



Monday, October 22, 2018

Ron Hudson  
Aptim  
6380 S. Fiddler's Green Circle, Ste. 310  
Greenwood Village, CO 80111

Re: ALS Workorder: 1810385  
Project Name: ConocoPhillips Soil Sampling  
Project Number: 148083

Dear Mr. Hudson:

Two soil samples were received from Aptim, on 10/17/2018. The samples were scheduled for the following analyses:

Inorganics

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  
Jeff R. Kujawa  
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
AIHA	214884
Alaska (AK)	UST-086
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
PJ-LA (DoD ELAP/ISO 170250)	95377
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



## 1810385

### **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.

### **Inorganics:**

The samples were analyzed following USDA 60 procedures for the current revision of the following SOP and method:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Specific conductance	USDA 60	1128

All acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1810385

**Client Name:** Aptim

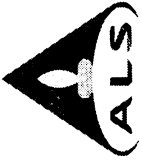
**Client Project Name:** ConocoPhillips Soil Sampling

**Client Project Number:** 148083

**Client PO Number:** 831088

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
S-4 (R3)	1810385-1		SOIL	16-Oct-18	13:00
S-5 (R3)	1810385-2		SOIL	16-Oct-18	13:08
S-4 (R3)	1810385-3		SatExtract	16-Oct-18	13:00
S-5 (R3)	1810385-4		SatExtract	16-Oct-18	13:08



# 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

PROJECT NAME Canoco Phillips-SR2		SAMPLER D. Young		DATE 10/16/2018		WORKORDER # 1810385	
PROJECT No. 148083.03		SITE ID Big Sandy Soil - R3		TURNAROUND		PAGE 1 of 1	
COMPANY NAME APTIM		EDD FORMAT COGCC		BTX + GRO		DISPOSAL By Lab or Return to Client	
SEND REPORT TO Daisie Young		PURCHASE ORDER		Dissolved Gases		BART	
ADDRESS 6380 S. Fiddlers Green Cir Ste 310		BILL TO COMPANY APTIM		DR0		Gross Alpha, Uranium	
CITY / STATE / ZIP Greenwood Village, CO, 80111		INVOICE ATTN TO Ron Hudson		EPA 300.0		RCRA *	
PHONE 303.741.2062		ADDRESS 6380 S. Fiddlers Green Cir Ste 310		EPA 365.2		Cations *	
FAX 7161		CITY / STATE / ZIP Greenwood Village, CO, 80111		Alkalinity, pH, TDS, Spec. Cond.		Total Phosphorus	
E-MAIL daisie.young@APTIM.com		PHONE 720.554.8277		Anions *		E900, SW6020	
E-MAIL Ron.Hudson@aptim.com		FAX		SW 8260		SW 6020	
Field ID S-4 (R3)		Matrix		Sample Date 10/16/18		SW 6020	
Lab ID		Sample Time 1:00		QC		SW 6020	
		S		Pres.		SW 6020	
		S		# Bottles		Cations *	
		1		Sample Time 1:08		Total Phosphorus	
		2		QC		Alkalinity, pH, TDS, Spec. Cond.	
		S		Pres.		Anions *	
		S		# Bottles		EPA 300.0	
		1		Sample Date 10/16/18		EPA 365.2	
		S		Sample Time 1:08		SW 6020	
		S		QC		SW 6020	
		S		Pres.		Cations *	
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		S		Sample Time 1:08		EPA 300.0	
		S		QC		EPA 365.2	
		S		Pres.		SW 6020	
		S		# Bottles		SW 6020	
		1		Sample Time 1:00		Cations *	
		S		Sample Date 10/16/18		Total Phosphorus	
		S		Sample Time 1:08		Alkalinity, pH, TDS, Spec. Cond.	
		S		QC		Anions *	
		S		Pres.		EPA 300.0	
		S		# Bottles		EPA 365.2	
		1		Sample			



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ARTIM

Workorder No: 1810

Project Manager: JRK

Initials: JS Date: 10-17-18

1. Are airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
2. Are custody seals on <b>shipping</b> containers intact?	<u>NONE</u>	YES	NO
3. Are custody seals on <b>sample</b> containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (chain-of-custody) present?		<u>YES</u>	NO
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
6. Are short-hold samples present?		YES	<u>NO</u>
7. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
8. Were all sample containers received intact? (not broken or leaking)		<u>YES</u>	NO
9. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
10. Are all samples in the proper containers for the requested analyses?		<u>YES</u>	NO
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)	<u>N/A</u>	YES	NO
12. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
13. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	<u>N/A</u>	YES	NO
14. Were the samples shipped on ice?		<u>YES</u>	NO
15. Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*: #1 <u>#3</u> #4	RAD ONLY	YES <u>NO</u>
Cooler #: <u>1</u>			
Temperature (°C): <u>11.1</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>10</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> / NO / NA (If no, see Form 008.)			

**Additional Information:** Please provide details here for any NO responses to gray-shaded boxes above, or any other issues noted:

All client bottle ID's vs ALS lab ID's double-checked by: JS

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

Project Manager Signature / Date: [Signature] 10-17-18

1810385

GIN ID:QBFA (303) 956-1873  
J HUDSON  
TIM  
80 S FIDDLERS GREEN CIR  
E 310  
GREENWOOD VILLAGE, CO 80111  
UNITED STATES US

SHIP DATE: 1600118  
ACTWGT: 9.60 LB  
CAD: 6990793/SSFO1922  
DIMS: 14x9x13 IN  
BILL THIRD PARTY

SAMPLE RECEIVING  
ALS ENVIRONMENTAL  
225 COMMERCE DR

10-0

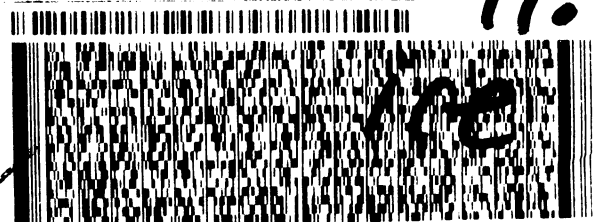
FORT COLLINS CO 80524

11.10

(970) 490-1511  
INU:  
PO:

REF:

DEPT:



FedEx  
Express



REL//  
3785346

WED - 17 OCT 10:30A  
PRIORITY OVERNIGHT

TRK# 7832 8216 7450  
0201

72 FTCA

80524  
CO--US DEN



<b>Client:</b>	Aptim	<b>Date:</b>	22-Oct-18
<b>Project:</b>	148083 ConocoPhillips Soil Sampling	<b>Work Order:</b>	1810385
<b>Sample ID:</b>	S-5 (R3)	<b>Lab ID:</b>	1810385-2
<b>Legal Location:</b>		<b>Matrix:</b>	SOIL
<b>Collection Date:</b>	10/16/2018 13:08	<b>Percent Moisture:</b>	36.6

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>Diesel Range Organics</b>			<b>SW8015M</b>		Prep Date: <b>10/17/2018</b>	PrepBy: <b>LML</b>
Diesel Range Organics	ND		6.1	MG/KG	1	10/17/2018 21:59
Surr: O-TERPHENYL	102		49-114	%REC	1	10/17/2018 21:59



**Client:** Aptim  
**Project:** 148083 ConocoPhillips Soil Sampling  
**Sample ID:** S-4 (R3)  
**Legal Location:**  
**Collection Date:** 10/16/2018 13:00

**Date:** 22-Oct-18  
**Work Order:** 1810385  
**Lab ID:** 1810385-3  
**Matrix:** SATEXTRACT  
**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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**Sodium Adsorption Ratio**  
**ELECTRICAL CONDUCTIVITY @**  
**SATURATION**

6700

USDA60

Prep Date: **10/22/2018** PrepBy: **HMA**  
1 umhos/cm 1 10/22/2018

**Client:** Aptim  
**Project:** 148083 ConocoPhillips Soil Sampling  
**Sample ID:** S-5 (R3)  
**Legal Location:**  
**Collection Date:** 10/16/2018 13:08

**Date:** 22-Oct-18  
**Work Order:** 1810385  
**Lab ID:** 1810385-4  
**Matrix:** SATEXTRACT  
**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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**Sodium Adsorption Ratio**  
**ELECTRICAL CONDUCTIVITY @**  
**SATURATION**

5900

USDA60

Prep Date: **10/22/2018** PrepBy: **HMA**  
1 umhos/cm 1 10/22/2018

**Client:** Aptim  
**Project:** 148083 ConocoPhillips Soil Sampling  
**Sample ID:** S-5 (R3)  
**Legal Location:**  
**Collection Date:** 10/16/2018 13:08

**Date:** 22-Oct-18  
**Work Order:** 1810385  
**Lab ID:** 1810385-4  
**Matrix:** SATEXTRACT  
**Percent Moisture:**

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

#### Radiochemistry:

- "Report Limit" is the MDC  
 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 -- Fort Collins

Date: 10/22/2018 1:08

Client: Aptim  
Work Order: 1810385  
Project: 148083 ConocoPhillips Soil Sampling

## QC BATCH REPORT

Batch ID: **HC181017-82-1** Instrument ID **FUELS-1** Method: **SW8015M**

<b>LCS</b>	Sample ID: <b>HC181017-82</b>			Units: <b>MG/KG</b>			Analysis Date: <b>10/17/2018 23:03</b>					
Client ID:	Run ID: <b>HC181017-8A</b>			Prep Date: <b>10/17/2018</b>			DF: <b>1</b>					
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual	
Diesel Range Organics	66.6	4	62.5		107	81-129				20		
Surr: O-TERPHENYL	11.3		12.5		91	49-114						

<b>LCSD</b>	Sample ID: <b>HC181017-82</b>			Units: <b>MG/KG</b>			Analysis Date: <b>10/17/2018 23:25</b>					
Client ID:	Run ID: <b>HC181017-8A</b>			Prep Date: <b>10/17/2018</b>			DF: <b>1</b>					
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual	
Diesel Range Organics	67.4	4	62.5		108	81-129		66.6	1	20		
Surr: O-TERPHENYL	11.4		12.5		91	49-114			0			

MB		Sample ID: HC181017-82				Units: MG/KG		Analysis Date: 10/17/2018 20:33			
Client ID:		Run ID: HC181017-8A				Prep Date: 10/17/2018				DF: 1	
Analyte		Result		ReportLimit		Qual					
Diesel Range Organics		ND		4							
Surr: O-TERPHENYL		11.8				94		49-114			

The following samples were analyzed in this batch:

1810385-2