

TABLE 1
FORMER HALL 28-5 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽⁴⁾ (mg/kg)
Residential SSL ^(1,2)			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL ^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
WH01 @ 6'	10/21/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 3'	10/21/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-02 @ 3'	10/21/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-04 @ 3'	10/21/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER HALL 28-5 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
WH01 @ 6'	10/8/2021	6 ft. bgs	8.44	1.77	4.42	0.135
FLR01 @ 3'	10/21/2021	3 ft. bgs	7.58	0.247	0.388	0.0906
BKG01 @ 3'	10/21/2021	3 ft. bgs	7.68	NA	NA	NA
BKG01 @ 6'	10/21/2021	6 ft. bgs	7.89	NA	NA	NA

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

NA = Constituent not analyzed

TABLE 3
FORMER HALL 28-5 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH01 @ 6'	10/21/2021	6 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLR01 @ 3'	10/21/2021	3 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Notes:

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

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. SSLs are applicable if a pathway for communication with

COGCC = Colorado Oil and Gas Conservation Commission

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

PAHs = Polycyclic aromatic hydrocarbons

Benzo(a) = Benzoanthracene

Benzo(a) = Benzopyrene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylnaphthalene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

TABLE 4
FORMER HALL 28-5 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.)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-
GW01	10/21/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6
GW02	10/21/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3

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 5
FORMER HALL 28-5 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
BKG01 @ 3'	10/21/2021	6 ft. bgs	40.374375	-104.550683	1.1	0.6
BKG01 @ 6'	10/21/2021	3 ft. bgs	40.374375	-104.550683	1.1	0.8
WHS01-N @ 0-6"	10/21/2021	0-6 in. bgs	40.374476	-104.550547	1.1	1.1
WHS01-W @ 0-6"	10/21/2021	0-6 in. bgs	40.374445	-104.550566	1.1	1.3
WHS01-S @ 0-6"	10/21/2021	0-6 in. bgs	40.374423	-104.550496	1.1	1.3
WHS01-E @ 0-6"	10/21/2021	0-6 in. bgs	40.374462	-104.550459	1.1	1.4
WH01 @ 6'	10/21/2021	6 ft. bgs	40.374456	-104.550515	1.1	1.1
FLR01 @ 4'	10/21/2021	4 ft. bgs	40.374467	-104.550501	1.1	0.7
FL01-01 @ 3'	10/21/2021	3 ft. bgs	40.374069	-104.549392	1	1.3
FL01-02 @ 3'	10/21/2021	3 ft. bgs	40.373893	-104.548874	0.9	2.0
FL01-03 @ 3'	10/21/2021	3 ft. bgs	40.373640	-104.548133	1.1	1.6
FL01-04 @ 3'	10/21/2021	3 ft. bgs	40.373360	-104.547281	1	1.4
FL01-05 @ 3'	10/21/2021	3 ft. bgs	40.373122	-104.546584	1	1.6

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

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 02, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Hall 28-5 Wellhead

Work Order #2110363

Enclosed are the results of analyses for samples received by Summit Scientific on 10/21/21 15:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury

President



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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG01@3'	2110363-01	Soil	10/21/21 11:20	10/21/21 15:45
BKG01@6'	2110363-02	Soil	10/21/21 11:22	10/21/21 15:45
WH01@6'	2110363-03	Soil	10/21/21 11:45	10/21/21 15:45
FLR01@3'	2110363-04	Soil	10/21/21 11:57	10/21/21 15:45
FL01-02@3'	2110363-05	Soil	10/21/21 12:54	10/21/21 15:45
FL01-04@3'	2110363-06	Soil	10/21/21 13:02	10/21/21 15:45
GW01	2110363-07	Water	10/21/21 11:53	10/21/21 15:45
GW02	2110363-08	Water	10/21/21 12:56	10/21/21 15:45

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.

Summit Scientific

S₂

2110363.1

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 2

Client: PDC / Tasman

Project Manager: Mark Longhurst

Address: 6855 W 119th Ave

E-Mail: mark.longhurst@PDCE.com

City/State/Zip: Broomfield/ CO/ 80020

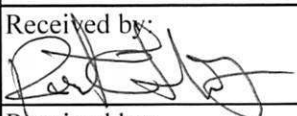
Phone: 303-487-1228

Project Name: Hall 28-5 well head

Sampler Name: David Vigil

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	VOC - 915	PAH - 915	Metals - 915	TMBS (1,2,4)&(1,3,5)	
1	BKG01 @ 3'	10/21/21	1120	1			X			X											pH, EC, SAR by saturated paste
2	BKG01 @ 6'		1122	1			X			X											X
3	WHO1 @ 6'		1145	3			X			X			X	X	X	X		X		X	
4	FLR01 @ 3'		1157	3			X			X			X	X	X	X		X		X	
5	FL01-02 @ 3'		1254	2			X			X			X	X						X	
6	FL01-04 @ 3'		1302	2			X			X			X	X						X	
7																					
8																					
9																					
10																					

Relinquished by: David Vigil	Date/Time: 10/21/21 1545	Received by: Tasman's Lock Box	Date/Time:	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 10/21/21 1545	Sample Integrity: Temperature Upon Receipt: 7.8	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: (Yes) No	

S_2

303-277-9310

Project Number:

					Preservative				Matrix				Analysis Requested								Special Instructions										
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	VOC - 915	PAH - 915	Metals - 915	TMBs (1,2,4)&(1,3,5)	pH, EC, SAR by saturated paste										
1	G1W01	10/21/21	1153	3	X				X				X								X										
2	G1W02	↓	1256	3	X				X				X								X										
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time		(Check)		Notes:																			
David Vigil		10/21/21 1545		Tasman's Lock Box		10-21-21 1545		Same Day		X																					
Tasman's Lock Box								24 hours		—																					
Relinquished by:		Date/Time:		Received by:		Date/Time:		Sample Integrity:		Temperature Upon Receipt:																					
Tasman's Lock Box								7.8		7.8																					
Relinquished by:		Date/Time:		Received by:		Date/Time:		Samples Intact:		Yes																					
								No																							

S₂

2/2

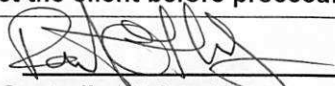
Sample Receipt Checklist

S2 Work Order# **2110363**Client: Pbc / Tasman Client Project ID: Hall 28-5 wellheadShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☒ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☒ Water ☐ Other: _____ (Describe)Temp (°C) 7.8

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
Were all samples received intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input 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 type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input 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.

 Custodian Printed Name or Initials

10-21-21
 Date/Time



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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

BKG01@3'
2110363-01 (Soil)

Summit Scientific

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

Date Sampled: **10/21/21 11:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.68			pH Units	1	BEK0234	11/10/21	11/10/21	EPA 9045D	

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

BKG01@6'
2110363-02 (Soil)

Summit Scientific

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

Date Sampled: **10/21/21 11:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.89			pH Units	1	BEK0234	11/10/21	11/10/21	EPA 9045D	

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

WH01@6'
2110363-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		109 %	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: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

WH01@6'
2110363-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEJ0399	10/22/21	11/05/21	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: **10/21/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		67.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		55.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.135	0.0100	mg/L	1	BEJ0516	10/26/21	10/27/21	EPA 6020B	

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

Date Sampled: **10/21/21 11:45**

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

WH01@6'
2110363-03 (Soil)

Summit Scientific

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

Calcium	140	0.0634	mg/L dry	1	BEJ0538	10/27/21	10/28/21	EPA 6020B
Magnesium	34.5	0.0634	"	"	"	"	"	"
Sodium	225	0.0634	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.42	0.00100	units	1	BEJ0605	10/29/21	10/29/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	78.8		%	1	BEJ0448	10/22/21	10/22/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.77	0.0100	mmhos/cm	1	BEJ0586	10/28/21	10/28/21	EPA 120.1	

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

Date Sampled: **10/21/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.44		pH Units	1	BEJ0584	10/28/21	10/28/21	EPA 9045D	

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

FLR01@3'
2110363-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/21/21 11:57**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

FLR01@3'
2110363-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEJ0399	10/22/21	11/05/21	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: **10/21/21 11:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		55.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		40.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0906	0.0100	mg/L	1	BEJ0516	10/26/21	10/27/21	EPA 6020B	

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

Date Sampled: **10/21/21 11:57**

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: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

FLR01@3'
2110363-04 (Soil)

Summit Scientific

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

Calcium	19.0	0.0535	mg/L dry	1	BEJ0538	10/27/21	10/28/21	EPA 6020B
Magnesium	6.34	0.0535	"	"	"	"	"	"
Sodium	7.64	0.0535	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.388	0.00100	units	1	BEJ0605	10/29/21	10/29/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.4		%	1	BEJ0448	10/22/21	10/22/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.247	0.0100	mmhos/cm	1	BEJ0586	10/28/21	10/28/21	EPA 120.1	

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

Date Sampled: **10/21/21 11:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.58		pH Units	1	BEJ0584	10/28/21	10/28/21	EPA 9045D	

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

FL01-02@3'
2110363-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/21 12:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/21/21 12:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/21/21 12:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/21/21 12:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		119 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

FL01-04@3'
2110363-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/21 13:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/21/21 13:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/21/21 13:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/21/21 13:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		120 %	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: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

GW01
2110363-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/21 11:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEJ0410	10/21/21	10/22/21	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: **10/21/21 11:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.8 %	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: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

GW02
2110363-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/21 12:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEJ0410	10/21/21	10/22/21	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: **10/21/21 12:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.3 %	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: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEJ0410 - EPA 5030 Water MS

Blank (BEJ0410-BLK1)

Prepared: 10/21/21 Analyzed: 10/22/21

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	14.9		"	13.3		112	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3		102	21-167			

LCS (BEJ0410-BS1)

Prepared: 10/21/21 Analyzed: 10/22/21

Benzene	36.1	1.0	ug/l	33.3		108	51-132			
Toluene	43.7	1.0	"	33.3		131	51-138			
Ethylbenzene	42.8	1.0	"	33.3		128	58-146			
m,p-Xylene	82.2	2.0	"	66.7		123	57-144			
o-Xylene	42.7	1.0	"	33.3		128	53-146			
Naphthalene	36.2	1.0	"	33.3		109	70-130			
1,2,4-Trimethylbenzene	40.2	1.0	"	33.3		121	70-130			
1,3,5-Trimethylbenzene	39.2	1.0	"	33.3		118	70-130			
Surrogate: 1,2-Dichloroethane-d4	15.4		"	13.3		116	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.5	21-167			

Matrix Spike (BEJ0410-MS1)

Source: 2110271-01

Prepared: 10/21/21 Analyzed: 10/22/21

Benzene	35.9	1.0	ug/l	33.3	ND	108	34-141			
Toluene	38.9	1.0	"	33.3	ND	117	27-151			
Ethylbenzene	42.3	1.0	"	33.3	ND	127	29-160			
m,p-Xylene	81.9	2.0	"	66.7	ND	123	20-166			
o-Xylene	41.8	1.0	"	33.3	ND	125	33-159			
Naphthalene	37.2	1.0	"	33.3	ND	112	70-130			
1,2,4-Trimethylbenzene	40.3	1.0	"	33.3	ND	121	70-130			
1,3,5-Trimethylbenzene	38.4	1.0	"	33.3	ND	115	70-130			
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.3		116	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.3	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.7	21-167			

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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

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

Batch BEJ0410 - EPA 5030 Water MS

Matrix Spike Dup (BEJ0410-MSD1)	Source: 2110271-01			Prepared: 10/21/21		Analyzed: 10/22/21				
Benzene	36.4	1.0	ug/l	33.3	ND	109	34-141	1.25	30	
Toluene	39.2	1.0	"	33.3	ND	118	27-151	0.768	30	
Ethylbenzene	42.1	1.0	"	33.3	ND	126	29-160	0.427	30	
m,p-Xylene	81.0	2.0	"	66.7	ND	122	20-166	1.06	30	
o-Xylene	41.3	1.0	"	33.3	ND	124	33-159	1.13	30	
Naphthalene	40.0	1.0	"	33.3	ND	120	70-130	7.24	30	
1,2,4-Trimethylbenzene	39.8	1.0	"	33.3	ND	119	70-130	1.40	30	
1,3,5-Trimethylbenzene	39.1	1.0	"	33.3	ND	117	70-130	1.57	30	
Surrogate: 1,2-Dichloroethane-d4	17.0		"	13.3		128	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.0	21-167			

Batch BEJ0562 - EPA 5030 Soil MS

Blank (BEJ0562-BLK1)	Prepared: 10/27/21 Analyzed: 10/28/21									
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	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.6	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: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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

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

Batch BEJ0562 - EPA 5030 Soil MS

LCS (BEJ0562-BS1)

Prepared: 10/27/21 Analyzed: 10/28/21

Benzene	0.137	0.0020	mg/kg	0.150		91.6	70-130			
Toluene	0.139	0.0050	"	0.150		92.5	70-130			
Ethylbenzene	0.137	0.0050	"	0.150		91.1	70-130			
m,p-Xylene	0.279	0.010	"	0.300		92.9	70-130			
o-Xylene	0.138	0.0050	"	0.150		92.1	70-130			
1,2,4-Trimethylbenzene	0.140	0.0050	"	0.150		93.4	70-130			
1,3,5-Trimethylbenzene	0.137	0.0050	"	0.150		91.2	70-130			
Naphthalene	0.136	0.0038	"	0.150		90.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0405		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0402		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	21-167			

Matrix Spike (BEJ0562-MS1)

Source: 2110363-03

Prepared: 10/27/21 Analyzed: 10/28/21

Benzene	0.140	0.0020	mg/kg	0.150	ND	93.5	70-130			
Toluene	0.140	0.0050	"	0.150	ND	93.2	70-130			
Ethylbenzene	0.137	0.0050	"	0.150	ND	91.1	70-130			
m,p-Xylene	0.277	0.010	"	0.300	ND	92.3	70-130			
o-Xylene	0.136	0.0050	"	0.150	ND	90.4	70-130			
1,2,4-Trimethylbenzene	0.138	0.0050	"	0.150	ND	92.1	70-130			
1,3,5-Trimethylbenzene	0.137	0.0050	"	0.150	ND	91.3	70-130			
Naphthalene	0.134	0.0038	"	0.150	ND	89.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

Matrix Spike Dup (BEJ0562-MSD1)

Source: 2110363-03

Prepared: 10/27/21 Analyzed: 10/28/21

Benzene	0.141	0.0020	mg/kg	0.150	ND	93.8	70-130	0.363	30	
Toluene	0.141	0.0050	"	0.150	ND	93.9	70-130	0.706	30	
Ethylbenzene	0.139	0.0050	"	0.150	ND	92.6	70-130	1.59	30	
m,p-Xylene	0.282	0.010	"	0.300	ND	94.0	70-130	1.76	30	
o-Xylene	0.137	0.0050	"	0.150	ND	91.5	70-130	1.19	30	
1,2,4-Trimethylbenzene	0.142	0.0050	"	0.150	ND	94.4	70-130	2.47	30	
1,3,5-Trimethylbenzene	0.140	0.0050	"	0.150	ND	93.1	70-130	1.97	30	
Naphthalene	0.137	0.0038	"	0.150	ND	91.6	70-130	2.25	30	
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	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: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEJ0564 - EPA 3550A

Blank (BEJ0564-BLK1)

Prepared: 10/27/21 Analyzed: 10/28/21

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

LCS (BEJ0564-BS1)

Prepared: 10/27/21 Analyzed: 10/28/21

C10-C28 (DRO)	451	50	mg/kg	500		90.3	70-130				
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Matrix Spike (BEJ0564-MS1)

Source: 2110363-03

Prepared: 10/27/21 Analyzed: 10/28/21

C10-C28 (DRO)	493	50	mg/kg	500	26.8	93.3	70-130				
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Matrix Spike Dup (BEJ0564-MSD1)

Source: 2110363-03

Prepared: 10/27/21 Analyzed: 10/28/21

C10-C28 (DRO)	531	50	mg/kg	500	26.8	101	70-130	7.36	20		
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Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEJ0399 - EPA 5030 Soil MS

Blank (BEJ0399-BLK1)

Prepared: 10/21/21 Analyzed: 11/04/21

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	"								
Surrogate: 2-Methylnaphthalene-d10	0.0213		"	0.0333		63.8		40-150			
Surrogate: Fluoranthene-d10	0.0186		"	0.0333		55.7		40-150			

LCS (BEJ0399-BS1)

Prepared: 10/21/21 Analyzed: 11/04/21

Acenaphthene	0.0350	0.00500	mg/kg	0.0333		105		31-137			
Anthracene	0.0329	0.00500	"	0.0333		98.8		30-120			
Benzo (a) anthracene	0.0334	0.00500	"	0.0333		100		30-120			
Benzo (a) pyrene	0.0337	0.00500	"	0.0333		101		30-120			
Benzo (b) fluoranthene	0.0355	0.00500	"	0.0333		106		30-120			
Benzo (k) fluoranthene	0.0341	0.00500	"	0.0333		102		30-120			
Chrysene	0.0305	0.00500	"	0.0333		91.5		30-120			
Dibenz (a,h) anthracene	0.0342	0.00500	"	0.0333		102		30-120			
Fluoranthene	0.0350	0.00500	"	0.0333		105		30-120			
Fluorene	0.0369	0.00500	"	0.0333		111		30-120			
Indeno (1,2,3-cd) pyrene	0.0251	0.00500	"	0.0333		75.4		30-120			
Pyrene	0.0336	0.00500	"	0.0333		101		35-142			
1-Methylnaphthalene	0.0394	0.00500	"	0.0333		118		35-142			
2-Methylnaphthalene	0.0394	0.00500	"	0.0333		118		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0337		"	0.0333		101		40-150			
Surrogate: Fluoranthene-d10	0.0343		"	0.0333		103		40-150			

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEJ0399 - EPA 5030 Soil MS

Matrix Spike (BEJ0399-MS1)

Source: 2110325-02

Prepared: 10/21/21 Analyzed: 11/04/21

Acenaphthene	0.0168	0.00500	mg/kg	0.0333	ND	50.5	31-137		
Anthracene	0.0174	0.00500	"	0.0333	ND	52.2	30-120		
Benzo (a) anthracene	0.0196	0.00500	"	0.0333	0.00211	52.4	30-120		
Benzo (a) pyrene	0.0201	0.00500	"	0.0333	0.00316	50.9	30-120		
Benzo (b) fluoranthene	0.0209	0.00500	"	0.0333	0.00652	43.1	30-120		
Benzo (k) fluoranthene	0.0210	0.00500	"	0.0333	ND	62.9	30-120		
Chrysene	0.0178	0.00500	"	0.0333	0.00658	33.8	30-120		
Dibenz (a,h) anthracene	0.0211	0.00500	"	0.0333	ND	63.2	30-120		
Fluoranthene	0.0190	0.00500	"	0.0333	ND	56.9	30-120		
Fluorene	0.0191	0.00500	"	0.0333	ND	57.4	30-120		
Indeno (1,2,3-cd) pyrene	0.0144	0.00500	"	0.0333	0.00315	33.7	30-120		
Pyrene	0.0201	0.00500	"	0.0333	0.00326	50.4	35-142		
1-Methylnaphthalene	0.0189	0.00500	"	0.0333	ND	56.8	15-130		
2-Methylnaphthalene	0.0195	0.00500	"	0.0333	ND	58.4	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0197		"	0.0333		59.0	40-150		
Surrogate: Fluoranthene-d10	0.0197		"	0.0333		59.2	40-150		

Matrix Spike Dup (BEJ0399-MSD1)

Source: 2110325-02

Prepared: 10/21/21 Analyzed: 11/04/21

Acenaphthene	0.0176	0.00500	mg/kg	0.0333	ND	52.8	31-137	4.38	30
Anthracene	0.0177	0.00500	"	0.0333	ND	53.0	30-120	1.45	30
Benzo (a) anthracene	0.0202	0.00500	"	0.0333	0.00211	54.3	30-120	3.30	30
Benzo (a) pyrene	0.0207	0.00500	"	0.0333	0.00316	52.5	30-120	2.56	30
Benzo (b) fluoranthene	0.0215	0.00500	"	0.0333	0.00652	45.0	30-120	2.88	30
Benzo (k) fluoranthene	0.0216	0.00500	"	0.0333	ND	64.7	30-120	2.78	30
Chrysene	0.0182	0.00500	"	0.0333	0.00658	35.0	30-120	2.30	30
Dibenz (a,h) anthracene	0.0222	0.00500	"	0.0333	ND	66.7	30-120	5.25	30
Fluoranthene	0.0197	0.00500	"	0.0333	ND	59.0	30-120	3.69	30
Fluorene	0.0196	0.00500	"	0.0333	ND	58.7	30-120	2.29	30
Indeno (1,2,3-cd) pyrene	0.0156	0.00500	"	0.0333	0.00315	37.3	30-120	8.00	30
Pyrene	0.0202	0.00500	"	0.0333	0.00326	50.7	35-142	0.486	30
1-Methylnaphthalene	0.0204	0.00500	"	0.0333	ND	61.1	15-130	7.40	50
2-Methylnaphthalene	0.0214	0.00500	"	0.0333	ND	64.1	15-130	9.20	50
Surrogate: 2-Methylnaphthalene-d10	0.0196		"	0.0333		58.7	40-150		
Surrogate: Fluoranthene-d10	0.0204		"	0.0333		61.1	40-150		

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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

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

Batch BEJ0516 - EPA 3050B

Blank (BEJ0516-BLK1)

Prepared: 10/26/21 Analyzed: 10/27/21

Boron ND 0.0100 mg/L

LCS (BEJ0516-BS1)

Prepared: 10/26/21 Analyzed: 10/27/21

Boron 4.59 0.0100 mg/L 5.00 91.8 80-120

Duplicate (BEJ0516-DUP1)

Source: 2110338-01

Prepared: 10/26/21 Analyzed: 10/27/21

Boron 0.144 0.0100 mg/L 0.170 16.3 20

Matrix Spike (BEJ0516-MS1)

Source: 2110338-01

Prepared: 10/26/21 Analyzed: 10/27/21

Boron 4.97 0.0100 mg/L 5.00 0.170 96.0 75-125

Matrix Spike Dup (BEJ0516-MSD1)

Source: 2110338-01

Prepared: 10/26/21 Analyzed: 10/27/21

Boron 4.91 0.0100 mg/L 5.00 0.170 94.9 75-125 1.16 25

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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

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

Batch BEJ0538 - General Preparation

Blank (BEJ0538-BLK1)

Prepared: 10/27/21 Analyzed: 10/28/21

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

LCS (BEJ0538-BS1)

Prepared: 10/27/21 Analyzed: 10/28/21

Calcium	5.39	0.0500	mg/L wet	5.00	108	70-130
Magnesium	5.01	0.0500	"	5.00	100	70-130
Sodium	5.09	0.0500	"	5.00	102	70-130

Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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

Summit Scientific

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

Batch BEJ0448 - General Preparation

Duplicate (BEJ0448-DUP1)

Source: 2110363-03

Prepared & Analyzed: 10/22/21

% Solids	81.5	%	78.8	3.38	20
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Summit Scientific

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

Project: Hall 28-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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

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

Batch BEJ0586 - General Preparation

Blank (BEJ0586-BLK1)

Prepared & Analyzed: 10/28/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

Duplicate (BEJ0586-DUP1)

Source: 2110321-01

Prepared & Analyzed: 10/28/21

Specific Conductance (EC) 0.726 0.0100 mmhos/cm 0.722 0.594 20

Summit Scientific

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

Project: Hall 28-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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

Summit Scientific

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

Batch BEJ0584 - General Preparation

LCS (BEJ0584-BS1)

Prepared & Analyzed: 10/28/21

pH	9.20		pH Units	9.18	100	95-105
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Duplicate (BEJ0584-DUP1)

Source: 2110321-01

Prepared & Analyzed: 10/28/21

pH	8.06		pH Units	8.02		0.498	20
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Batch BEK0234 - General Preparation

LCS (BEK0234-BS1)

Prepared & Analyzed: 11/10/21

pH	9.01		pH Units	9.18	98.1	95-105
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Duplicate (BEK0234-DUP1)

Source: 2111099-01

Prepared & Analyzed: 11/10/21

pH	8.13		pH Units	8.10		0.370	20
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Summit Scientific

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

Project: Hall 28-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
12/02/21 13:46

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