

TABLE 1
FORMER GUTFELDER AMOCO 14-19 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽⁴⁾ (mg/kg)
Residential SSL ^(1,2)			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL ^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
WH01 @ 6'	10/4/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 3'	10/4/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.
4. Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics

TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER GUTFELDER AMOCO 14-19 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
WH01 @ 6'	10/4/2021	6 ft. bgs	9.07	1.24	7.73	0.0363
FLR01 @ 3'	10/4/2021	3 ft. bgs	7.86	0.351	1.25	0.0377
BKG01 @ 3'	10/4/2021	3 ft. bgs	5.97	NA	1.53	NA
BKG01 @ 6'	10/4/2021	6 ft. bgs	6.31	NA	0.978	NA
SB01 @ 3'	3/30/2022	3 ft. bgs	7.33	NA	1.25	NA
SB01 @ 4'	3/30/2022	4 ft. bgs	7.76	NA	1.33	NA
SB01 @ 5'	3/30/2022	5 ft. bgs	7.90	NA	2.57	NA
SB01 @ 6'	3/30/2022	6 ft. bgs	7.86	NA	1.30	NA
SB01 @ 10'	3/30/2022	10 ft. bgs	7.80	NA	1.31	NA
SB02 @ 6'	3/30/2022	6 ft. bgs	7.29	NA	1.37	NA
SB03 @ 6'	3/30/2022	6 ft. bgs	7.34	NA	1.17	NA
SB04 @ 3'	3/30/2022	3 ft. bgs	5.27	NA	NA	NA
SB04 @ 4'	3/30/2022	4 ft. bgs	6.21	NA	NA	NA
SB04 @ 5'	3/30/2022	5 ft. bgs	5.29	NA	NA	NA
SB04 @ 6'	3/30/2022	6 ft. bgs	5.22	NA	0.558	NA
SB04 @ 10'	3/30/2022	10 ft. bgs	3.68	NA	NA	NA
SB05 @ 6'	3/30/2022	6 ft. bgs	7.05	NA	0.841	NA
BKG02 @ 3'	3/30/2022	3 ft. bgs	7.26	NA	NA	NA
BKG02 @ 4'	3/30/2022	4 ft. bgs	7.40	NA	NA	NA
BKG02 @ 5'	3/30/2022	5 ft. bgs	7.18	NA	NA	NA
BKG02 @ 6'	3/30/2022	6 ft. bgs	6.95	NA	NA	NA
BKG02 @ 10'	3/30/2022	10 ft. bgs	7.22	NA	NA	NA

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

NA = Constituent not analyzed

TABLE 3
FORMER GUTFELDER AMOCO 14-19 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH01 @ 6'	10/4/2021	6 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLR01 @ 3'	10/4/2021	3 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
 2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
 3. SSLs are applicable if a pathway for communication with
- COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
PAHs = Polycyclic aromatic hydrocarbons
Benz(a) = Benzantracene
Benzo(a) = Benzopyrene
Benzo(b) = Benzofluoranthene
Benzo(k) = Benzofluoranthene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
M = Methylnaphthalene
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface

TABLE 4
FORMER GUTFELDER AMOCO 14-19 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
WH01 @ 6'	10/4/2021	6 ft. bgs	40.291427	-104.828120	1.4	5.2
FLR01 @ 3'	10/4/2021	4 ft. bgs	40.291412	-104.828122	1.2	0.2
WHS01-N @ 0-6"	10/4/2021	0-6 in. bgs	40.291465	-104.828125	1.2	0.0
WHS01-W @ 0-6"	10/4/2021	0-6 in. bgs	40.291416	-104.828195	1.2	0.0
WHS01-S @ 0-6"	10/4/2021	0-6 in. bgs	40.291355	-104.828081	1.4	0.0
WHS01-E @ 0-6"	10/4/2021	0-6 in. bgs	40.291410	-104.828015	1.3	0.1
FL01-01 @ 3'	10/4/2021	3 ft. bgs	40.290923	-104.827510	1.4	0.2
FL01-02 @ 3'	10/4/2021	3 ft. bgs	40.290550	-104.826954	1.2	0.6
BKG01 @ 3'	10/4/2021	3 ft. bgs	40.291364	-104.827899	1.2	0.6
BKG01 @ 6'	10/4/2021	6 ft. bgs	40.291364	-104.827899	1.2	0.3
SB01 @ 3'	3/30/2022	3 ft. bgs	40.291426	-104.828117	NC	0.0
SB01 @ 4'	3/30/2022	4 ft. bgs	40.291426	-104.828117	NC	0.0
SB01 @ 5'	3/30/2022	5 ft. bgs	40.291426	-104.828117	NC	0.0
SB01 @ 6'	3/30/2022	6 ft. bgs	40.291426	-104.828117	NC	0.0
SB01 @ 10'	3/30/2022	10 ft. bgs	40.291426	-104.828117	NC	0.0
SB02 @ 6'	3/30/2022	6 ft. bgs	40.291461	-104.828119	NC	0.0
SB03 @ 6'	3/30/2022	6 ft. bgs	40.291429	-104.828159	NC	0.0
SB04 @ 3'	3/30/2022	3 ft. bgs	40.291383	-104.828119	NC	0.0
SB04 @ 4'	3/30/2022	4 ft. bgs	40.291383	-104.828119	NC	0.0
SB04 @ 5'	3/30/2022	5 ft. bgs	40.291383	-104.828119	NC	0.0
SB04 @ 6'	3/30/2022	6 ft. bgs	40.291383	-104.828119	NC	0.0
SB04 @ 10'	3/30/2022	10 ft. bgs	40.291383	-104.828119	NC	0.1
SB05 @ 6'	3/30/2022	6 ft. bgs	40.291426	-104.828074	NC	0.0
BKG02 @ 3'	3/30/2022	3 ft. bgs	40.291450	-104.827894	NC	0.0
BKG02 @ 4'	3/30/2022	4 ft. bgs	40.291450	-104.827894	NC	0.0
BKG02 @ 5'	3/30/2022	5 ft. bgs	40.291450	-104.827894	NC	0.0
BKG02 @ 6'	3/30/2022	6 ft. bgs	40.291450	-104.827894	NC	0.0
BKG02 @ 10'	3/30/2022	10 ft. bgs	40.291450	-104.827894	NC	0.0

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 08, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

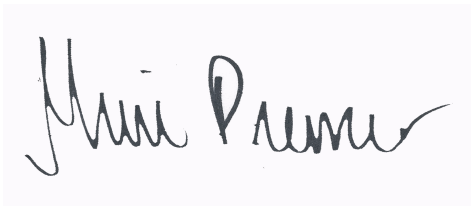
Denver, CO 80203

RE: Gutfelder Amaco 14-19 Wellhead

Work Order #2110044

Enclosed are the results of analyses for samples received by Summit Scientific on 10/04/21 14:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premier", is displayed on a light purple rectangular background.

Muri Premier For Paul Shrewsbury
President



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2110044-01	Soil	10/04/21 08:14	10/04/21 14:55
FLR01@3'	2110044-02	Soil	10/04/21 08:16	10/04/21 14:55
BKG01@3'	2110044-03	Soil	10/04/21 10:00	10/04/21 14:55
BKG01@6'	2110044-04	Soil	10/04/21 10:02	10/04/21 14:55

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2110044

Page 1 of 1

Project Number:

					Preservative				Matrix				Analysis Requested								Special Instructions		
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	Ho Id					pH, EC, SAR by saturated paste
1	WH01 @ 6'	10/4/21	8:14	3			X			X			X	X	X	X	X						
2	FLR01 @ 3'	↓	8:16	3			X			X			X	X	X	X	X						
3	Bkg01 @ 3'		10:00	1			X			X									X				
4	Bkg01 @ 6'		10:02	1			X			X									X				
5								X	98														
6																							
7																							
8																							
9																							
10																							

Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time (Check)				Notes:
Dylan Brightwell		10/4/21 14:55		Tasman's Lock Box		10/4/21 14:55		Same Day _____ 72 hours				
								24 hours _____ Standard <u>X</u>				
								48 hours _____				
Relinquished by:		Date/Time:		Received by:		Date/Time:		Sample Integrity:				
Tasman's Lock Box		10.4.21 1455				10.4.21 14:55		Temperature Upon Receipt: <u>16.8°</u>				
Relinquished by:		Date/Time:		Received by:		Date/Time:		Samples Intact: <u>Yes</u> No				

S₂

2110044

Sample Receipt Checklist

S2 Work Order#

Client:

Doc/Tasman

Client Project ID:

Gutfelder Amoco 14-19 wellhead

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

Matrix (check all that apply):

☐ Air☒ Soil/Solid☐ Water☐ Other:

(Describe)

Temp (°C)

16.8 °C

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Custodian Printed Name or Initials

Date/Time

10.4.21



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

WH01@6'
2110044-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEJ0104	10/06/21	10/08/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		130 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0105	10/06/21	10/07/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

WH01@6'
2110044-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEJ0249	10/14/21	10/16/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		78.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		76.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0363	0.0100	mg/L	1	BEJ0106	10/06/21	10/08/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

WH01@6'
2110044-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Calcium	27.3	0.0519	mg/L dry	1	BEJ0098	10/06/21	10/08/21	EPA 6020B
Magnesium	3.37	0.0519	"	"	"	"	"	"
Sodium	161	0.0519	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.73	0.00100	units	1	BEJ0166	10/09/21	10/09/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.3		%	1	BEJ0067	10/05/21	10/05/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.24	0.0100	mmhos/cm	1	BEJ0123	10/07/21	10/07/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/04/21 08:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.07		pH Units	1	BEJ0125	10/07/21	10/07/21	EPA 9045D	

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

FLR01@3'
2110044-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0104	10/06/21	10/08/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		96.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0105	10/06/21	10/07/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

FLR01@3'
2110044-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEJ0249	10/14/21	10/16/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		83.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		78.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0377	0.0100	mg/L	1	BEJ0106	10/06/21	10/08/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

FLR01@3'
2110044-02 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Calcium	23.0	0.0527	mg/L dry	1	BEJ0098	10/06/21	10/08/21	EPA 6020B
Magnesium	6.01	0.0527	"	"	"	"	"	"
Sodium	26.0	0.0527	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.25	0.00100	units	1	BEJ0166	10/09/21	10/09/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.0		%	1	BEJ0067	10/05/21	10/05/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.351	0.0100	mmhos/cm	1	BEJ0123	10/07/21	10/07/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/04/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.86		pH Units	1	BEJ0125	10/07/21	10/07/21	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

BKG01@3'
2110044-03 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/04/21 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	18.1	0.0518	mg/L dry	1	BEK0048	11/02/21	11/03/21	EPA 6020B	
Magnesium	5.48	0.0518	"	"	"	"	"	"	
Sodium	28.9	0.0518	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/04/21 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sodium Adsorption Ratio	1.53	0.00100	units	1	BEK0100	11/04/21	11/04/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/04/21 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	96.5		%	1	BEJ0607	10/29/21	11/01/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/04/21 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
pH	5.97		pH Units	1	BEK0085	11/03/21	11/08/21	EPA 9045D	I-04

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

BKG01@6'
2110044-04 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/04/21 10:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	12.8	0.0515	mg/L dry	1	BEK0048	11/02/21	11/03/21	EPA 6020B	
Magnesium	4.69	0.0515	"	"	"	"	"	"	
Sodium	16.1	0.0515	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/04/21 10:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.978	0.00100	units	1	BEK0100	11/04/21	11/04/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/04/21 10:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	97.0		%	1	BEJ0607	10/29/21	11/01/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/04/21 10:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	6.31		pH Units	1	BEK0085	11/03/21	11/08/21	EPA 9045D	I-04

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0104 - EPA 5030 Soil MS

Blank (BEJ0104-BLK1)

Prepared: 10/06/21 Analyzed: 10/07/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0363		"	0.0400		90.7	23-173			
Surrogate: Toluene-d8	0.0518		"	0.0400		130	20-170			
Surrogate: 4-Bromofluorobenzene	0.0424		"	0.0400		106	21-167			

LCS (BEJ0104-BS1)

Prepared: 10/06/21 Analyzed: 10/07/21

Benzene	0.0723	0.0020	mg/kg	0.100		72.3	70-130			
Toluene	0.0848	0.0050	"	0.100		84.8	70-130			
Ethylbenzene	0.0729	0.0050	"	0.100		72.9	70-130			
m,p-Xylene	0.144	0.010	"	0.200		71.8	70-130			
o-Xylene	0.0731	0.0050	"	0.100		73.1	70-130			
1,2,4-Trimethylbenzene	0.0719	0.0050	"	0.100		71.9	70-130			
1,3,5-Trimethylbenzene	0.0710	0.0050	"	0.100		71.0	70-130			
Naphthalene	0.0823	0.0038	"	0.100		82.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0340		"	0.0400		84.9	23-173			
Surrogate: Toluene-d8	0.0469		"	0.0400		117	20-170			
Surrogate: 4-Bromofluorobenzene	0.0430		"	0.0400		108	21-167			

Matrix Spike (BEJ0104-MS1)

Source: 2110017-01

Prepared: 10/06/21 Analyzed: 10/07/21

Benzene	0.0789	0.0020	mg/kg	0.100	ND	78.9	70-130			
Toluene	0.0881	0.0050	"	0.100	ND	88.1	70-130			
Ethylbenzene	0.0712	0.0050	"	0.100	ND	71.2	70-130			
m,p-Xylene	0.145	0.010	"	0.200	ND	72.4	70-130			
o-Xylene	0.0741	0.0050	"	0.100	ND	74.1	70-130			
1,2,4-Trimethylbenzene	0.0725	0.0050	"	0.100	ND	72.5	70-130			
1,3,5-Trimethylbenzene	0.0715	0.0050	"	0.100	ND	71.5	70-130			
Naphthalene	0.0939	0.0038	"	0.100	ND	93.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0346		"	0.0400		86.6	23-173			
Surrogate: Toluene-d8	0.0478		"	0.0400		120	20-170			
Surrogate: 4-Bromofluorobenzene	0.0424		"	0.0400		106	21-167			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0104 - EPA 5030 Soil MS

Matrix Spike Dup (BEJ0104-MSD1)	Source: 2110017-01			Prepared: 10/06/21 Analyzed: 10/07/21						
Benzene	0.0808	0.0020	mg/kg	0.100	ND	80.8	70-130	2.40	30	
Toluene	0.0845	0.0050	"	0.100	ND	84.5	70-130	4.14	30	
Ethylbenzene	0.0839	0.0050	"	0.100	ND	83.9	70-130	16.5	30	
m,p-Xylene	0.142	0.010	"	0.200	ND	70.8	70-130	2.14	30	
o-Xylene	0.0722	0.0050	"	0.100	ND	72.2	70-130	2.67	30	
1,2,4-Trimethylbenzene	0.0719	0.0050	"	0.100	ND	71.9	70-130	0.831	30	
1,3,5-Trimethylbenzene	0.0728	0.0050	"	0.100	ND	72.8	70-130	1.75	30	
Naphthalene	0.0934	0.0038	"	0.100	ND	93.4	70-130	0.609	30	
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.5	23-173			
Surrogate: Toluene-d8	0.0459		"	0.0400		115	20-170			
Surrogate: 4-Bromofluorobenzene	0.0417		"	0.0400		104	21-167			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0105 - EPA 3550A

Blank (BEJ0105-BLK1)

Prepared: 10/06/21 Analyzed: 10/07/21

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

LCS (BEJ0105-BS1)

Prepared: 10/06/21 Analyzed: 10/07/21

C10-C28 (DRO)	586	50	mg/kg	500	117	70-130
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Matrix Spike (BEJ0105-MS1)

Source: 2110017-01

Prepared: 10/06/21 Analyzed: 10/07/21

C10-C28 (DRO)	519	50	mg/kg	500	22.5	99.4	70-130
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Matrix Spike Dup (BEJ0105-MSD1)

Source: 2110017-01

Prepared: 10/06/21 Analyzed: 10/07/21

C10-C28 (DRO)	570	50	mg/kg	500	22.5	110	70-130	9.38	20
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result		%REC	Limits	RPD	Limit
Notes											

Batch BEJ0249 - EPA 5030 Soil MS

Blank (BEJ0249-BLK1)

Prepared: 10/14/21 Analyzed: 10/16/21

Acenaphthene	ND	0.00500	mg/kg								
Anthracene	ND	0.00500	"								
Benzo (a) anthracene	ND	0.00500	"								
Benzo (a) pyrene	ND	0.00500	"								
Benzo (b) fluoranthene	ND	0.00500	"								
Benzo (k) fluoranthene	ND	0.00500	"								
Chrysene	ND	0.00500	"								
Dibenz (a,h) anthracene	ND	0.00500	"								
Fluoranthene	ND	0.00500	"								
Fluorene	ND	0.00500	"								
Indeno (1,2,3-cd) pyrene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0325		"	0.0333		97.4		40-150			
Surrogate: Fluoranthene-d10	0.0304		"	0.0333		91.3		40-150			

LCS (BEJ0249-BS1)

Prepared: 10/14/21 Analyzed: 10/16/21

Acenaphthene	0.0329	0.00500	mg/kg	0.0333		98.7		31-137			
Anthracene	0.0312	0.00500	"	0.0333		93.5		30-120			
Benzo (a) anthracene	0.0322	0.00500	"	0.0333		96.5		30-120			
Benzo (a) pyrene	0.0205	0.00500	"	0.0333		61.5		30-120			
Benzo (b) fluoranthene	0.0225	0.00500	"	0.0333		67.5		30-120			
Benzo (k) fluoranthene	0.0175	0.00500	"	0.0333		52.5		30-120			
Chrysene	0.0315	0.00500	"	0.0333		94.6		30-120			
Dibenz (a,h) anthracene	0.0367	0.00500	"	0.0333		110		30-120			
Fluoranthene	0.0285	0.00500	"	0.0333		85.4		30-120			
Fluorene	0.0317	0.00500	"	0.0333		95.1		30-120			
Indeno (1,2,3-cd) pyrene	0.0294	0.00500	"	0.0333		88.3		30-120			
Pyrene	0.0271	0.00500	"	0.0333		81.2		35-142			
1-Methylnaphthalene	0.0325	0.00500	"	0.0333		97.4		35-142			
2-Methylnaphthalene	0.0319	0.00500	"	0.0333		95.7		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0308		"	0.0333		92.5		40-150			
Surrogate: Fluoranthene-d10	0.0338		"	0.0333		102		40-150			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0249 - EPA 5030 Soil MS

Matrix Spike (BEJ0249-MS1)

Source: 2110189-02

Prepared: 10/14/21 Analyzed: 10/16/21

Acenaphthene	0.0236	0.00500	mg/kg	0.0333	ND	70.7	31-137				
Anthracene	0.0241	0.00500	"	0.0333	ND	72.3	30-120				
Benzo (a) anthracene	0.0211	0.00500	"	0.0333	ND	63.4	30-120				
Benzo (a) pyrene	0.0292	0.00500	"	0.0333	ND	87.6	30-120				
Benzo (b) fluoranthene	0.0297	0.00500	"	0.0333	ND	89.0	30-120				
Benzo (k) fluoranthene	0.0319	0.00500	"	0.0333	ND	95.7	30-120				
Chrysene	0.0251	0.00500	"	0.0333	ND	75.3	30-120				
Dibenz (a,h) anthracene	0.0198	0.00500	"	0.0333	ND	59.5	30-120				
Fluoranthene	0.0190	0.00500	"	0.0333	ND	56.9	30-120				
Fluorene	0.0238	0.00500	"	0.0333	ND	71.4	30-120				
Indeno (1,2,3-cd) pyrene	0.0151	0.00500	"	0.0333	ND	45.4	30-120				
Pyrene	0.0207	0.00500	"	0.0333	ND	62.0	35-142				
1-Methylnaphthalene	0.0244	0.00500	"	0.0333	ND	73.3	15-130				
2-Methylnaphthalene	0.0247	0.00500	"	0.0333	ND	74.1	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0229		"	0.0333		68.6	40-150				
Surrogate: Fluoranthene-d10	0.0198		"	0.0333		59.4	40-150				

Matrix Spike Dup (BEJ0249-MSD1)

Source: 2110189-02

Prepared: 10/14/21 Analyzed: 10/16/21

Acenaphthene	0.0254	0.00500	mg/kg	0.0333	ND	76.3	31-137	7.58	30		
Anthracene	0.0252	0.00500	"	0.0333	ND	75.7	30-120	4.56	30		
Benzo (a) anthracene	0.0235	0.00500	"	0.0333	ND	70.4	30-120	10.5	30		
Benzo (a) pyrene	0.0321	0.00500	"	0.0333	ND	96.4	30-120	9.55	30		
Benzo (b) fluoranthene	0.0328	0.00500	"	0.0333	ND	98.3	30-120	9.99	30		
Benzo (k) fluoranthene	0.0346	0.00500	"	0.0333	ND	104	30-120	8.08	30		
Chrysene	0.0272	0.00500	"	0.0333	ND	81.6	30-120	8.08	30		
Dibenz (a,h) anthracene	0.0225	0.00500	"	0.0333	ND	67.4	30-120	12.6	30		
Fluoranthene	0.0212	0.00500	"	0.0333	ND	63.5	30-120	11.0	30		
Fluorene	0.0257	0.00500	"	0.0333	ND	77.2	30-120	7.75	30		
Indeno (1,2,3-cd) pyrene	0.0173	0.00500	"	0.0333	ND	52.0	30-120	13.6	30		
Pyrene	0.0231	0.00500	"	0.0333	ND	69.3	35-142	11.1	30		
1-Methylnaphthalene	0.0256	0.00500	"	0.0333	ND	76.8	15-130	4.68	50		
2-Methylnaphthalene	0.0254	0.00500	"	0.0333	ND	76.2	15-130	2.73	50		
Surrogate: 2-Methylnaphthalene-d10	0.0246		"	0.0333		73.8	40-150				
Surrogate: Fluoranthene-d10	0.0223		"	0.0333		66.9	40-150				

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0106 - EPA 3050B

Blank (BEJ0106-BLK1)

Prepared: 10/06/21 Analyzed: 10/08/21

Boron ND 0.0100 mg/L

LCS (BEJ0106-BS1)

Prepared: 10/06/21 Analyzed: 10/08/21

Boron 5.32 0.0100 mg/L 5.00 106 80-120

Duplicate (BEJ0106-DUP1)

Source: 2110043-03

Prepared: 10/06/21 Analyzed: 10/08/21

Boron 0.0251 0.0100 mg/L 0.0358 35.0 20 QR-03

Matrix Spike (BEJ0106-MS1)

Source: 2110043-03

Prepared: 10/06/21 Analyzed: 10/08/21

Boron 5.43 0.0100 mg/L 5.00 0.0358 108 75-125

Matrix Spike Dup (BEJ0106-MSD1)

Source: 2110043-03

Prepared: 10/06/21 Analyzed: 10/08/21

Boron 5.69 0.0100 mg/L 5.00 0.0358 113 75-125 4.59 25

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0098 - General Preparation

Blank (BEJ0098-BLK1)

Prepared: 10/06/21 Analyzed: 10/08/21

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BEJ0098-BS1)

Prepared: 10/06/21 Analyzed: 10/08/21

Calcium	5.42	0.0500	mg/L wet	5.00	108	70-130
Magnesium	5.29	0.0500	"	5.00	106	70-130
Sodium	5.28	0.0500	"	5.00	106	70-130

Batch BEK0048 - General Preparation

Blank (BEK0048-BLK1)

Prepared: 11/02/21 Analyzed: 11/03/21

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BEK0048-BS1)

Prepared: 11/02/21 Analyzed: 11/03/21

Calcium	5.11	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.35	0.0500	"	5.00	107	70-130
Sodium	5.22	0.0500	"	5.00	104	70-130

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

Analyte	Result	Reporting			Spike	Source	%REC		RPD		
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	

Batch BEJ0067 - General Preparation

Duplicate (BEJ0067-DUP1)

Source: 2110031-01

Prepared & Analyzed: 10/05/21

% Solids	89.6	%		89.5		0.0878	20
----------	------	---	--	------	--	--------	----

Batch BEJ0607 - General Preparation

Duplicate (BEJ0607-DUP1)

Source: 2110044-03

Prepared: 10/29/21 Analyzed: 11/01/21

% Solids	93.8	%		96.5		2.80	20
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Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0123 - General Preparation

Blank (BEJ0123-BLK1)

Prepared & Analyzed: 10/07/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEJ0123-BS1)

Prepared & Analyzed: 10/07/21

Specific Conductance (EC) 0.136 0.0100 mmhos/cm 0.150 90.7 90-110

Duplicate (BEJ0123-DUP1)

Source: 2110027-01

Prepared & Analyzed: 10/07/21

Specific Conductance (EC) 1.43 0.0100 mmhos/cm 1.42 0.982 20

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BEJ0125 - General Preparation

LCS (BEJ0125-BS1)

Prepared & Analyzed: 10/07/21

pH	8.97		pH Units	9.21	97.4	95-105
----	------	--	----------	------	------	--------

Duplicate (BEJ0125-DUP1)

Source: 2110027-01

Prepared & Analyzed: 10/07/21

pH	8.15		pH Units	8.12	0.369	20
----	------	--	----------	------	-------	----

Batch BEK0085 - General Preparation

LCS (BEK0085-BS1)

Prepared & Analyzed: 11/03/21

pH	9.11		pH Units	9.18	99.2	95-105
----	------	--	----------	------	------	--------

Duplicate (BEK0085-DUP1)

Source: 2110415-01

Prepared & Analyzed: 11/03/21

pH	6.89		pH Units	7.23	4.82	20
----	------	--	----------	------	------	----

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/21 15:22

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
I-04	Sample was analyzed out of recommended holding time per clients request.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 06, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Gutfelder Amaco 14-19 Wellhead

Work Order #2203523

Enclosed are the results of analyses for samples received by Summit Scientific on 03/30/22 12:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, flowing script.

Paul Shrewsbury

President



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@3'	2203523-01	Soil	03/30/22 09:00	03/30/22 12:25
SB01@4'	2203523-02	Soil	03/30/22 09:05	03/30/22 12:25
SB01@5'	2203523-03	Soil	03/30/22 09:10	03/30/22 12:25
SB01@6'	2203523-04	Soil	03/30/22 09:15	03/30/22 12:25
SB01@10'	2203523-05	Soil	03/30/22 09:20	03/30/22 12:25
SB02@6'	2203523-09	Soil	03/30/22 09:30	03/30/22 12:25
SB03@6'	2203523-14	Soil	03/30/22 09:55	03/30/22 12:25
SB04@3'	2203523-16	Soil	03/30/22 10:08	03/30/22 12:25
SB04@4'	2203523-17	Soil	03/30/22 10:10	03/30/22 12:25
SB04@5'	2203523-18	Soil	03/30/22 10:12	03/30/22 12:25
SB04@6'	2203523-19	Soil	03/30/22 10:15	03/30/22 12:25
SB04@10'	2203523-20	Soil	03/30/22 10:20	03/30/22 12:25
SB05@6'	2203523-24	Soil	03/30/22 10:40	03/30/22 12:25
BKG02@3'	2203523-26	Soil	03/30/22 10:55	03/30/22 12:25
BKG02@4'	2203523-27	Soil	03/30/22 10:58	03/30/22 12:25
BKG02@5'	2203523-28	Soil	03/30/22 11:00	03/30/22 12:25
BKG02@6'	2203523-29	Soil	03/30/22 11:05	03/30/22 12:25
BKG02@10'	2203523-30	Soil	03/30/22 11:15	03/30/22 12:25

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Summit Scientific

S₂

2203523.1

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 3

Client: PDC Tasman

Project Manager: Mark Longhurst

Address: 6855 W 119th Ave

E-Mail: mark.longhurst@pdce.com

City/State/Zip: Broomfield CO 80020

Phone: (303) 487-1225

Project Name: Entelder Amoco 14-19 Wellhead

Sampler Name: Kris Shepherd

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	PH & SAR	Hold							
1	SB01@3'	3/30/22	0900	1			X			X				X							PH & SAR by Saturated paste.
2	SB01@4'		0905										X								
3	SB01@5'		0910										X								
4	SB01@6'		0915										X								
5	SB01@10'		0920										X								
6	SB02@3'		0922											X							
7	SB02@4'		0925											X							
8	SB02@5'		0928											X							
9	SB02@6'		0930											X							
10	SB02@10'		0935											X							
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time				(Check)				Notes:					
		3/30/22 1225				3/30/22 1225		Same Day				72 hours									
Relinquished by:		Date/Time:		Received by:		Date/Time:		24 hours				Standard									
Relinquished by:		Date/Time:		Received by:		Date/Time:		48 hours				Sample Integrity:									
Relinquished by:		Date/Time:		Received by:		Date/Time:		Temperature Upon Receipt:				S.S									
								Samples Intact:				Yes No									

S_2

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933 (f)

Client: PDC Tasman

Project Manager: Mark Longhurst

Address: 6855 W 119th Ave

E-Mail: mark.longhurst@PDCE.com

City/State/Zip: Broomfield CO 80020

Phone: (303) 487-1228

Project Name: Estimote Aruco 14-19 Wellhead

Sampler Name: Kris Shepherd

Project Number:

www.s2scientific.com

S_2

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933 (f)

Client: FDC | Tasman

Project Manager: Mark Longhurst

Address: 6855 W. 119th Ave.

E-Mail: mark.loughurst@FDCE.com

City/State/Zip: Broomfield CO 80020

Phone: (303) 487-1228

Project Name: Gutierrez Amoco 14-19 Wellhead

Sampler Name: Kris Shepherd

Project Number:

www.s2scientific.com

S₂

3/3

Sample Receipt Checklist

S2 Work Order# 2203523

Client: Poc/Tasman Client Project ID: Gutfelder Amoco 14-19 wellhead.Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #:

	-			
--	---	--	--	--

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 5.5Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ICE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.


Custodian Printed Name

33022
Date/Time



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB01@3'
2203523-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	32.6	0.0529	mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	8.48	0.0529	"	"	"	"	"	"	
Sodium	31.1	0.0529	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.25	0.00100	units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	94.4		%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.33		pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB01@4'
2203523-02 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 09:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	36.8	0.0526		mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	9.85	0.0526		"	"	"	"	"	"	
Sodium	35.2	0.0526		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 09:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	1.33	0.00100		units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 09:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	95.0			%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 09:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.76			pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB01@5'
2203523-03 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	69.0	0.0533	mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	33.5	0.0533	"	"	"	"	"	"	
Sodium	104	0.0533	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sodium Adsorption Ratio	2.57	0.00100	units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	93.8		%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
pH	7.90		pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB01@6'
2203523-04 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	27.4	0.0533		mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	7.30	0.0533		"	"	"	"	"	"	
Sodium	29.7	0.0533		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	1.30	0.00100		units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	93.8			%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.86			pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB01@10'
2203523-05 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 09:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	22.7	0.0515		mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	6.14	0.0515		"	"	"	"	"	"	
Sodium	27.2	0.0515		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 09:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	1.31	0.00100		units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 09:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	97.0			%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 09:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.80			pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB02@6'
2203523-09 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	14.9	0.0511	mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	4.45	0.0511	"	"	"	"	"	"	
Sodium	23.5	0.0511	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.37	0.00100	units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	97.8		%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.29		pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB03@6'
2203523-14 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	14.7	0.0518		mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	4.64	0.0518		"	"	"	"	"	"	
Sodium	20.1	0.0518		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	1.17	0.00100		units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	96.6			%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 09:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.34			pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB04@3'
2203523-16 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	5.27			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB04@4'
2203523-17 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	6.21			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB04@5'
2203523-18 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	5.29			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB04@6'
2203523-19 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	282	0.0535	mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	25.4	0.0535	"	"	"	"	"	"	
Sodium	36.5	0.0535	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.558	0.00100	units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	93.5		%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	5.22		pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB04@10'
2203523-20 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	3.68			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

SB05@6'
2203523-24 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/30/22 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	24.2	0.0525		mg/L dry	1	BFD0146	04/07/22	04/11/22	EPA 6020B	
Magnesium	8.05	0.0525		"	"	"	"	"	"	
Sodium	18.7	0.0525		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/30/22 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	0.841	0.00100		units	1	BFD0224	04/12/22	04/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/30/22 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	95.3			%	1	BFD0063	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.05			pH Units	1	BFD0176	04/08/22	04/08/22	EPA 9045D	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

BKG02@3'
2203523-26 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.26			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

BKG02@4'
2203523-27 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 10:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.40			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

BKG02@5'
2203523-28 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.18			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

BKG02@6'
2203523-29 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	6.95			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

BKG02@10'
2203523-30 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/30/22 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.22			pH Units	1	BFE0098	05/05/22	05/05/22	EPA 9045D	I-02

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BFD0146 - General Preparation

Blank (BFD0146-BLK1)

Prepared: 04/07/22 Analyzed: 04/11/22

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BFD0146-BS1)

Prepared: 04/07/22 Analyzed: 04/11/22

Calcium	5.37	0.0500	mg/L wet	5.00	107	70-130
Magnesium	5.04	0.0500	"	5.00	101	70-130
Sodium	4.85	0.0500	"	5.00	97.0	70-130

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BFD0063 - General Preparation

Duplicate (BFD0063-DUP1)

Source: 2203190-01

Prepared & Analyzed: 04/04/22

% Solids	87.7	%	87.4	0.398	20
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Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BFD0176 - General Preparation

LCS (BFD0176-BS1)

Prepared & Analyzed: 04/08/22

pH	9.08		pH Units	9.18		98.9	95-105
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Duplicate (BFD0176-DUP1)

Source: 2203523-01

Prepared & Analyzed: 04/08/22

pH	7.35		pH Units		7.33		0.272	20
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Batch BFE0098 - General Preparation

LCS (BFE0098-BS1)

Prepared & Analyzed: 05/05/22

pH	9.06		pH Units	9.18		98.7	95-105
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Duplicate (BFE0098-DUP1)

Source: 2203523-16

Prepared & Analyzed: 05/05/22

pH	5.27		pH Units		5.27		0.00	20
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Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Gutfelder Amaco 14-19 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/06/22 11:18

Notes and Definitions

I-02 This sample was analyzed outside of the recommended holding time.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference