 09/04/2013

Analyst: Steven D. White

DNR	Sample ID	Concentration Found	Spike Concentration	Spike Recovery %	Recovery Acceptance Limit	Recovery % ok/high/low	RPD % (<20%)	RPD < 20% ok/high
	MO130904-1LCS	16.1625	15.00	107.8	85-115	OK		
	MO130904-1LCSD	16.0914	15.00	107.3	85-115	OK	0.4	OK
	MO130904-2LCS	15.0523	15.00	100.3	85-115	OK		
	MO130904-2LCSD	15.0643	15.00	100.4	85-115	OK	0.1	OK
	1308515-3	1.4401						
	1308515-3MS	10.9173	10.00	94.8	80-120	OK		
	1308515-3MSD	10.9825	10.00	95.4	80-120	OK	0.6	OK
	1308470-1	0.2776						
	1308470-1MS	10.6239	10.00	103.5	80-120	OK		
	1308470-1MSD	10.5061	10.00	102.3	80-120	OK	1.1	OK
	CCV1	10.4120	10.00	104.1	85-115	OK	N/A	N/A
	CCV2	10.2165	10.00	102.2	85-115	OK	N/A	N/A
	CCV3	10.2862	10.00	102.9	85-115	OK	N/A	N/A
	CCV4	10.2039	10.00	102.0	85-115	OK	N/A	N/A
	CCV5	10.2828	10.00	102.8	85-115	OK	N/A	N/A

# DOC / TOC

## Manual Calculation Check

Analysis 09/04/2013

Analyst: Steven D. White

BLANK Rep-3:	207,171
BLANK Rep-4:	218,274
BLANK Rep-5:	207,782
Total:	633,227
Mean:	211,075.7
CF = Calibration Factor (h):	360,371.7

MO130904-1LCS	DOC / TOC - SW 9060
RD = Sample Raw Data for 4 mL:	23,509,228.5
Adjusted RD: (RD - Blanks Mean):	23,298,152.8
Adjusted RD / CF:	64.6503
TOC calc results (ppm):	16.1626
TOC reported results (ppm):	16.1625

### SW9060 CALCULATED FROM THE AVERAGE OF 4 RUNS

Run 1:	23,564,766
Run 2:	23,541,754
Run 3:	23,440,824
Run 4:	23,489,570
AVERAGE:	23,509,228.5

Sample ID	Result	Std.D ev.	RSD	Mode	ALT
BLANK	0.4212		TOC		
PRIME	14.9162		TOC		
BLANK	0.2986		TOC		
Blank TC Range 2.....	337099...	273957..	81.27...TC	..	
CCV	10.4120		TOC		
MO130904-1MB	0.5168	0.0127	2.46	TOC	
MO130904-1RVS.....	1.0576...	0.0036..0	.34...TOC	..	
MO130904-1LCS	16.1625	0.0384	0.24	TOC	
MO130904-1LCSD	16.0914	0.0746	0.46	TOC	
1308510-1.....	3.2422...	0.0144..0	.45...TOC	..	
1308566-11	1.7227	0.0093	0.54	TOC	
CCV	10.2165		TOC		
MO130904-2MB.....	0.3782...	..	...TOC	..	
MO130904-2RVS	0.8861		TOC		
MO130904-2LCS	15.0523		TOC		
MO130904-2LCSD.....	15.0643...	..	...TOC	..	
1308461-2	1.7552		TOC		
1308461-3	1.7943		TOC		
1308488-1.....	1.5816...	..	...TOC	..	
1308488-2	2.2059		TOC		
1308488-3	0.8394		TOC		
1308488-4.....	0.6014...	..	...TOC	..	
CCV	10.2862		TOC		
1308515-1	2.6982		TOC		
1308515-2.....	1.7121...	..	...TOC	..	
1308515-3	1.4401		TOC		
1308515-3MS	10.9173		TOC		
1308515-3MSD.....	10.9825...	..	...TOC	..	
1308545-1	0.8226		TOC		
1308545-3	0.5516		TOC		
CCV.....	10.2039...	..	...TOC	..	
1308470-1	0.2776		TOC		
1308470-1MS	10.6239		TOC		
1308470-1MSD.....	10.5061...	..	...TOC	..	
1308470-3	0.3688		TOC		
1308505-2	2.4172		TOC		
1308505-3.....	1.8663...	..	...TOC	..	
1308558-6	0.1757		TOC		
CCV	10.2828		TOC		

Method ID	Sample Type	Vial Timestamp	Message
=====			
TOC Range 0.1 - 20 p	Sample	109 /04/2013 19:14	
TOC Range 0.1 - 20 p	Sample	209 /04/2013 19:25	EndpointT imeout
TOC Range 0.1 - 20 p	Sample	309 /04/2013 19:34	
Blank TC Range 2	Blank TC Range 2.4	09/04/2013 19:52	..
TOC Range 0.1 - 20 p	Sample	509 /04/2013 20:02	
TOC Range 0.1 - 20 p	Sample	609 /04/2013 20:24	
TOC Range 0.1 - 20 p	Sample	709 /04/2013 20:44	..
TOC Range 0.1 - 20 p	Sample	809 /04/2013 21:10	EndpointT imeout
TOC Range 0.1 - 20 p	Sample	909 /04/2013 21:37	
TOC Range 0.1 - 20 p	Sample	1009 /04/2013 22:01	..
TOC Range 0.1 - 20 p	Sample	1109 /04/2013 22:23	
TOC Range 0.1 - 20 p	Sample	1209 /04/2013 22:33	
TOC Range 0.1 - 20 p	Sample	1309 /04/2013 22:42	..
TOC Range 0.1 - 20 p	Sample	1409 /04/2013 22:50	
TOC Range 0.1 - 20 p	Sample	1509 /04/2013 23:00	
TOC Range 0.1 - 20 p	Sample	1609 /04/2013 23:11	..
TOC Range 0.1 - 20 p	Sample	1709 /04/2013 23:20	
TOC Range 0.1 - 20 p	Sample	1809 /04/2013 23:30	
TOC Range 0.1 - 20 p	Sample	1909 /04/2013 23:39	..
TOC Range 0.1 - 20 p	Sample	2009 /04/2013 23:50	
TOC Range 0.1 - 20 p	Sample	2109 /04/2013 23:58	
TOC Range 0.1 - 20 p	Sample	2209 /05/2013 00:07	..
TOC Range 0.1 - 20 p	Sample	2309 /05/2013 00:17	
TOC Range 0.1 - 20 p	Sample	2409 /05/2013 00:26	
TOC Range 0.1 - 20 p	Sample	2509 /05/2013 00:35	..
TOC Range 0.1 - 20 p	Sample	2609 /05/2013 00:44	
TOC Range 0.1 - 20 p	Sample	2709 /05/2013 00:54	
TOC Range 0.1 - 20 p	Sample	2809 /05/2013 01:05	..
TOC Range 0.1 - 20 p	Sample	2909 /05/2013 01:13	
TOC Range 0.1 - 20 p	Sample	3009 /05/2013 01:22	
TOC Range 0.1 - 20 p	Sample	3109 /05/2013 01:32	..
TOC Range 0.1 - 20 p	Sample	3209 /05/2013 01:41	
TOC Range 0.1 - 20 p	Sample	3309 /05/2013 01:52	
TOC Range 0.1 - 20 p	Sample	3409 /05/2013 02:03	..
TOC Range 0.1 - 20 p	Sample	3509 /05/2013 02:12	
TOC Range 0.1 - 20 p	Sample	3609 /05/2013 02:22	
TOC Range 0.1 - 20 p	Sample	3709 /05/2013 02:31	..
TOC Range 0.1 - 20 p	Sample	3809 /05/2013 02:39	
TOC Range 0.1 - 20 p	Sample	3909 /05/2013 02:49	

=====

Sample ID: BLANK Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.Curve: 102412LOW Timestamp: 09/04/2013 19:14  
Operator ID: sdw Sample Type: Sample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning Baseline	Ending Time	Integration
1	0.4212	1.6850	1004368	17.92818	.427	183

=====

Sample ID: PRIME Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.Curve: 102412LOW Timestamp: 09/04/2013 19:25  
Operator ID: sdw Sample Type: Sample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning Baseline	Ending Time	Integration
1	14.9162	59.6650	21898732	18.09018	.686	251

-----

Last Message: Endpoint Timeout

=====

Sample ID: BLANK Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.Curve: 102412LOW Timestamp: 09/04/2013 19:34  
Operator ID: sdw Sample Type: Sample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning Baseline	Ending Time	Integration
1	0.2986	1.1942	827526	18.21418	.713	154

=====

Sample ID: Blank TC Range 2 Mode: TC  
Method: Blank TC Range 2 Filename: 09041906  
Cal.Curve: default Timestamp: 09/04/2013 19:52  
Operator ID: sdw Sample Type: Blank TC Range 2

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning Baseline	Ending Time	Integration
1		826981	18.25718	.756	142	
2		225289	18.41118	.908	101	
3		207171	18.35018	.849	101	



4	218274	18.49818	.997	102
5	207782	18.52919	.028	104

<<<Statistics>>> Mean: 337099 Std Dev: 273957 RSD:81.27

Sample ID: CCV Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 20:02  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.4120	41.6479	15219784	18.63519	.134	217

Sample ID: MO130904-1MB Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 20:24  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.4999	1.9997	931718	18.81419	.313	150
2	0.5234	2.0936	965539	18.76519	.262	148
3	0.5291	2.1164	973771	18.71319	.212	154
4	0.5150	2.0601	953483	18.73919	.238	153

<<<Statistics>>> Mean: 0.5168 Std Dev: 0.0127 RSD:2.46

Sample ID: MO130904-1RVS Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 20:44  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	1.0544	4.2177	1731025	18.82819	.326	120
2	1.0586	4.2344	1737038	18.77519	.275	125
3	1.0551	4.2202	1731921	18.76919	.269	123
4	1.0622	4.2488	1742216	18.82019	.319	122

<<<Statistics>>> Mean: 1.0576 Std Dev: 0.0036 RSD:0.34

Sample ID: MO130904-1LCS Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 21:10  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	16.2011	64.8044	23564766	18.92319	.542	251
2	16.1851	64.7406	23541754	19.17619	.674	225
3	16.1151	64.4605	23440824	19.21819	.717	222
4	16.1489	64.5958	23489570	19.25319	.752	205

LastM essage:E ndpointT imeout

<<<Statistics>>> Mean: 16.1625 Std Dev: 0.0384 RSD:0.24

Sample ID: MO130904-1LCSD Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 21:37  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	16.0231	64.0924	23308170	19.17419	.674	230
2	16.1790	64.7159	23532844	19.27619	.774	220
3	16.0359	64.1436	23326628	19.31319	.811	225
4	16.1274	64.5096	23458496	19.46519	.964	210

<<<Statistics>>> Mean: 16.0914 Std Dev: 0.0746 RSD:0.46

Sample ID: 1308510-1 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 22:01  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	3.2375	12.9501	4877933	19.16519	.664	193
2	3.2241	12.8965	4858599	19.36019	.860	187
3	3.2511	13.0043	4897458	19.17819	.678	192
4	3.2562	13.0248	4904827	19.11619	.613	192

<<<Statistics>>> Mean: 3.2422 Std Dev: 0.0144 RSD:0.45

=====

Sample ID: 1308566-11                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 22:23  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	1.7305	6.9220	2705554	19.36119	.859	145
2	1.7303	6.9213	2705334	19.26519	.764	141
3	1.7182	6.8729	2687864	19.22319	.723	147
4	1.7117	6.8468	2678484	19.18519	.683	147

<<<Statistics>>> Mean: 1.7227 Std Dev: 0.0093 RSD:0.54

=====

Sample ID: CCV                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 22:33  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.2165	40.8659	14937977	19.30719	.806	20

8

Sample ID: MO130904-2MB                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 22:42  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.3782	1.5130	756309	19.85620	.355	118

Sample ID: MO130904-2RVS                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 22:50  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
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			BaselineB	aseline	Time	
1	0.8861	3.5443	1488338	19.53920	.038	116

=====

Sample ID: MO130904-2LCS                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 23:00  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			BaselineB	aseline	Time	
1	15.0523	60.2092	21908772	19.58220	.079	211

=====

Sample ID: MO130904-2LCSD                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 23:11  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			BaselineB	aseline	Time	
1	15.0643	60.2573	21926106	19.51720	.016	235

=====

Sample ID: 1308461-2                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 23:20  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			BaselineB	aseline	Time	
1	1.7552	7.0206	2741104	19.50220	.001	131

=====

Sample ID: 1308461-3                      Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C              Filename: 09041906  
Cal.C urve: 102412LOW                      Timestamp: 09/04/2013 23:30  
Operator ID: sdw                      Sample Type:S ample

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration
			BaselineB	aseline	Time	
1	1.7943	7.1773	2797571	19.51020	.009	171

=====

Sample ID: 1308488-1 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 23:39  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	1.5816	6.3262	2490865	19.51720	.017	180

Sample ID: 1308488-2 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 23:50  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	2.2059	8.8235	3390803	19.62820	.125	218

Sample ID: 1308488-3 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/04/2013 23:58  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.8394	3.3578	1421130	19.54020	.037	117

Sample ID: 1308488-4 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/05/2013 00:07  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.6014	2.4055	1077954	19.57320	.073	112

Sample ID: CCV Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/05/2013 00:17

Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.2862	41.1446	15038428	19.54520	.045	206

Sample ID: 1308515-1 Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 00:26  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	2.6982	10.7928	4100478	19.65820	.157	171

Sample ID: 1308515-2 Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 00:35  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	1.7121	6.8484	2679034	19.55520	.052	135

Sample ID: 1308515-3 Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 00:44  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	1.4401	5.7603	2286911	19.57720	.076	129

Sample ID: 1308515-3MS Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 00:54  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
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1 10.9173 43.6693 15948264 19.60320 .102 213

Sample ID: 1308515-3MSD Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 01:05  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.9825	43.9300	16042188	19.57620	.076	219

Sample ID: 1308545-1 Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 01:13  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data Baseli	Beginning aseline	Ending Time	Integration
1	0.8226	3.2902	1396788	19.48819	.987	117

Sample ID: 1308545-3 Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 01:22  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.5516	2.2063	1006155	19.51720	.017	112

Sample ID: CCV Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 01:32  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.2039	40.8154	14919801	19.54120	.040	211

Sample ID: 1308470-1 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/05/2013 01:41  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.2776	1.1103	611213	19.67420	.174	159

Sample ID: 1308470-1MS Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/05/2013 01:52  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.6239	42.4957	15525342	19.51620	.016	250

Sample ID: 1308470-1MSD Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/05/2013 02:03  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.5061	42.0244	15355491	19.57320	.073	243

Sample ID: 1308470-3 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/05/2013 02:12  
 Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.3688	1.4752	742689	19.56120	.059	165

Sample ID: 1308505-2 Mode: TOC  
 Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
 Cal.C urve: 102412LOW Timestamp: 09/05/2013 02:22



Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	2.4172	9.6689	3695466	19.50420	.002	161

Sample ID: 1308505-3 Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 02:31  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	1.8663	7.4651	2901287	19.49219	.991	160

Sample ID: 1308558-6 Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 02:39  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	0.1757	0.7027	464327	19.43619	.934	103

Sample ID: CCV Mode: TOC  
Method: TOC Range 0.1 - 20 ppm C Filename: 09041906  
Cal.C urve: 102412LOW Timestamp: 09/05/2013 02:49  
Operator ID: sdw Sample Type:S ample

Rep #	ppm C	ug C	Raw Data BaselineB	Beginning aseline	Ending Time	Integration
1	10.2828	41.1312	15033598	19.49519	.995	204



## Miscellaneous

Preservation/Acidification and Filtration of Water Samples for TOC/DOC SOP 670 rev. 1.0

ALS Laboratory Group

Workorder ID / Sample ID	DOC						TOC / DOC			Comments	
	Date	Initials	Samples Filtered by ALS or Client	Filtered Through 0.45um? (Y/N)	Filter Spec's LOT #	Volume of H <sub>3</sub> PO <sub>4</sub> Added (mL)	Conc. H <sub>3</sub> PO <sub>4</sub> LOT #	Date	Initials		pH at Time of Analysis
1308414-2-10 └ -4-7	NA							8/20/13	sw	<2	250ul Amber Bottle
1308381-2-10 └ -2-11											125ul
-2-12											
-3-4											
-4-4											
1308429-2-4 └ -3-4											
1308510-1	Filtered in the field by the client	NA						9-4-13	sw	<2	125ul Clear Bottle
1308566-11	└	└	└								Amber
1308461-2 └ -3	NA										250ul
1308488-1											
-2											
-3											
-4											
1308515-1 └ -2											
-3											

Filter Blanks = Milli Q Double Deionized Water.

Reviewed by/date SW 9-4-13

Instrument SN 01-011007

Form 647r1.xls

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