



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

OrderNum: 1810385

Client Name: Aptim

Client Project Name: ConocoPhillips Soil Sampling

Client Project Number: 148083

Client PO Number: 831088

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

Form 20278

PROJECT NAME Canoco Phillips-SR2		SAMPLER D. Young		DATE 10/16/2018		WORKORDER # 1810385	
PROJECT No. 148083.03		SITE ID Bio Sandy Soil - R3		TURNAROUND RMSH		PAGE 1 of 1	
COMPANY NAME APTIM		EDD FORMAT COGCC		BTX + GRO SW 8260		DISPOSAL By Lab or Return to Client	
PURCHASE ORDER		BILL TO COMPANY APTIM		Dissolved Gases RSK 175		BART	
INVOICE ATTN TO Ron Hudson		ADDRESS 6380 S. Fiddlers Green Cir Ste 310		DRO SW 8015		Alkalinity, pH, TDS, Spec. Cond. EPA 365.2	
ADDRESS 6380 S. Fiddlers Green Cir Ste 310		CITY / STATE / ZIP Greenwood Village, CO, 80111		EPA 300.0 EPA 300.0		Cations * SW 6020	
PHONE 303.741.7062		PHONE 720.554.8277		SW 8015		RCRA * SW 6020	
FAX		FAX		X		Gross Alpha, Uranium E900, SW6020	
E-MAIL daisie.young@APTIM.com		E-MAIL ron.hudson@APTIM.com		X		NG1	
E-MAIL Ron.hudson@aptim.com		Matrix		QC			
Field ID S-4 (R3)		Sample Date 10/16/18		Sample Time 1:00		Pres. Bottles 1 8	
Field ID S-5 (R3)		Sample Date 10/16/18		Sample Time 1:08		Pres. Bottles 2 8	

*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:

Anions: Bromide, Chloride, Fluoride, Nitrate, Nitrite, Sulfate
 Cations: B, Ca, Fe, Mg, Mn, K, Se, Na, Sr
 RCRA: As, Ba, Cd, Cr, Pb, Se, Ag, Hg
 Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-H2SO4 7-Other 8-4 degrees C 9-5035

QC PACKAGE (check below)
 LEVEL II (Standard QC)
 LEVEL III (Std QC + forms)
 LEVEL IV (Std QC + forms + raw data)

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>[Signature]</i>	Ron Hudson	10/16/2018	2:05
RELINQUISHED BY	<i>[Signature]</i>	KELI-JEAN SMITH	10/17/18	0925
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

1810385

GIN ID:QBFA (303) 956-1873
J HUDSON
TIM
80 S FIDDLERS GREEN CIR
E 310
WEEWOOD 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

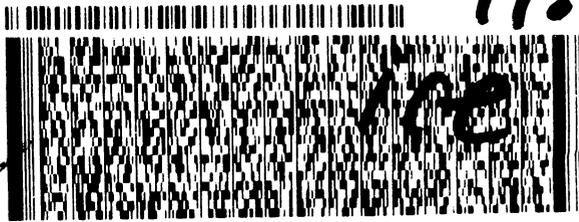
FORT COLLINS CO 80524

(970) 490-1511
INU:
PO:

REF:

DEPT:

11:10



FedEx
Express



REL#
3785346

**WED - 17 OCT 10:30A
PRIORITY OVERNIGHT**

TRK# 7832 8216 7450
0201

72 FTCA

**80524
CO--US DEN**

RUSA



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: 1810385-2
Matrix: SOIL
Percent Moisture: 36.6

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Diesel Range Organics			SW8015M		Prep Date: 10/17/2018	PrepBy: LML
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
Sodium Adsorption Ratio ELECTRICAL CONDUCTIVITY @ SATURATION	6700		USDA60	1 umhos/cm	1	Prep Date: 10/22/2018 PrepBy: HMA 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
Sodium Adsorption Ratio ELECTRICAL CONDUCTIVITY @ SATURATION	5900		USDA60	1 umhos/cm	1	Prep Date: 10/22/2018 PrepBy: HMA 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

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

QC BATCH REPORT

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

LCS		Sample ID: HC181017-82			Units: MG/KG		Analysis Date: 10/17/2018 23:03				
Client ID:		Run ID: HC181017-8A			Prep Date: 10/17/2018		DF: 1				
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					

LCSD		Sample ID: HC181017-82			Units: MG/KG		Analysis Date: 10/17/2018 23:25				
Client ID:		Run ID: HC181017-8A			Prep Date: 10/17/2018		DF: 1				
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	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	ND	4									
Surr: O-TERPHENYL	11.8				94	49-114					

The following samples were analyzed in this batch: