

TABLE 1
FORMER L & T 22-15 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽⁴⁾ (mg/kg)
Residential SSL^(1,2)			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
WH01 @ 6'	9/15/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 4'	9/15/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER L & T 22-15 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'	9/15/2021	6 ft. bgs	8.10	0.422	0.0698	0.306
FLR01 @ 4'	9/15/2021	4 ft. bgs	8.55	0.257	0.0114	0.0610
BKG01 @ 4'	9/15/2021	4 ft. bgs	9.03	NA	NA	NA
BKG01 @ 6'	9/15/2021	6 ft. bgs	8.98	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.

BOLD = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

NA = Constituent not analyzed

TABLE 3
FORMER L & T 22-15 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'	9/15/2021	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 @ 4'	9/15/2021	4 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:

- 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
- COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
PAHs = Polycyclic aromatic hydrocarbons
Benz(a) = Benzantracene
Benzo(a) = Benzopyrene
Benzo(b) = Benzo(a)fluoranthene
Benzo(k) = Benzo(a)fluoranthene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
M = Methylanthalene
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface

TABLE 4
FORMER L & T 22-15 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
WH01 @ 6'	9/15/2021	6 ft. bgs	40.388793	-104.873625	1.7	0.1
FLR01 @ 4'	9/15/2021	4 ft. bgs	40.388808	-104.873620	1.6	0.0
WHS01-N @ 0-6"	9/15/2021	0-6 in. bgs	40.388834	-104.873621	1.1	0.0
WHS01-W @ 0-6"	9/15/2021	0-6 in. bgs	40.388799	-104.873667	1.0	0.0
WHS01-S @ 0-6"	9/15/2021	0-6 in. bgs	40.388751	-104.873661	1.1	0.0
WHS01-E @ 0-6"	9/15/2021	0-6 in. bgs	40.388767	-104.873577	1.1	0.0
FL01-01 @ 4'	9/15/2021	4 ft. bgs	40.389468	-104.873630	1.2	0.0
FL01-02 @ 4'	9/15/2021	4 ft. bgs	40.390158	-104.873643	1.2	0.1
FL01-03 @ 4'	9/15/2021	4 ft. bgs	40.390877	-104.873648	1.2	0.0
FL01-04 @ 4'	9/15/2021	4 ft. bgs	40.391800	-104.873638	1.1	0.0
FL01-05 @ 4'	9/15/2021	4 ft. bgs	40.392347	-104.873640	1.3	0.0
FL01-06 @ 4'	9/15/2021	4 ft. bgs	40.392339	-104.876852	1.1	0.0
FL01-07 @ 4'	9/15/2021	4 ft. bgs	40.392291	-104.877024	1.2	0.0
FL01-08 @ 4'	9/15/2021	4 ft. bgs	40.392210	-104.877174	1.0	0.0
BKG01 @ 4'	9/15/2021	4 ft. bgs	40.388670	-104.873739	1.2	0.0
BKG01 @ 6'	9/15/2021	6 ft. bgs	40.388670	-104.873739	1.2	0.1

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

September 29, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: L&T 22-15 Wellhead

Work Order #2109241

Enclosed are the results of analyses for samples received by Summit Scientific on 09/15/21 17:55. 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: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2109241-01	Soil	09/15/21 09:50	09/15/21 17:55
FLR01@4'	2109241-02	Soil	09/15/21 09:52	09/15/21 17:55
BKG01@4'	2109241-03	Soil	09/15/21 10:46	09/15/21 17:55
BKG01@6'	2109241-04	Soil	09/15/21 10:50	09/15/21 17:55

Summit Scientific

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2109241

Page of

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 _____	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	_____	_____	_____		
1	WHOI @ 6'	9/15/21	9:50	3			X			X			X	X	X	X	X					
2	FLROI @ 4'	↓	9:52	3			X			X			X	X	X	X	X					
3	BHG01 @ 4'	↓	10:46	3			X			X								X				
4	BHG01 @ 6'	↓	10:50	3			X			X								X				
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by: Dylan Brightwell Date/Time: 9/15/21 15:10 Received by: Tasman's Lock Box Date/Time: 9/15/21 15:10 Turn Around Time (Check) Same Day ___ 72 hours ___ 24 hours ___ Standard X 48 hours ___

Relinquished by: Tasman's Lock Box Date/Time: 9/15/21 1755 Received by: Will [Signature] Date/Time: 9/15/21 1755 Sample Integrity: Temperature Upon Receipt: 10 Samples Intact: Yes No

Relinquished by: Date/Time: Received by: Date/Time:

2109241

Sample Receipt Checklist

S2 Work Order _____

Client: PDC/HASMAN Client Project ID: LG 22-15 wellheadShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)Temp (°C) 10

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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.WLG
Custodian Printed Name or InitialsWill Goh
Signature of Custodian9/15/21
Date/Time



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

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

WH01@6'
2109241-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0385	09/17/21	09/18/21	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: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0384	09/17/21	09/18/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.3 %	30-150		"	"	09/18/21	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Summit Scientific

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

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

WH01@6'
2109241-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.306	0.0100	mg/L	1	BEI0438	09/21/21	09/22/21	EPA 6020B	

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

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	9.78	0.0582	mg/L dry	1	BEI0508	09/23/21	09/27/21	EPA 6020B	
Magnesium	2.58	0.0582	"	"	"	"	"	"	
Sodium	0.949	0.0582	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0698	0.00100	units	1	BEI0558	09/27/21	09/27/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.9		%	1	BEI0463	09/22/21	09/23/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.422	0.0100	mmhos/cm	1	BEI0510	09/23/21	09/24/21	EPA 120.1	

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

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

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

WH01@6'
2109241-01 (Soil)

Summit Scientific

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

Date Sampled: **09/15/21 09:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.10			pH Units	1	BEI0511	09/23/21	09/24/21	EPA 9045D	

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Denver CO, 80203

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

FLR01@4'
2109241-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0385	09/17/21	09/18/21	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: **09/15/21 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0384	09/17/21	09/18/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.1 %	30-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Summit Scientific

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

FLR01@4'
2109241-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0610	0.0100	mg/L	1	BEI0438	09/21/21	09/22/21	EPA 6020B	

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

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	10.0	0.0570	mg/L dry	1	BEI0508	09/23/21	09/27/21	EPA 6020B	
Magnesium	1.74	0.0570	"	"	"	"	"	"	
Sodium	0.149	0.0570	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0114	0.00100	units	1	BEI0558	09/27/21	09/27/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.8		%	1	BEI0463	09/22/21	09/23/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.257	0.0100	mmhos/cm	1	BEI0510	09/23/21	09/24/21	EPA 120.1	

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

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

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

FLR01@4'
2109241-02 (Soil)

Summit Scientific

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

Date Sampled: **09/15/21 09:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.55			pH Units	1	BEI0511	09/23/21	09/24/21	EPA 9045D	

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Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

BKG01@4'
2109241-03 (Soil)

Summit Scientific

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

Date Sampled: **09/15/21 10:46**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	9.03			pH Units	1	BEI0600	09/28/21	09/29/21	EPA 9045D	

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

BKG01@6'
2109241-04 (Soil)

Summit Scientific

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

Date Sampled: **09/15/21 10:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.98			pH Units	1	BEI0600	09/28/21	09/29/21	EPA 9045D	

Summit Scientific

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

Project: L&T 22-15 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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 BEI0385 - EPA 5030 Soil MS

Blank (BEI0385-BLK1)

Prepared: 09/17/21 Analyzed: 09/18/21

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	0.0459		"	0.0400		115	23-173			
Surrogate: Toluene-d8	0.0445		"	0.0400		111	20-170			
Surrogate: 4-Bromofluorobenzene	0.0407		"	0.0400		102	21-167			

LCS (BEI0385-BS1)

Prepared: 09/17/21 Analyzed: 09/18/21

Benzene	0.116	0.0020	mg/kg	0.100		116	70-130			
Toluene	0.103	0.0050	"	0.100		103	70-130			
Ethylbenzene	0.0943	0.0050	"	0.100		94.3	70-130			
m,p-Xylene	0.175	0.010	"	0.200		87.4	70-130			
o-Xylene	0.0936	0.0050	"	0.100		93.6	70-130			
1,2,4-Trimethylbenzene	0.0880	0.0050	"	0.100		88.0	70-130			
1,3,5-Trimethylbenzene	0.0857	0.0050	"	0.100		85.7	70-130			
Naphthalene	0.0902	0.0038	"	0.100		90.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0419		"	0.0400		105	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.4	21-167			

Matrix Spike (BEI0385-MS1)

Source: 2109240-02

Prepared: 09/17/21 Analyzed: 09/18/21

Benzene	0.124	0.0020	mg/kg	0.100	ND	124	70-130			
Toluene	0.108	0.0050	"	0.100	ND	108	70-130			
Ethylbenzene	0.0841	0.0050	"	0.100	ND	84.1	70-130			
m,p-Xylene	0.165	0.010	"	0.200	ND	82.6	70-130			
o-Xylene	0.0864	0.0050	"	0.100	ND	86.4	70-130			
1,2,4-Trimethylbenzene	0.0763	0.0050	"	0.100	ND	76.3	70-130			
1,3,5-Trimethylbenzene	0.0782	0.0050	"	0.100	ND	78.2	70-130			
Naphthalene	0.0788	0.0038	"	0.100	ND	78.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0469		"	0.0400		117	23-173			
Surrogate: Toluene-d8	0.0446		"	0.0400		112	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	21-167			

Summit Scientific

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

Project: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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 BEI0385 - EPA 5030 Soil MS

Matrix Spike Dup (BEI0385-MSD1)		Source: 2109240-02			Prepared: 09/17/21 Analyzed: 09/18/21					
Benzene	0.113	0.0020	mg/kg	0.100	ND	113	70-130	9.26	30	
Toluene	0.0968	0.0050	"	0.100	ND	96.8	70-130	10.9	30	
Ethylbenzene	0.0808	0.0050	"	0.100	ND	80.8	70-130	4.08	30	
m,p-Xylene	0.162	0.010	"	0.200	ND	80.8	70-130	2.28	30	
o-Xylene	0.0873	0.0050	"	0.100	ND	87.3	70-130	1.04	30	
1,2,4-Trimethylbenzene	0.0745	0.0050	"	0.100	ND	74.5	70-130	2.43	30	
1,3,5-Trimethylbenzene	0.0780	0.0050	"	0.100	ND	78.0	70-130	0.192	30	
Naphthalene	0.0761	0.0038	"	0.100	ND	76.1	70-130	3.41	30	
Surrogate: 1,2-Dichloroethane-d4		0.0428	"	0.0400		107	23-173			
Surrogate: Toluene-d8		0.0407	"	0.0400		102	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: L&T 22-15 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEI0384 - EPA 3550A

Blank (BEI0384-BLK1)

Prepared: 09/17/21 Analyzed: 09/18/21

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

LCS (BEI0384-BS1)

Prepared: 09/17/21 Analyzed: 09/18/21

C10-C28 (DRO)	563	50	mg/kg	500	113	70-130
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Matrix Spike (BEI0384-MS1)

Source: 2109240-02

Prepared: 09/17/21 Analyzed: 09/18/21

C10-C28 (DRO)	546	50	mg/kg	500	14.0	106	70-130
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Matrix Spike Dup (BEI0384-MSD1)

Source: 2109240-02

Prepared: 09/17/21 Analyzed: 09/18/21

C10-C28 (DRO)	627	50	mg/kg	500	14.0	122	70-130	13.6	20
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Summit Scientific

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

Project: L&T 22-15 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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 BEI0438 - EPA 3050B

Blank (BEI0438-BLK1)

Prepared: 09/21/21 Analyzed: 09/22/21

Boron ND 0.0100 mg/L

LCS (BEI0438-BS1)

Prepared: 09/21/21 Analyzed: 09/22/21

Boron 5.13 0.0100 mg/L 5.00 103 80-120

Duplicate (BEI0438-DUP1)

Source: 2109084-08

Prepared: 09/21/21 Analyzed: 09/22/21

Boron 0.129 0.0100 mg/L 0.142 9.39 20

Matrix Spike (BEI0438-MS1)

Source: 2109084-08

Prepared: 09/21/21 Analyzed: 09/22/21

Boron 5.30 0.0100 mg/L 5.00 0.142 103 75-125

Matrix Spike Dup (BEI0438-MSD1)

Source: 2109084-08

Prepared: 09/21/21 Analyzed: 09/22/21

Boron 5.26 0.0100 mg/L 5.00 0.142 102 75-125 0.732 25

Summit Scientific

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

Project: L&T 22-15 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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 BEI0508 - General Preparation

Blank (BEI0508-BLK1)

Prepared: 09/23/21 Analyzed: 09/27/21

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

LCS (BEI0508-BS1)

Prepared: 09/23/21 Analyzed: 09/27/21

Calcium	5.45	0.0500	mg/L wet	5.00	109	70-130
Magnesium	5.51	0.0500	"	5.00	110	70-130
Sodium	5.23	0.0500	"	5.00	105	70-130

Summit Scientific

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

Project: L&T 22-15 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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

Summit Scientific

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

Batch BEI0463 - General Preparation

Duplicate (BEI0463-DUP1)		Source: 2109265-07		Prepared: 09/22/21 Analyzed: 09/23/21	
% Solids	89.8		%	89.9	0.0676 20

Summit Scientific

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

Project: L&T 22-15 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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 BEI0510 - General Preparation

Blank (BEI0510-BLK1)

Prepared: 09/23/21 Analyzed: 09/24/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEI0510-BS1)

Prepared: 09/23/21 Analyzed: 09/24/21

Specific Conductance (EC) 0.147 0.0100 mmhos/cm 0.150 97.9 90-110

Duplicate (BEI0510-DUP1)

Source: 2109241-01

Prepared: 09/23/21 Analyzed: 09/24/21

Specific Conductance (EC) 0.359 0.0100 mmhos/cm 0.422 16.0 20

Summit Scientific

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

Project: L&T 22-15 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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 BEI0511 - General Preparation

LCS (BEI0511-BS1) Prepared: 09/23/21 Analyzed: 09/24/21

pH	9.27	pH Units	9.21	101	95-105
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Duplicate (BEI0511-DUP1) Source: 2109241-01 Prepared: 09/23/21 Analyzed: 09/24/21

pH	8.10	pH Units	8.10	0.00	20
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Batch BEI0600 - General Preparation

LCS (BEI0600-BS1) Prepared: 09/28/21 Analyzed: 09/29/21

pH	9.17	pH Units	9.21	99.6	95-105
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Duplicate (BEI0600-DUP1) Source: 2109216-05 Prepared: 09/28/21 Analyzed: 09/29/21

pH	8.26	pH Units	7.95	3.82	20
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Summit Scientific

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

Project: L&T 22-15 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/29/21 12:26

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