

TABLE 1
FORMER VON FELDT 13-12 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
CONTAMINANTS OF CONCERN

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'	9/2/2021	6 ft. bgs	<0.0020	<0.0050	<0.00050	<0.010	<0.0050	<0.0050	<0.0038	<50
WH01-N @ 5'	9/2/2021	5 ft. bgs	<0.0020	<0.0050	<0.00050	<0.010	<0.0050	<0.0050	<0.0038	<50
WH01-E @ 5'	9/2/2021	5 ft. bgs	<0.0020	<0.0050	<0.00050	<0.010	<0.0050	<0.0050	<0.0038	<50
WH01-S @ 5'	9/2/2021	5 ft. bgs	<0.0020	<0.0050	<0.00050	<0.010	<0.0050	<0.0050	<0.0038	<50
WH01-W @ 5'	9/2/2021	5 ft. bgs	<0.0020	<0.0050	<0.00050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 3'	9/2/2021	3 ft. bgs	<0.0020	<0.0050	<0.00050	<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

= Source material characterization sample

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER VON FELDT 13-12 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'	9/2/2021	6 ft. bgs	8.68	1.09	0.221	0.299
WH01-N @ 5'	9/2/2021	5 ft. bgs	8.03	1.81	0.149	0.378
FLR01 @ 3'	9/2/2021	3 ft. bgs	8.35	0.400	0.0176	0.0932
BKG01 @ 5'	9/2/2021	5 ft. bgs	9.15	0.603	0.121	NA
BKG01 @ 6'	9/2/2021	6 ft. bgs	9.06	0.632	0.104	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.

BOLD = Analytical result is in exceedance of applicable standard, but below background concentration.

NA = Constituent not analyzed

TABLE 3
FORMER VON FELDT 13-12 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'	9/2/2021	6 ft. bgs	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
WH01-N @ 5'	9/2/2021	5 ft. bgs	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
FLR01 @ 3'	9/2/2021	3 ft. bgs	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

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) = Benzanthracene

Benzo(a) = Benzopyrene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylanthalene

mg/kg = Milligrams per kilogram

 = Source material characterization sample

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 4
FORMER VON FELDT 13-12 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
METALS

Sample ID	Date Sampled	Depth	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ^(1,2)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^(1,2,3)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
WH01 @ 6'	9/2/2021	6 ft. bgs	2.25	90.7	<0.247	<0.30 ⁽⁴⁾	2.33	7.06	1.53	0.343	0.0500	9.38
WH01-N @ 5'	9/2/2021	5 ft. bgs	3.92	78.7	<0.224	<0.30 ⁽⁴⁾	12.5	14.2	6.95	0.852	0.0424	39.3
BKG01 @ 5'	9/2/2021	5 ft. bgs	2.26	21.4	<0.227	<0.30 ⁽⁴⁾	2.41	2.73	3.01	0.364	<0.0227	15.2
BKG01 @ 6'	9/2/2021	6 ft. bgs	2.35	33.8	<0.227	<0.30 ⁽⁴⁾	3.55	3.88	4.99	0.454	<0.0227	19.7

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. Compound falls within COGCC Table 915-1 Footnote 9.
- COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
mg/kg = Milligrams per kilogram
= Source material characterization sample
ft. = Feet
bgs = Below ground surface
BOLD = Analytical result is in exceedance of applicable standard.
BOLD = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

**TABLE 5
FORMER VON FELDT 13-12 WELLHEAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	Depth to Water ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
GW01 @ 6'	9/2/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6 ft. bgs	NA

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
2. Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

TMB = Trimethylbenzene

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

ft. = Feet

AMSL = Above Mean Sea Level

NA = Not applicable

TABLE 6
FORMER VON FELDT 13-12 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude	Longitude		
WH01 @ 6'	9/2/2021	6 ft. bgs	40.49530631	-104.618470	1.0	2.8
FLR01 @ 3'	9/2/2021	3 ft. bgs	40.49530826	-104.618433	1.0	0.0
WH01-N @ 5'	9/2/2021	5 ft. bgs	40.49532292	-104.618464	1.1	0.1
WH01-W @ 5'	9/2/2021	5 ft. bgs	40.49531415	-104.618516	1.0	0.0
WH01-S @ 5'	9/2/2021	5 ft. bgs	40.49530069	-104.618457	1.1	0.0
WH01-E @ 5'	9/2/2021	5 ft. bgs	40.49530582	-104.618430	1.1	0.0
WHS01-N @ 0-6"	9/2/2021	0-6 in. bgs	40.49535581	-104.618446	1.0	0.1
WHS01-E @ 0-6"	9/2/2021	0-6 in. bgs	40.49529909	-104.618412	1.1	0.0
WHS01-S @ 0-6"	9/2/2021	0-6 in. bgs	40.49528211	-104.618464	1.0	0.1
WHS01-W @ 0-6"	9/2/2021	0-6 in. bgs	40.49531415	-104.618516	1.0	0.1
BKG01	9/2/2021	5-6 ft. bgs	40.49549568	-104.618052	1.1	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

**WELLHEAD
ATTACHMENT A**

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 20, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Von Foldt 13-12 Wellhead

Work Order #2109029

Enclosed are the results of analyses for samples received by Summit Scientific on 09/02/21 16:44. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury

President



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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2109029-01	Soil	09/02/21 09:15	09/02/21 16:44
WH01-N@5'	2109029-02	Soil	09/02/21 11:30	09/02/21 16:44
GW01@6'	2109029-03	Water	09/02/21 13:00	09/02/21 16:44

Summit Scientific

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2109029

Summit Scientific

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 1 

Client: PDC / Tasman Project Manager: Mark Longhurst
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCI.com
City/State/Zip: Broomfield/ CO/ 80020 Project Name: Von Foldt B-12 WH
Phone: 303-487-1228 Project Number:
Sampler Name: David Vigil

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	VOC - 915	PAH - 915	Metals - 915		DBS (12,14)(13,5) ⁹¹⁵
1	WHO1@6'	9/2/21	0915	3			X			X				X	X	X	X		X		pH, EC, SAR by saturated paste <u>BTBXN 915</u> <u>-9260B</u>
2	WHO1-N@5'	↓	1130	3			X			X				X	X	X	X		X		
3	GWO1@6'	↓	1300	3	X				X										X		
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <u>David Vigil</u>	Date/Time: <u>1500 9/2/21</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>Will Vigil 9/2/21 1644</u>	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: <u>16</u> Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2109029

Client: PDC/TASMAN Client Project ID: Von Foldt 13-12 WH

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

Matrix (check all that apply): Air Soil/Solid Water Other: _____
 (Describe)

Temp (°C) 3.8 - 16
WG

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 provided that 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	same day on ice
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, H2SO4, NaOH, HNO3, ect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
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.

WG
 Custodian Printed Name or Initials

Will Adin
 Signature of Custodian

9/2/21
 Date/Time



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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

WH01@6'
2109029-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEI0067	09/02/21	09/02/21	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: **09/02/21 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		99.8 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		93.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEI0068	"	09/02/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		91.3 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

WH01@6'
2109029-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0073	09/03/21	09/05/21	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: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		48.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		56.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.299	0.0100	mg/L	1	BEI0141	09/08/21	09/10/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

WH01@6'
2109029-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.25	0.247	mg/kg dry	1	BEI0191	09/09/21	09/12/21	EPA 6020B	
Barium	90.7	0.494	"	"	"	"	"	"	
Cadmium	ND	0.247	"	"	"	"	"	"	
Copper	2.33	0.494	"	"	"	"	"	"	
Lead	7.06	0.247	"	"	"	"	"	"	
Nickel	1.53	0.494	"	"	"	"	"	"	
Selenium	0.343	0.321	"	"	"	"	"	"	
Silver	0.0500	0.0247	"	"	"	"	"	"	
Zinc	9.38	0.494	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0214	09/10/21	09/10/21	EPA 7196A	

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

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	44.6	0.0618	mg/L dry	1	BEI0149	09/08/21	09/11/21	EPA 6020B	
Magnesium	3.25	0.0618	"	"	"	"	"	"	
Sodium	5.68	0.0618	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.221	0.00100	units	1	BEI0236	09/12/21	09/12/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

WH01@6'
2109029-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	81.0	%	1	BEI0132	09/08/21	09/08/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.09	0.0100	mmhos/cm	1	BEI0150	09/08/21	09/09/21	EPA 120.1	

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

Date Sampled: **09/02/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.68		pH Units	1	BEI0151	09/08/21	09/09/21	EPA 9045D	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

WH01-N@5'
2109029-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0067	09/02/21	09/02/21	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: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0068	"	09/02/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.8 %	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: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

WH01-N@5'
2109029-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0073	09/03/21	09/05/21	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: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		44.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		54.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.378	0.0100	mg/L	1	BEI0141	09/08/21	09/10/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

WH01-N@5'
2109029-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.92	0.224	mg/kg dry	1	BEI0354	09/16/21	09/18/21	EPA 6020B	
Barium	78.7	0.447	"	"	"	"	"	"	
Cadmium	ND	0.224	"	"	"	"	"	"	
Copper	12.5	0.447	"	"	"	"	"	"	
Lead	14.2	0.224	"	"	"	"	"	"	
Nickel	6.95	0.447	"	"	"	"	"	"	
Selenium	0.852	0.291	"	"	"	"	"	"	
Silver	0.0424	0.0224	"	"	"	"	"	"	
Zinc	39.3	0.447	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0414	09/20/21	09/20/21	EPA 7196A	

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

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	15.2	0.0559	mg/L dry	1	BEI0149	09/08/21	09/11/21	EPA 6020B	
Magnesium	2.95	0.0559	"	"	"	"	"	"	
Sodium	2.43	0.0559	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.149	0.00100	units	1	BEI0236	09/12/21	09/12/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

WH01-N@5'
2109029-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	89.4	%	1	BEI0132	09/08/21	09/08/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.81	0.0100	mmhos/cm	1	BEI0150	09/08/21	09/09/21	EPA 120.1	

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

Date Sampled: **09/02/21 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.03		pH Units	1	BEI0151	09/08/21	09/09/21	EPA 9045D	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

GW01@6'
2109029-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/02/21 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEI0069	09/02/21	09/02/21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/02/21 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		85.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.5 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEI0067 - EPA 5030 Soil MS

Blank (BEI0067-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0378		"	0.0400		94.6	23-173				
<i>Surrogate: Toluene-d8</i>	0.0373		"	0.0400		93.3	20-170				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0410		"	0.0400		102	21-167				

LCS (BEI0067-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Benzene	0.0917	0.0020	mg/kg	0.100		91.7	70-130				
Toluene	0.0964	0.0050	"	0.100		96.4	70-130				
Ethylbenzene	0.0743	0.0050	"	0.100		74.3	70-130				
m,p-Xylene	0.146	0.010	"	0.200		73.1	70-130				
o-Xylene	0.0791	0.0050	"	0.100		79.1	70-130				
1,2,4-Trimethylbenzene	0.0793	0.0050	"	0.100		79.3	70-130				
1,3,5-Trimethylbenzene	0.0735	0.0050	"	0.100		73.5	70-130				
Naphthalene	0.0951	0.0038	"	0.100		95.1	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0300		"	0.0400		75.0	23-173				
<i>Surrogate: Toluene-d8</i>	0.0351		"	0.0400		87.7	20-170				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0381		"	0.0400		95.2	21-167				

Matrix Spike (BEI0067-MS1)

Source: 2109028-01

Prepared: 09/02/21 Analyzed: 09/03/21

Benzene	0.0929	0.0020	mg/kg	0.100	ND	92.9	70-130				
Toluene	0.0722	0.0050	"	0.100	ND	72.2	70-130				
Ethylbenzene	0.0766	0.0050	"	0.100	ND	76.6	70-130				
m,p-Xylene	0.154	0.010	"	0.200	ND	77.2	70-130				
o-Xylene	0.0826	0.0050	"	0.100	ND	82.6	70-130				
1,2,4-Trimethylbenzene	0.0858	0.0050	"	0.100	ND	85.8	70-130				
1,3,5-Trimethylbenzene	0.0792	0.0050	"	0.100	ND	79.2	70-130				
Naphthalene	0.101	0.0038	"	0.100	ND	101	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0317		"	0.0400		79.4	23-173				
<i>Surrogate: Toluene-d8</i>	0.0382		"	0.0400		95.6	20-170				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0394		"	0.0400		98.4	21-167				

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEI0067 - EPA 5030 Soil MS

Matrix Spike Dup (BEI0067-MSD1)

Source: 2109028-01

Prepared: 09/02/21 Analyzed: 09/03/21

Benzene	0.0955	0.0020	mg/kg	0.100	ND	95.5	70-130	2.74	30	
Toluene	0.0746	0.0050	"	0.100	ND	74.6	70-130	3.31	30	
Ethylbenzene	0.0758	0.0050	"	0.100	ND	75.8	70-130	1.14	30	
m,p-Xylene	0.151	0.010	"	0.200	ND	75.5	70-130	2.18	30	
o-Xylene	0.0818	0.0050	"	0.100	ND	81.8	70-130	1.02	30	
1,2,4-Trimethylbenzene	0.0830	0.0050	"	0.100	ND	83.0	70-130	3.41	30	
1,3,5-Trimethylbenzene	0.0765	0.0050	"	0.100	ND	76.5	70-130	3.51	30	
Naphthalene	0.110	0.0038	"	0.100	ND	110	70-130	8.35	30	
Surrogate: 1,2-Dichloroethane-d4	0.0341		"	0.0400		85.3	23-173			
Surrogate: Toluene-d8	0.0378		"	0.0400		94.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	21-167			

Batch BEI0069 - EPA 5030 Water MS

Blank (BEI0069-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.0		"	13.3		82.3	23-173			
Surrogate: Toluene-d8	12.2		"	13.3		91.7	20-170			
Surrogate: 4-Bromofluorobenzene	11.5		"	13.3		86.4	21-167			

LCS (BEI0069-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Benzene	27.1	1.0	ug/l	33.3		81.2	51-132			
Toluene	33.0	1.0	"	33.3		99.1	51-138			
Ethylbenzene	34.3	1.0	"	33.3		103	58-146			
m,p-Xylene	67.1	2.0	"	66.7		101	57-144			
o-Xylene	34.0	1.0	"	33.3		102	53-146			
Naphthalene	30.4	1.0	"	33.3		91.1	70-130			
1,2,4-Trimethylbenzene	28.1	1.0	"	33.3		84.2	70-130			
1,3,5-Trimethylbenzene	34.0	1.0	"	33.3		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	11.3		"	13.3		84.6	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	11.6		"	13.3		87.2	21-167			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

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

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

Batch BEI0069 - EPA 5030 Water MS

Matrix Spike (BEI0069-MS1)

Source: 2109029-03

Prepared: 09/02/21 Analyzed: 09/03/21

Benzene	27.2	1.0	ug/l	33.3	ND	81.5	34-141			
Toluene	31.1	1.0	"	33.3	ND	93.3	27-151			
Ethylbenzene	34.6	1.0	"	33.3	ND	104	29-160			
m,p-Xylene	68.2	2.0	"	66.7	ND	102	20-166			
o-Xylene	34.2	1.0	"	33.3	ND	103	33-159			
Naphthalene	38.9	1.0	"	33.3	ND	117	70-130			
1,2,4-Trimethylbenzene	28.4	1.0	"	33.3	ND	85.4	70-130			
1,3,5-Trimethylbenzene	34.2	1.0	"	33.3	ND	103	70-130			
Surrogate: 1,2-Dichloroethane-d4	12.2		"	13.3		91.4	23-173			
Surrogate: Toluene-d8	12.3		"	13.3		92.2	20-170			
Surrogate: 4-Bromofluorobenzene	11.8		"	13.3		88.1	21-167			

Matrix Spike Dup (BEI0069-MSD1)

Source: 2109029-03

Prepared: 09/02/21 Analyzed: 09/03/21

Benzene	26.8	1.0	ug/l	33.3	ND	80.4	34-141	1.26	30	
Toluene	32.6	1.0	"	33.3	ND	97.7	27-151	4.59	30	
Ethylbenzene	33.2	1.0	"	33.3	ND	99.6	29-160	4.07	30	
m,p-Xylene	66.1	2.0	"	66.7	ND	99.1	20-166	3.11	30	
o-Xylene	33.4	1.0	"	33.3	ND	100	33-159	2.31	30	
Naphthalene	39.2	1.0	"	33.3	ND	118	70-130	0.717	30	
1,2,4-Trimethylbenzene	27.6	1.0	"	33.3	ND	82.8	70-130	3.03	30	
1,3,5-Trimethylbenzene	33.2	1.0	"	33.3	ND	99.5	70-130	3.09	30	
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		98.8	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.3	21-167			

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: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEI0068 - EPA 3550A

Blank (BEI0068-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

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

LCS (BEI0068-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

C10-C28 (DRO)	540	50	mg/kg	500	108	70-130					
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Matrix Spike (BEI0068-MS1)

Source: 2109028-01

Prepared: 09/02/21 Analyzed: 09/03/21

C10-C28 (DRO)	636	50	mg/kg	500	14.8	124	70-130				
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Matrix Spike Dup (BEI0068-MSD1)

Source: 2109028-01

Prepared: 09/02/21 Analyzed: 09/03/21

C10-C28 (DRO)	605	50	mg/kg	500	14.8	118	70-130	4.98	20		
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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: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEI0073 - EPA 5030 Soil MS

Blank (BEI0073-BLK1)

Prepared: 09/03/21 Analyzed: 09/04/21

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	"								
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0165</i>		"	<i>0.0333</i>		<i>49.4</i>		<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0164</i>		"	<i>0.0333</i>		<i>49.3</i>		<i>40-150</i>			

LCS (BEI0073-BS1)

Prepared: 09/03/21 Analyzed: 09/04/21

Acenaphthene	0.0265	0.00500	mg/kg	0.0333		79.4		31-137			
Anthracene	0.0267	0.00500	"	0.0333		80.1		30-120			
Benzo (a) anthracene	0.0273	0.00500	"	0.0333		81.9		30-120			
Benzo (a) pyrene	0.0288	0.00500	"	0.0333		86.3		30-120			
Benzo (b) fluoranthene	0.0346	0.00500	"	0.0333		104		30-120			
Benzo (k) fluoranthene	0.0344	0.00500	"	0.0333		103		30-120			
Chrysene	0.0250	0.00500	"	0.0333		74.9		30-120			
Dibenz (a,h) anthracene	0.0116	0.00500	"	0.0333		34.8		30-120			
Fluoranthene	0.0271	0.00500	"	0.0333		81.3		30-120			
Fluorene	0.0277	0.00500	"	0.0333		83.2		30-120			
Indeno (1,2,3-cd) pyrene	0.0133	0.00500	"	0.0333		39.8		30-120			
Pyrene	0.0248	0.00500	"	0.0333		74.4		35-142			
1-Methylnaphthalene	0.0285	0.00500	"	0.0333		85.6		35-142			
2-Methylnaphthalene	0.0273	0.00500	"	0.0333		81.8		35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0139</i>		"	<i>0.0333</i>		<i>41.8</i>		<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0148</i>		"	<i>0.0333</i>		<i>44.4</i>		<i>40-150</i>			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEI0073 - EPA 5030 Soil MS

Matrix Spike (BEI0073-MS1)		Source: 2109001-01			Prepared: 09/03/21		Analyzed: 09/04/21	
Acenaphthene	0.0252	0.00500	mg/kg	0.0333	ND	75.6	31-137	
Anthracene	0.0245	0.00500	"	0.0333	ND	73.5	30-120	
Benzo (a) anthracene	0.0255	0.00500	"	0.0333	ND	76.4	30-120	
Benzo (a) pyrene	0.0270	0.00500	"	0.0333	ND	80.9	30-120	
Benzo (b) fluoranthene	0.0325	0.00500	"	0.0333	ND	97.6	30-120	
Benzo (k) fluoranthene	0.0327	0.00500	"	0.0333	ND	98.2	30-120	
Chrysene	0.0235	0.00500	"	0.0333	ND	70.4	30-120	
Dibenz (a,h) anthracene	0.0107	0.00500	"	0.0333	ND	32.0	30-120	
Fluoranthene	0.0262	0.00500	"	0.0333	0.000969	75.6	30-120	
Fluorene	0.0266	0.00500	"	0.0333	ND	79.7	30-120	
Indeno (1,2,3-cd) pyrene	0.0121	0.00500	"	0.0333	ND	36.2	30-120	
Pyrene	0.0235	0.00500	"	0.0333	0.00159	65.9	35-142	
1-Methylnaphthalene	0.0232	0.00500	"	0.0333	ND	69.5	15-130	
2-Methylnaphthalene	0.0263	0.00500	"	0.0333	ND	78.9	15-130	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0142</i>		"	<i>0.0333</i>		<i>42.5</i>	<i>40-150</i>	
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0135</i>		"	<i>0.0333</i>		<i>40.5</i>	<i>40-150</i>	

Matrix Spike Dup (BEI0073-MSD1)		Source: 2109001-01			Prepared: 09/03/21		Analyzed: 09/04/21	
Acenaphthene	0.0258	0.00500	mg/kg	0.0333	ND	77.3	31-137	2.13 30
Anthracene	0.0249	0.00500	"	0.0333	ND	74.7	30-120	1.72 30
Benzo (a) anthracene	0.0262	0.00500	"	0.0333	ND	78.7	30-120	2.90 30
Benzo (a) pyrene	0.0284	0.00500	"	0.0333	ND	85.3	30-120	5.34 30
Benzo (b) fluoranthene	0.0353	0.00500	"	0.0333	ND	106	30-120	8.13 30
Benzo (k) fluoranthene	0.0353	0.00500	"	0.0333	ND	106	30-120	7.41 30
Chrysene	0.0240	0.00500	"	0.0333	ND	72.1	30-120	2.39 30
Dibenz (a,h) anthracene	0.0107	0.00500	"	0.0333	ND	32.0	30-120	0.125 30
Fluoranthene	0.0267	0.00500	"	0.0333	0.000969	77.3	30-120	2.12 30
Fluorene	0.0272	0.00500	"	0.0333	ND	81.5	30-120	2.17 30
Indeno (1,2,3-cd) pyrene	0.0118	0.00500	"	0.0333	ND	35.5	30-120	2.20 30
Pyrene	0.0251	0.00500	"	0.0333	0.00159	70.5	35-142	6.35 30
1-Methylnaphthalene	0.0225	0.00500	"	0.0333	ND	67.5	15-130	2.83 50
2-Methylnaphthalene	0.0263	0.00500	"	0.0333	ND	79.0	15-130	0.0709 50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0136</i>		"	<i>0.0333</i>		<i>40.7</i>	<i>40-150</i>	
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0139</i>		"	<i>0.0333</i>		<i>41.7</i>	<i>40-150</i>	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

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

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

Batch BEI0141 - EPA 3050B

Blank (BEI0141-BLK1)

Prepared: 09/08/21 Analyzed: 09/09/21

Boron ND 0.0100 mg/L

LCS (BEI0141-BS1)

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 5.17 0.0100 mg/L 5.00 103 80-120

Duplicate (BEI0141-DUP1)

Source: 2109014-03

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 0.0893 0.0100 mg/L 0.0982 9.42 20

Matrix Spike (BEI0141-MS1)

Source: 2109014-03

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 5.13 0.0100 mg/L 5.00 0.0982 101 75-125

Matrix Spike Dup (BEI0141-MSD1)

Source: 2109014-03

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 5.12 0.0100 mg/L 5.00 0.0982 100 75-125 0.139 25

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEI0191 - EPA 3050B

Blank (BEI0191-BLK1)

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	ND	0.200	mg/kg wet						
Barium	ND	0.400	"						
Cadmium	ND	0.200	"						
Copper	ND	0.400	"						
Lead	ND	0.200	"						
Nickel	ND	0.400	"						
Selenium	ND	0.260	"						
Silver	ND	0.0200	"						
Zinc	ND	0.400	"						

LCS (BEI0191-BS1)

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	46.3	0.200	mg/kg wet	40.0		116	80-120
Barium	40.6	0.400	"	40.0		102	80-120
Cadmium	2.15	0.200	"	2.00		108	80-120
Copper	40.6	0.400	"	40.0		102	80-120
Lead	20.1	0.200	"	20.0		101	80-120
Nickel	39.3	0.400	"	40.0		98.2	80-120
Selenium	4.10	0.260	"	4.00		102	80-120
Silver	1.95	0.0200	"	2.00		97.3	80-120
Zinc	46.7	0.400	"	40.0		117	80-120

Duplicate (BEI0191-DUP1)

Source: 2109029-01

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	2.15	0.247	mg/kg dry		2.25		4.79	20
Barium	88.2	0.494	"		90.7		2.72	20
Cadmium	0.0240	0.247	"		0.0253		5.02	20
Copper	2.42	0.494	"		2.33		3.76	20
Lead	7.12	0.247	"		7.06		0.926	20
Nickel	1.51	0.494	"		1.53		1.04	20
Selenium	0.408	0.321	"		0.343		17.3	20
Silver	0.0593	0.0247	"		0.0500		17.0	20
Zinc	10.3	0.494	"		9.38		9.11	20

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEI0191 - EPA 3050B

Matrix Spike (BEI0191-MS1)

Source: 2109029-01

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	63.9	0.247	mg/kg dry	49.4	2.25	125	75-125			
Barium	148	0.494	"	49.4	90.7	117	75-125			
Cadmium	3.08	0.247	"	2.47	0.0253	124	75-125			
Copper	62.2	0.494	"	49.4	2.33	121	75-125			
Lead	33.7	0.247	"	24.7	7.06	108	75-125			
Nickel	61.1	0.494	"	49.4	1.53	121	75-125			
Selenium	6.38	0.321	"	4.94	0.343	122	75-125			
Silver	2.56	0.0247	"	2.47	0.0500	102	75-125			
Zinc	53.2	0.494	"	49.4	9.38	88.6	75-125			

Matrix Spike Dup (BEI0191-MSD1)

Source: 2109029-01

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	58.4	0.247	mg/kg dry	49.4	2.25	114	75-125	8.99	25
Barium	150	0.494	"	49.4	90.7	121	75-125	1.32	25
Cadmium	2.71	0.247	"	2.47	0.0253	109	75-125	12.9	25
Copper	54.9	0.494	"	49.4	2.33	106	75-125	12.5	25
Lead	36.8	0.247	"	24.7	7.06	120	75-125	8.72	25
Nickel	54.8	0.494	"	49.4	1.53	108	75-125	10.9	25
Selenium	5.83	0.321	"	4.94	0.343	111	75-125	9.13	25
Silver	2.30	0.0247	"	2.47	0.0500	91.2	75-125	10.7	25
Zinc	60.0	0.494	"	49.4	9.38	102	75-125	12.1	25

Batch BEI0354 - EPA 3050B

Blank (BEI0354-BLK1)

Prepared: 09/16/21 Analyzed: 09/18/21

Arsenic	ND	0.200	mg/kg wet						
Barium	ND	0.400	"						
Cadmium	ND	0.200	"						
Copper	ND	0.400	"						
Lead	ND	0.200	"						
Nickel	ND	0.400	"						
Selenium	ND	0.260	"						
Silver	ND	0.0200	"						
Zinc	ND	0.400	"						

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEI0354 - EPA 3050B

LCS (BEI0354-BS1)

Prepared: 09/16/21 Analyzed: 09/18/21

Arsenic	44.3	0.200	mg/kg wet	40.0		111	80-120			
Barium	39.2	0.400	"	40.0		98.1	80-120			
Cadmium	2.25	0.200	"	2.00		112	80-120			
Copper	39.5	0.400	"	40.0		98.9	80-120			
Lead	19.5	0.200	"	20.0		97.5	80-120			
Nickel	38.5	0.400	"	40.0		96.2	80-120			
Selenium	3.96	0.260	"	4.00		99.0	80-120			
Silver	1.90	0.0200	"	2.00		95.0	80-120			
Zinc	45.9	0.400	"	40.0		115	80-120			

Duplicate (BEI0354-DUP1)

Source: 2109029-02

Prepared: 09/16/21 Analyzed: 09/18/21

Arsenic	3.54	0.224	mg/kg dry		3.92			10.2	20	
Barium	76.0	0.447	"		78.7			3.44	20	
Cadmium	0.208	0.224	"		0.201			3.26	20	
Copper	12.1	0.447	"		12.5			2.98	20	
Lead	14.7	0.224	"		14.2			3.39	20	
Nickel	7.28	0.447	"		6.95			4.67	20	
Selenium	0.952	0.291	"		0.852			11.1	20	
Silver	0.0481	0.0224	"		0.0424			12.8	20	
Zinc	38.4	0.447	"		39.3			2.32	20	

Matrix Spike (BEI0354-MS1)

Source: 2109029-02

Prepared: 09/16/21 Analyzed: 09/18/21

Arsenic	50.5	0.224	mg/kg dry	44.7	3.92	104	75-125			
Barium	117	0.447	"	44.7	78.7	86.1	75-125			
Cadmium	2.52	0.224	"	2.24	0.201	104	75-125			
Copper	48.5	0.447	"	44.7	12.5	80.6	75-125			
Lead	41.9	0.224	"	22.4	14.2	124	75-125			
Nickel	47.4	0.447	"	44.7	6.95	90.3	75-125			
Selenium	4.33	0.291	"	4.47	0.852	77.8	75-125			
Silver	1.98	0.0224	"	2.24	0.0424	86.4	75-125			
Zinc	92.2	0.447	"	44.7	39.3	118	75-125			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEI0354 - EPA 3050B

Matrix Spike Dup (BEI0354-MSD1)	Source: 2109029-02			Prepared: 09/16/21 Analyzed: 09/18/21							
Arsenic	52.8	0.224	mg/kg dry	44.7	3.92	109	75-125	4.43	25		
Barium	122	0.447	"	44.7	78.7	96.8	75-125	4.01	25		
Cadmium	2.64	0.224	"	2.24	0.201	109	75-125	4.62	25		
Copper	49.0	0.447	"	44.7	12.5	81.6	75-125	0.926	25		
Lead	38.5	0.224	"	22.4	14.2	109	75-125	8.32	25		
Nickel	50.5	0.447	"	44.7	6.95	97.3	75-125	6.38	25		
Selenium	4.68	0.291	"	4.47	0.852	85.5	75-125	7.60	25		
Silver	2.05	0.0224	"	2.24	0.0424	89.9	75-125	3.86	25		
Zinc	94.4	0.447	"	44.7	39.3	123	75-125	2.27	25		

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BEI0214 - 3060A Mod

Blank (BEI0214-BLK1)		Prepared & Analyzed: 09/10/21									
Chromium, Hexavalent	ND	0.30	mg/kg wet								
LCS (BEI0214-BS1)		Prepared & Analyzed: 09/10/21									
Chromium, Hexavalent	26.0	0.30	mg/kg wet	25.0	104	80-120					
Duplicate (BEI0214-DUP1)		Source: 2108359-08		Prepared & Analyzed: 09/10/21							
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND					20	
Matrix Spike (BEI0214-MS1)		Source: 2108359-08		Prepared & Analyzed: 09/10/21							
Chromium, Hexavalent	35.3	0.30	mg/kg dry	28.9	ND	122	75-125				
Matrix Spike Dup (BEI0214-MSD1)		Source: 2108359-08		Prepared & Analyzed: 09/10/21							
Chromium, Hexavalent	35.3	0.30	mg/kg dry	28.9	ND	122	75-125	0.00		20	

Batch BEI0414 - 3060A Mod

Blank (BEI0414-BLK1)		Prepared & Analyzed: 09/20/21									
Chromium, Hexavalent	ND	0.30	mg/kg wet								
LCS (BEI0414-BS1)		Prepared & Analyzed: 09/20/21									
Chromium, Hexavalent	29.0	0.30	mg/kg wet	25.0	116	80-120					
Duplicate (BEI0414-DUP1)		Source: 2109029-02		Prepared & Analyzed: 09/20/21							
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND					20	
Matrix Spike (BEI0414-MS1)		Source: 2109029-02		Prepared & Analyzed: 09/20/21							
Chromium, Hexavalent	26.3	0.30	mg/kg dry	28.0	ND	94.0	75-125				

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

Hexavalent Chromium by EPA Method 7196 - Quality Control

Summit Scientific

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

Batch BEI0414 - 3060A Mod

Matrix Spike Dup (BEI0414-MSD1)

Source: 2109029-02

Prepared & Analyzed: 09/20/21

Chromium, Hexavalent	27.4	0.30	mg/kg dry	28.0	ND	98.0	75-125	4.17	20	
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Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

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

Summit Scientific

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

Batch BEI0149 - General Preparation

Blank (BEI0149-BLK1)

Prepared: 09/08/21 Analyzed: 09/11/21

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

LCS (BEI0149-BS1)

Prepared: 09/08/21 Analyzed: 09/11/21

Calcium	5.93	0.0500	mg/L wet	5.00		119	70-130			
Magnesium	4.96	0.0500	"	5.00		99.3	70-130			
Sodium	4.77	0.0500	"	5.00		95.5	70-130			

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: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

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

Summit Scientific

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

Batch BEI0132 - General Preparation

Duplicate (BEI0132-DUP1)

Source: 2109018-03

Prepared & Analyzed: 09/08/21

% Solids	80.5		%		80.2			0.379		20	
----------	------	--	---	--	------	--	--	-------	--	----	--

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

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

Summit Scientific

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

Batch BEI0150 - General Preparation

Blank (BEI0150-BLK1)

Prepared: 09/08/21 Analyzed: 09/09/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEI0150-BS1)

Prepared: 09/08/21 Analyzed: 09/09/21

Specific Conductance (EC) 0.140 0.0100 mmhos/cm 0.150 93.5 90-110

Duplicate (BEI0150-DUP1)

Source: 2108107-08

Prepared: 09/08/21 Analyzed: 09/09/21

Specific Conductance (EC) 2.67 0.0100 mmhos/cm 2.66 0.413 20

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/20/21 10:03

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

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

Batch BEI0151 - General Preparation

LCS (BEI0151-BS1)

Prepared: 09/08/21 Analyzed: 09/09/21

pH	9.36	pH Units	9.21	102	95-105
----	------	----------	------	-----	--------

Duplicate (BEI0151-DUP1)

Source: 2108107-08

Prepared: 09/08/21 Analyzed: 09/09/21

pH	8.38	pH Units	9.42	11.7	20
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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: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/20/21 10:03

Notes and Definitions

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

September 14, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Von Foldt 13-12 Wellhead

Work Order #2109038

Enclosed are the results of analyses for samples received by Summit Scientific on 09/02/21 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury

President



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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLR01@3'	2109038-01	Soil	09/02/21 11:38	09/02/21 16:45
WH01-E@5'	2109038-02	Soil	09/02/21 11:36	09/02/21 16:45
WH01-S@5'	2109038-03	Soil	09/02/21 11:34	09/02/21 16:45
WH01-W@5'	2109038-04	Soil	09/02/21 11:32	09/02/21 16:45
BKG01@5'	2109038-05	Soil	09/02/21 12:04	09/02/21 16:45
BKG01@6'	2109038-06	Soil	09/02/21 12:06	09/02/21 16:45

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.

Sample Receipt Checklist

S2 Work Order 2109038

Client: PDC/TASMAN Client Project ID: Von Foldt 13-12 WH

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other Air Soil/Solid Water Other: _____ Airbill #: _____

Matrix (check all that apply): Air Soil/Solid Water Other: _____ (Describe)

Temp (°C) 3.8 - 16
WGT

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 provided that 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
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, H2SO4, NaOH, HNO3, ect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
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.

WG
Custodian Printed Name or Initials

Will Adin
Signature of Custodian

9/2/21
Date/Time



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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

FLR01@3'
2109038-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEI0089	09/03/21	09/04/21	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: **09/02/21 11:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		106 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEI0090	09/03/21	09/04/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		92.3 %		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: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

FLR01@3'
2109038-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0074	09/03/21	09/04/21	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: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		43.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		41.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0932	0.0100	mg/L	1	BEI0141	09/08/21	09/10/21	EPA 6020B	

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

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

FLR01@3'
2109038-01 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	32.8	0.0562	mg/L dry	1	BEI0186	09/09/21	09/09/21	EPA 6020B	
Magnesium	3.51	0.0562	"	"	"	"	"	"	
Sodium	0.396	0.0562	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0176	0.00100	units	1	BEI0210	09/10/21	09/10/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.0		%	1	BEI0147	09/08/21	09/08/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.400	0.0100	mmhos/cm	1	BEI0187	09/09/21	09/10/21	EPA 120.1	

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

Date Sampled: **09/02/21 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.35		pH Units	1	BEI0188	09/09/21	09/10/21	EPA 9045D	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

WH01-E@5'
2109038-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/02/21 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0195	09/09/21	09/10/21	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: **09/02/21 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/02/21 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0194	09/09/21	09/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/02/21 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		126 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

WH01-S@5'
2109038-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/02/21 11:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0195	09/09/21	09/10/21	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: **09/02/21 11:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/02/21 11:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0194	09/09/21	09/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/02/21 11:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		122 %	30-150		"	"	"	"	

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: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

WH01-W@5'
2109038-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/02/21 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0195	09/09/21	09/10/21	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: **09/02/21 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/02/21 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0194	09/09/21	09/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/02/21 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		131 %	30-150		"	"	"	"	

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: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

BKG01@5'
2109038-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **09/02/21 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.26	0.227	mg/kg dry	1	BEI0191	09/09/21	09/12/21	EPA 6020B	
Barium	21.4	0.453	"	"	"	"	"	"	
Cadmium	ND	0.227	"	"	"	"	"	"	
Copper	2.41	0.453	"	"	"	"	"	"	
Lead	2.73	0.227	"	"	"	"	"	"	
Nickel	3.01	0.453	"	"	"	"	"	"	
Selenium	0.364	0.295	"	"	"	"	"	"	
Silver	ND	0.0227	"	"	"	"	"	"	
Zinc	15.2	0.453	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/02/21 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0214	09/10/21	09/10/21	EPA 7196A	

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

Date Sampled: **09/02/21 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	13.0	0.0566	mg/L dry	1	BEI0186	09/09/21	09/09/21	EPA 6020B	
Magnesium	3.88	0.0566	"	"	"	"	"	"	
Sodium	1.94	0.0566	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/02/21 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.121	0.00100	units	1	BEI0210	09/10/21	09/10/21	Calculation	

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: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

BKG01@5'
2109038-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/02/21 12:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.3		%	1	BEI0202	09/10/21	09/10/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/02/21 12:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.603	0.0100	mmhos/cm	1	BEI0187	09/09/21	09/10/21	EPA 120.1	

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

Date Sampled: **09/02/21 12:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.15		pH Units	1	BEI0188	09/09/21	09/10/21	EPA 9045D	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

BKG01@6'
2109038-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **09/02/21 12:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.35	0.227	mg/kg dry	1	BEI0191	09/09/21	09/12/21	EPA 6020B	
Barium	33.8	0.453	"	"	"	"	"	"	
Cadmium	ND	0.227	"	"	"	"	"	"	
Copper	3.55	0.453	"	"	"	"	"	"	
Lead	3.88	0.227	"	"	"	"	"	"	
Nickel	4.99	0.453	"	"	"	"	"	"	
Selenium	0.454	0.294	"	"	"	"	"	"	
Silver	ND	0.0227	"	"	"	"	"	"	
Zinc	19.7	0.453	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/02/21 12:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0214	09/10/21	09/10/21	EPA 7196A	

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

Date Sampled: **09/02/21 12:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	54.1	0.0566	mg/L dry	1	BEI0186	09/09/21	09/09/21	EPA 6020B	
Magnesium	5.50	0.0566	"	"	"	"	"	"	
Sodium	3.00	0.0566	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/02/21 12:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.104	0.00100	units	1	BEI0210	09/10/21	09/10/21	Calculation	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

BKG01@6'
2109038-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/02/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.3		%	1	BEI0202	09/10/21	09/10/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/02/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.632	0.0100	mmhos/cm	1	BEI0187	09/09/21	09/10/21	EPA 120.1	

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

Date Sampled: **09/02/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.06		pH Units	1	BEI0188	09/09/21	09/10/21	EPA 9045D	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEI0089 - EPA 5030 Soil MS

Blank (BEI0089-BLK1)

Prepared & Analyzed: 09/03/21

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0402		"	0.0400		100		23-173			
<i>Surrogate: Toluene-d8</i>	0.0430		"	0.0400		108		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0403		"	0.0400		101		21-167			

LCS (BEI0089-BS1)

Prepared & Analyzed: 09/03/21

Benzene	0.0639	0.0020	mg/kg	0.0750		85.2		70-130			
Toluene	0.0759	0.0050	"	0.0750		101		70-130			
Ethylbenzene	0.0787	0.0050	"	0.0750		105		70-130			
m,p-Xylene	0.156	0.010	"	0.150		104		70-130			
o-Xylene	0.0837	0.0050	"	0.0750		112		70-130			
1,2,4-Trimethylbenzene	0.0854	0.0050	"	0.0750		114		70-130			
1,3,5-Trimethylbenzene	0.0795	0.0050	"	0.0750		106		70-130			
Naphthalene	0.0882	0.0038	"	0.0750		118		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0328		"	0.0400		82.1		23-173			
<i>Surrogate: Toluene-d8</i>	0.0388		"	0.0400		97.0		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0408		"	0.0400		102		21-167			

Matrix Spike (BEI0089-MS1)

Source: 2109010-01

Prepared & Analyzed: 09/03/21

Benzene	0.0626	0.0020	mg/kg	0.0750	ND	83.5		70-130			
Toluene	0.0784	0.0050	"	0.0750	ND	105		70-130			
Ethylbenzene	0.0793	0.0050	"	0.0750	ND	106		70-130			
m,p-Xylene	0.157	0.010	"	0.150	ND	105		70-130			
o-Xylene	0.0842	0.0050	"	0.0750	ND	112		70-130			
1,2,4-Trimethylbenzene	0.0850	0.0050	"	0.0750	ND	113		70-130			
1,3,5-Trimethylbenzene	0.0796	0.0050	"	0.0750	ND	106		70-130			
Naphthalene	0.0902	0.0038	"	0.0750	ND	120		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0332		"	0.0400		82.9		23-173			
<i>Surrogate: Toluene-d8</i>	0.0399		"	0.0400		99.8		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0394		"	0.0400		98.4		21-167			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

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

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

Batch BEI0089 - EPA 5030 Soil MS

Matrix Spike Dup (BEI0089-MSD1)	Source: 2109010-01			Prepared & Analyzed: 09/03/21						
Benzene	0.0587	0.0020	mg/kg	0.0750	ND	78.3	70-130	6.48	30	
Toluene	0.0721	0.0050	"	0.0750	ND	96.1	70-130	8.45	30	
Ethylbenzene	0.0694	0.0050	"	0.0750	ND	92.6	70-130	13.3	30	
m,p-Xylene	0.139	0.010	"	0.150	ND	92.4	70-130	12.4	30	
o-Xylene	0.0740	0.0050	"	0.0750	ND	98.7	70-130	12.9	30	
1,2,4-Trimethylbenzene	0.0759	0.0050	"	0.0750	ND	101	70-130	11.4	30	
1,3,5-Trimethylbenzene	0.0710	0.0050	"	0.0750	ND	94.6	70-130	11.4	30	
Naphthalene	0.0877	0.0038	"	0.0750	ND	117	70-130	2.80	30	
Surrogate: 1,2-Dichloroethane-d4	0.0343		"	0.0400		85.8	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.7	21-167			

Batch BEI0195 - EPA 5030 Soil MS

Blank (BEI0195-BLK1)	Prepared: 09/09/21 Analyzed: 09/10/21									
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	0.0419		"	0.0400		105	23-173			
Surrogate: Toluene-d8	0.0431		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

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

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

Batch BEI0195 - EPA 5030 Soil MS

LCS (BEI0195-BS1)

Prepared: 09/09/21 Analyzed: 09/10/21

Benzene	0.0632	0.0020	mg/kg	0.0750		84.3	70-130			
Toluene	0.0772	0.0050	"	0.0750		103	70-130			
Ethylbenzene	0.0778	0.0050	"	0.0750		104	70-130			
m,p-Xylene	0.160	0.010	"	0.150		106	70-130			
o-Xylene	0.0832	0.0050	"	0.0750		111	70-130			
1,2,4-Trimethylbenzene	0.0863	0.0050	"	0.0750		115	70-130			
1,3,5-Trimethylbenzene	0.0809	0.0050	"	0.0750		108	70-130			
Naphthalene	0.0854	0.0038	"	0.0750		114	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0350		"	0.0400		87.4	23-173			
Surrogate: Toluene-d8	0.0410		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

Matrix Spike (BEI0195-MS1)

Source: 2109038-02

Prepared: 09/09/21 Analyzed: 09/10/21

Benzene	0.0653	0.0020	mg/kg	0.0750	ND	87.1	70-130			
Toluene	0.0780	0.0050	"	0.0750	ND	104	70-130			
Ethylbenzene	0.0788	0.0050	"	0.0750	ND	105	70-130			
m,p-Xylene	0.156	0.010	"	0.150	ND	104	70-130			
o-Xylene	0.0846	0.0050	"	0.0750	ND	113	70-130			
1,2,4-Trimethylbenzene	0.0864	0.0050	"	0.0750	ND	115	70-130			
1,3,5-Trimethylbenzene	0.0812	0.0050	"	0.0750	ND	108	70-130			
Naphthalene	0.0978	0.0038	"	0.0750	ND	130	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0374		"	0.0400		93.4	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	21-167			

Matrix Spike Dup (BEI0195-MSD1)

Source: 2109038-02

Prepared: 09/09/21 Analyzed: 09/10/21

Benzene	0.0661	0.0020	mg/kg	0.0750	ND	88.1	70-130	1.14	30	
Toluene	0.0837	0.0050	"	0.0750	ND	112	70-130	7.09	30	
Ethylbenzene	0.0818	0.0050	"	0.0750	ND	109	70-130	3.81	30	
m,p-Xylene	0.168	0.010	"	0.150	ND	112	70-130	7.42	30	
o-Xylene	0.0885	0.0050	"	0.0750	ND	118	70-130	4.54	30	
1,2,4-Trimethylbenzene	0.0924	0.0050	"	0.0750	ND	123	70-130	6.68	30	
1,3,5-Trimethylbenzene	0.0855	0.0050	"	0.0750	ND	114	70-130	5.15	30	
Naphthalene	0.0986	0.0038	"	0.0750	ND	132	70-130	0.825	30	
Surrogate: 1,2-Dichloroethane-d4	0.0387		"	0.0400		96.8	23-173			
Surrogate: Toluene-d8	0.0423		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEI0090 - EPA 3550A

LCS (BEI0090-BS1)

Prepared & Analyzed: 09/03/21

C10-C28 (DRO)	476	50	mg/kg	500		95.1	70-130			
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Matrix Spike (BEI0090-MS1)

Source: 2109010-01

Prepared & Analyzed: 09/03/21

C10-C28 (DRO)	516	50	mg/kg	500	16.3	100	70-130			
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Matrix Spike Dup (BEI0090-MSD1)

Source: 2109010-01

Prepared & Analyzed: 09/03/21

C10-C28 (DRO)	513	50	mg/kg	500	16.3	99.4	70-130	0.533	20	
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Batch BEI0194 - EPA 3550A

Blank (BEI0194-BLK1)

Prepared: 09/09/21 Analyzed: 09/10/21

C10-C28 (DRO)	ND	50	mg/kg							
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C28-C36 (ORO)	ND	50	"							
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LCS (BEI0194-BS1)

Prepared: 09/09/21 Analyzed: 09/10/21

C10-C28 (DRO)	574	50	mg/kg	500		115	70-130			
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Matrix Spike (BEI0194-MS1)

Source: 2109038-02

Prepared: 09/09/21 Analyzed: 09/10/21

C10-C28 (DRO)	580	50	mg/kg	500	16.8	113	70-130			
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Matrix Spike Dup (BEI0194-MSD1)

Source: 2109038-02

Prepared: 09/09/21 Analyzed: 09/10/21

C10-C28 (DRO)	602	50	mg/kg	500	16.8	117	70-130	3.66	20	
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Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEI0074 - EPA 5030 Soil MS

Blank (BEI0074-BLK1)

Prepared: 09/03/21 Analyzed: 09/04/21

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0161</i>		"	<i>0.0333</i>		<i>48.2</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0148</i>		"	<i>0.0333</i>		<i>44.4</i>	<i>40-150</i>			

LCS (BEI0074-BS1)

Prepared: 09/03/21 Analyzed: 09/04/21

Acenaphthene	0.0261	0.00500	mg/kg	0.0333		78.3	31-137			
Anthracene	0.0266	0.00500	"	0.0333		79.9	30-120			
Benzo (a) anthracene	0.0268	0.00500	"	0.0333		80.5	30-120			
Benzo (a) pyrene	0.0282	0.00500	"	0.0333		84.7	30-120			
Benzo (b) fluoranthene	0.0310	0.00500	"	0.0333		93.0	30-120			
Benzo (k) fluoranthene	0.0299	0.00500	"	0.0333		89.8	30-120			
Chrysene	0.0246	0.00500	"	0.0333		73.7	30-120			
Dibenz (a,h) anthracene	0.0166	0.00500	"	0.0333		49.8	30-120			
Fluoranthene	0.0272	0.00500	"	0.0333		81.6	30-120			
Fluorene	0.0278	0.00500	"	0.0333		83.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0195	0.00500	"	0.0333		58.6	30-120			
Pyrene	0.0228	0.00500	"	0.0333		68.4	35-142			
1-Methylnaphthalene	0.0251	0.00500	"	0.0333		75.2	35-142			
2-Methylnaphthalene	0.0271	0.00500	"	0.0333		81.4	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0138</i>		"	<i>0.0333</i>		<i>41.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0147</i>		"	<i>0.0333</i>		<i>44.0</i>	<i>40-150</i>			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEI0074 - EPA 5030 Soil MS

Matrix Spike (BEI0074-MS1)		Source: 2109010-01			Prepared: 09/03/21		Analyzed: 09/04/21	
Acenaphthene	0.0239	0.00500	mg/kg	0.0333	ND	71.8	31-137	
Anthracene	0.0248	0.00500	"	0.0333	ND	74.5	30-120	
Benzo (a) anthracene	0.0258	0.00500	"	0.0333	ND	77.5	30-120	
Benzo (a) pyrene	0.0261	0.00500	"	0.0333	ND	78.3	30-120	
Benzo (b) fluoranthene	0.0284	0.00500	"	0.0333	ND	85.2	30-120	
Benzo (k) fluoranthene	0.0279	0.00500	"	0.0333	ND	83.7	30-120	
Chrysene	0.0236	0.00500	"	0.0333	ND	70.9	30-120	
Dibenz (a,h) anthracene	0.0141	0.00500	"	0.0333	ND	42.3	30-120	
Fluoranthene	0.0258	0.00500	"	0.0333	ND	77.5	30-120	
Fluorene	0.0254	0.00500	"	0.0333	ND	76.1	30-120	
Indeno (1,2,3-cd) pyrene	0.0161	0.00500	"	0.0333	ND	48.2	30-120	
Pyrene	0.0227	0.00500	"	0.0333	ND	68.2	35-142	
1-Methylnaphthalene	0.0201	0.00500	"	0.0333	ND	60.2	15-130	
2-Methylnaphthalene	0.0245	0.00500	"	0.0333	ND	73.6	15-130	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0193</i>		"	<i>0.0333</i>		<i>57.9</i>	<i>40-150</i>	
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0140</i>		"	<i>0.0333</i>		<i>41.9</i>	<i>40-150</i>	

Matrix Spike Dup (BEI0074-MSD1)		Source: 2109010-01			Prepared: 09/03/21		Analyzed: 09/04/21	
Acenaphthene	0.0250	0.00500	mg/kg	0.0333	ND	75.1	31-137	4.62 30
Anthracene	0.0244	0.00500	"	0.0333	ND	73.2	30-120	1.77 30
Benzo (a) anthracene	0.0260	0.00500	"	0.0333	ND	78.0	30-120	0.727 30
Benzo (a) pyrene	0.0263	0.00500	"	0.0333	ND	78.8	30-120	0.675 30
Benzo (b) fluoranthene	0.0288	0.00500	"	0.0333	ND	86.5	30-120	1.54 30
Benzo (k) fluoranthene	0.0288	0.00500	"	0.0333	ND	86.3	30-120	3.05 30
Chrysene	0.0238	0.00500	"	0.0333	ND	71.5	30-120	0.841 30
Dibenz (a,h) anthracene	0.0139	0.00500	"	0.0333	ND	41.7	30-120	1.42 30
Fluoranthene	0.0250	0.00500	"	0.0333	ND	75.0	30-120	3.23 30
Fluorene	0.0265	0.00500	"	0.0333	ND	79.4	30-120	4.23 30
Indeno (1,2,3-cd) pyrene	0.0156	0.00500	"	0.0333	ND	46.9	30-120	2.77 30
Pyrene	0.0228	0.00500	"	0.0333	ND	68.3	35-142	0.0865 30
1-Methylnaphthalene	0.0203	0.00500	"	0.0333	ND	60.9	15-130	1.24 50
2-Methylnaphthalene	0.0249	0.00500	"	0.0333	ND	74.6	15-130	1.30 50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0198</i>		"	<i>0.0333</i>		<i>59.5</i>	<i>40-150</i>	
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0134</i>		"	<i>0.0333</i>		<i>40.2</i>	<i>40-150</i>	

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

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

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

Batch BEI0141 - EPA 3050B

Blank (BEI0141-BLK1)

Prepared: 09/08/21 Analyzed: 09/09/21

Boron ND 0.0100 mg/L

LCS (BEI0141-BS1)

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 5.17 0.0100 mg/L 5.00 103 80-120

Duplicate (BEI0141-DUP1)

Source: 2109014-03

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 0.0893 0.0100 mg/L 0.0982 9.42 20

Matrix Spike (BEI0141-MS1)

Source: 2109014-03

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 5.13 0.0100 mg/L 5.00 0.0982 101 75-125

Matrix Spike Dup (BEI0141-MSD1)

Source: 2109014-03

Prepared: 09/08/21 Analyzed: 09/09/21

Boron 5.12 0.0100 mg/L 5.00 0.0982 100 75-125 0.139 25

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEI0191 - EPA 3050B

Blank (BEI0191-BLK1)

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	ND	0.200	mg/kg wet						
Barium	ND	0.400	"						
Cadmium	ND	0.200	"						
Copper	ND	0.400	"						
Lead	ND	0.200	"						
Nickel	ND	0.400	"						
Selenium	ND	0.260	"						
Silver	ND	0.0200	"						
Zinc	ND	0.400	"						

LCS (BEI0191-BS1)

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	46.3	0.200	mg/kg wet	40.0		116	80-120
Barium	40.6	0.400	"	40.0		102	80-120
Cadmium	2.15	0.200	"	2.00		108	80-120
Copper	40.6	0.400	"	40.0		102	80-120
Lead	20.1	0.200	"	20.0		101	80-120
Nickel	39.3	0.400	"	40.0		98.2	80-120
Selenium	4.10	0.260	"	4.00		102	80-120
Silver	1.95	0.0200	"	2.00		97.3	80-120
Zinc	46.7	0.400	"	40.0		117	80-120

Duplicate (BEI0191-DUP1)

Source: 2109029-01

Prepared: 09/09/21 Analyzed: 09/12/21

Arsenic	2.15	0.247	mg/kg dry		2.25		4.79	20
Barium	88.2	0.494	"		90.7		2.72	20
Cadmium	0.0240	0.247	"		0.0253		5.02	20
Copper	2.42	0.494	"		2.33		3.76	20
Lead	7.12	0.247	"		7.06		0.926	20
Nickel	1.51	0.494	"		1.53		1.04	20
Selenium	0.408	0.321	"		0.343		17.3	20
Silver	0.0593	0.0247	"		0.0500		17.0	20
Zinc	10.3	0.494	"		9.38		9.11	20

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEI0191 - EPA 3050B

Matrix Spike (BEI0191-MS1)	Source: 2109029-01			Prepared: 09/09/21		Analyzed: 09/12/21					
Arsenic	63.9	0.247	mg/kg dry	49.4	2.25	125	75-125				
Barium	148	0.494	"	49.4	90.7	117	75-125				
Cadmium	3.08	0.247	"	2.47	0.0253	124	75-125				
Copper	62.2	0.494	"	49.4	2.33	121	75-125				
Lead	33.7	0.247	"	24.7	7.06	108	75-125				
Nickel	61.1	0.494	"	49.4	1.53	121	75-125				
Selenium	6.38	0.321	"	4.94	0.343	122	75-125				
Silver	2.56	0.0247	"	2.47	0.0500	102	75-125				
Zinc	53.2	0.494	"	49.4	9.38	88.6	75-125				

Matrix Spike Dup (BEI0191-MSD1)	Source: 2109029-01			Prepared: 09/09/21		Analyzed: 09/12/21					
Arsenic	58.4	0.247	mg/kg dry	49.4	2.25	114	75-125	8.99	25		
Barium	150	0.494	"	49.4	90.7	121	75-125	1.32	25		
Cadmium	2.71	0.247	"	2.47	0.0253	109	75-125	12.9	25		
Copper	54.9	0.494	"	49.4	2.33	106	75-125	12.5	25		
Lead	36.8	0.247	"	24.7	7.06	120	75-125	8.72	25		
Nickel	54.8	0.494	"	49.4	1.53	108	75-125	10.9	25		
Selenium	5.83	0.321	"	4.94	0.343	111	75-125	9.13	25		
Silver	2.30	0.0247	"	2.47	0.0500	91.2	75-125	10.7	25		
Zinc	60.0	0.494	"	49.4	9.38	102	75-125	12.1	25		

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BEI0214 - 3060A Mod

Blank (BEI0214-BLK1)

Prepared & Analyzed: 09/10/21

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BEI0214-BS1)

Prepared & Analyzed: 09/10/21

Chromium, Hexavalent 26.0 0.30 mg/kg wet 25.0 104 80-120

Duplicate (BEI0214-DUP1)

Source: 2108359-08

Prepared & Analyzed: 09/10/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BEI0214-MS1)

Source: 2108359-08

Prepared & Analyzed: 09/10/21

Chromium, Hexavalent 35.3 0.30 mg/kg dry 28.9 ND 122 75-125

Matrix Spike Dup (BEI0214-MSD1)

Source: 2108359-08

Prepared & Analyzed: 09/10/21

Chromium, Hexavalent 35.3 0.30 mg/kg dry 28.9 ND 122 75-125 0.00 20

Summit Scientific



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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

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

Summit Scientific

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

Batch BEI0186 - General Preparation

Blank (BEI0186-BLK1)

Prepared & Analyzed: 09/09/21

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

LCS (BEI0186-BS1)

Prepared & Analyzed: 09/09/21

Calcium	5.31	0.0500	mg/L wet	5.00		106	70-130			
Magnesium	5.01	0.0500	"	5.00		100	70-130			
Sodium	4.89	0.0500	"	5.00		97.9	70-130			

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

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

Summit Scientific

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

Batch BEI0147 - General Preparation

Duplicate (BEI0147-DUP1)		Source: 2109014-01			Prepared & Analyzed: 09/08/21			
% Solids	97.0		%		97.7		0.721	20

Batch BEI0202 - General Preparation

Duplicate (BEI0202-DUP1)		Source: 2109038-05			Prepared & Analyzed: 09/10/21			
% Solids	88.1		%		88.3		0.227	20

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

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

Summit Scientific

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

Batch BEI0187 - General Preparation

Blank (BEI0187-BLK1)

Prepared: 09/09/21 Analyzed: 09/10/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEI0187-BS1)

Prepared: 09/09/21 Analyzed: 09/10/21

Specific Conductance (EC) 0.137 0.0100 mmhos/cm 0.150 91.5 90-110

Duplicate (BEI0187-DUP1)

Source: 2109036-01

Prepared: 09/09/21 Analyzed: 09/10/21

Specific Conductance (EC) 0.742 0.0100 mmhos/cm 0.735 0.947 20

Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 09/14/21 17:52

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

Summit Scientific

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

Batch BEI0188 - General Preparation

LCS (BEI0188-BS1)

Prepared: 09/09/21 Analyzed: 09/10/21

pH	9.33	pH Units	9.21	101	95-105
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Duplicate (BEI0188-DUP1)

Source: 2109036-01

Prepared: 09/09/21 Analyzed: 09/10/21

pH	8.55	pH Units	8.75	2.31	20
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Summit Scientific

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

Project: Von Foldt 13-12 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/14/21 17:52

Notes and Definitions

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