

TABLE 1
FORMER STROH R O 2-2 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'	11/16/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-01 @ 4'	11/16/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 6'	11/16/2021	6 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 STROH R O 2-2 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'	11/16/2021	6 ft. bgs	7.87	1.20	2.99	0.218
FLR01 @ 6'	11/16/2021	6 ft. bgs	7.89	0.547	0.555	0.0621

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 = Milligrams per liter

ft. = Feet

bgs = Below ground surface

TABLE 3
FORMER STROH R O 2-2 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'	11/16/2021	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 @ 6'	11/16/2021	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

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

TABLE 4
FORMER STROH R O 2-2 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
FLR01 @ 6'	11/16/2021	6 ft. bgs	40.347116	-104.855961	1.5	2.7
WH01 @ 6'	11/16/2021	6 ft. bgs	40.347127	-104.855969	1.2	12.1
BKG01 @ 6'	11/16/2021	6 ft. bgs	40.347108	-104.856177	1.2	0.7
BKG01 @ 4'	11/16/2021	4 ft. bgs	40.347108	-104.856177	1.2	2.1
FL01-01 @ 4'	11/16/2021	4 ft. bgs	40.347110	-104.855519	1.2	0.4
WHS01-N @ 0-6"	11/16/2021	0-6 in. bgs	40.347154	-104.855996	1.1	0.6
WHS01-E @ 0-6"	11/16/2021	0-6 in. bgs	40.347126	-104.855908	1.2	0.1
WHS01-S @ 0-6"	11/16/2021	0-6 in. bgs	40.347054	-104.856011	1.2	0.1
WHS01-W @ 0-6"	11/16/2021	0-6 in. bgs	40.347105	-104.856066	1.1	0.2

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

November 24, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

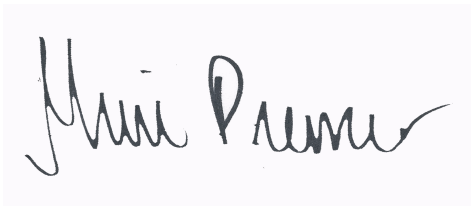
Denver, CO 80203

RE: Stroh RO 2-2 Wellhead

Work Order #2111285

Enclosed are the results of analyses for samples received by Summit Scientific on 11/16/21 13:52. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer For Paul Shrewsbury
President



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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2111285-01	Soil	11/16/21 11:02	11/16/21 13:52

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.

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S₂

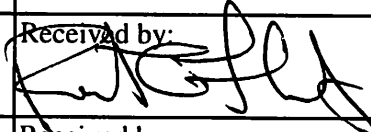
2111285

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@PDCE.com
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303-487-1228 Project Name: STROH RD 2-2 well head
Sampler Name: Mataya W. 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	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAH - 915			
1	WHD1 @ 12'		1102	3			X			X				X	X	X	X	X	X	pH, EC, SAR by saturated paste	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: Mataya W.	Date/Time: 11-16-21 1352	Received by: Tasman's Lock Box	Date/Time: 11-16-21 1352	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/>	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 11-16-21 1352	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 1.8 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

S₂

Sample Receipt Checklist

S2 Work Order#

2111285


Client: Pbc/Tasman Client Project ID: STROM RO 2-2 wellheadShipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: _____
☐ ☒ ☐ ☐ ☐
Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Temp (°C)	1.8
-----------	-----

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

 Custodian Printed Name or Initials

 11.16.21
 Date/Time



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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

WH01@6'
2111285-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEK0365	11/16/21	11/16/21	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: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEK0368	11/16/21	11/16/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		123 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

WH01@6'
2111285-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BEK0371	11/17/21	11/19/21	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: **11/16/21 11:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		71.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		75.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.218	0.0100	mg/L	1	BEK0374	11/17/21	11/24/21	EPA 6020B	

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

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

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

Project: Stroh RO 2-2 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

WH01@6'
2111285-01 (Soil)

Summit Scientific

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

Calcium	33.5	0.0597	mg/L dry	1	BEK0370	11/16/21	11/24/21	EPA 6020B
Magnesium	11.3	0.0597	"	"	"	"	"	"
Sodium	78.3	0.0597	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.99	0.00100	units	1	BEK0540	11/24/21	11/24/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.7		%	1	BEK0401	11/17/21	11/18/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.20	0.0100	mmhos/cm	1	BEK0425	11/18/21	11/18/21	EPA 120.1	

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

Date Sampled: **11/16/21 11:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.87		pH Units	1	BEK0426	11/18/21	11/18/21	EPA 9045D	

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Denver CO, 80203

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEK0365 - EPA 5030 Soil MS

Blank (BEK0365-BLK1)

Prepared & Analyzed: 11/16/21

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	0.0396		"	0.0400	99.1	23-173				
Surrogate: Toluene-d8	0.0478		"	0.0400	119	20-170				
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400	102	21-167				

LCS (BEK0365-BS1)

Prepared & Analyzed: 11/16/21

Benzene	0.0675	0.0020	mg/kg	0.0750	90.0	70-130				
Toluene	0.0931	0.0050	"	0.0750	124	70-130				
Ethylbenzene	0.0732	0.0050	"	0.0750	97.6	70-130				
m,p-Xylene	0.148	0.010	"	0.150	98.9	70-130				
o-Xylene	0.0742	0.0050	"	0.0750	99.0	70-130				
1,2,4-Trimethylbenzene	0.0700	0.0050	"	0.0750	93.4	70-130				
1,3,5-Trimethylbenzene	0.0690	0.0050	"	0.0750	92.0	70-130				
Naphthalene	0.0674	0.0038	"	0.0750	89.9	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0400	101	23-173				
Surrogate: Toluene-d8	0.0441		"	0.0400	110	20-170				
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400	104	21-167				

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

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	Notes

Batch BEK0371 - EPA 5030 Soil MS

Blank (BEK0371-BLK1)

Prepared: 11/17/21 Analyzed: 11/18/21

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	0.0314		"	0.0333		94.3	40-150			
Surrogate: Fluoranthene-d10	0.0315		"	0.0333		94.6	40-150			

LCS (BEK0371-BS1)

Prepared: 11/17/21 Analyzed: 11/18/21

Acenaphthene	0.0329	0.00500	mg/kg	0.0333		98.6	31-137			
Anthracene	0.0323	0.00500	"	0.0333		97.0	30-120			
Benzo (a) anthracene	0.0293	0.00500	"	0.0333		87.8	30-120			
Benzo (a) pyrene	0.0313	0.00500	"	0.0333		93.9	30-120			
Benzo (b) fluoranthene	0.0359	0.00500	"	0.0333		108	30-120			
Benzo (k) fluoranthene	0.0394	0.00500	"	0.0333		118	30-120			
Chrysene	0.0295	0.00500	"	0.0333		88.5	30-120			
Dibenz (a,h) anthracene	0.0192	0.00500	"	0.0333		57.7	30-120			
Fluoranthene	0.0351	0.00500	"	0.0333		105	30-120			
Fluorene	0.0335	0.00500	"	0.0333		101	30-120			
Indeno (1,2,3-cd) pyrene	0.0226	0.00500	"	0.0333		67.7	30-120			
Pyrene	0.0333	0.00500	"	0.0333		100	35-142			
1-Methylnaphthalene	0.0318	0.00500	"	0.0333		95.3	35-142			
2-Methylnaphthalene	0.0317	0.00500	"	0.0333		95.2	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0329		"	0.0333		98.7	40-150			
Surrogate: Fluoranthene-d10	0.0341		"	0.0333		102	40-150			

Summit Scientific

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



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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

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 BEK0371 - EPA 5030 Soil MS

Matrix Spike (BEK0371-MS1)

Source: 2111090-02

Prepared: 11/17/21 Analyzed: 11/18/21

Acenaphthene	0.0228	0.00500	mg/kg	0.0333	ND	68.5	31-137		
Anthracene	0.0232	0.00500	"	0.0333	ND	69.5	30-120		
Benzo (a) anthracene	0.0223	0.00500	"	0.0333	ND	66.9	30-120		
Benzo (a) pyrene	0.0223	0.00500	"	0.0333	ND	67.0	30-120		
Benzo (b) fluoranthene	0.0266	0.00500	"	0.0333	ND	79.7	30-120		
Benzo (k) fluoranthene	0.0283	0.00500	"	0.0333	ND	84.8	30-120		
Chrysene	0.0215	0.00500	"	0.0333	ND	64.5	30-120		
Dibenz (a,h) anthracene	0.0148	0.00500	"	0.0333	ND	44.5	30-120		
Fluoranthene	0.0249	0.00500	"	0.0333	ND	74.6	30-120		
Fluorene	0.0234	0.00500	"	0.0333	ND	70.3	30-120		
Indeno (1,2,3-cd) pyrene	0.0166	0.00500	"	0.0333	ND	49.7	30-120		
Pyrene	0.0269	0.00500	"	0.0333	0.00619	62.2	35-142		
1-Methylnaphthalene	0.0219	0.00500	"	0.0333	ND	65.8	15-130		
2-Methylnaphthalene	0.0227	0.00500	"	0.0333	ND	68.1	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0235		"	0.0333		70.4	40-150		
Surrogate: Fluoranthene-d10	0.0267		"	0.0333		80.2	40-150		

Matrix Spike Dup (BEK0371-MSD1)

Source: 2111090-02

Prepared: 11/17/21 Analyzed: 11/18/21

Acenaphthene	0.0191	0.00500	mg/kg	0.0333	ND	57.2	31-137	18.1	30
Anthracene	0.0191	0.00500	"	0.0333	ND	57.4	30-120	19.1	30
Benzo (a) anthracene	0.0189	0.00500	"	0.0333	ND	56.7	30-120	16.5	30
Benzo (a) pyrene	0.0197	0.00500	"	0.0333	ND	59.2	30-120	12.4	30
Benzo (b) fluoranthene	0.0230	0.00500	"	0.0333	ND	69.0	30-120	14.4	30
Benzo (k) fluoranthene	0.0247	0.00500	"	0.0333	ND	74.1	30-120	13.4	30
Chrysene	0.0186	0.00500	"	0.0333	ND	55.7	30-120	14.7	30
Dibenz (a,h) anthracene	0.0123	0.00500	"	0.0333	ND	36.8	30-120	18.8	30
Fluoranthene	0.0209	0.00500	"	0.0333	ND	62.8	30-120	17.2	30
Fluorene	0.0201	0.00500	"	0.0333	ND	60.4	30-120	15.2	30
Indeno (1,2,3-cd) pyrene	0.0139	0.00500	"	0.0333	ND	41.8	30-120	17.4	30
Pyrene	0.0219	0.00500	"	0.0333	0.00619	47.0	35-142	20.7	30
1-Methylnaphthalene	0.0184	0.00500	"	0.0333	ND	55.2	15-130	17.5	50
2-Methylnaphthalene	0.0191	0.00500	"	0.0333	ND	57.4	15-130	17.1	50
Surrogate: 2-Methylnaphthalene-d10	0.0213		"	0.0333		63.9	40-150		
Surrogate: Fluoranthene-d10	0.0229		"	0.0333		68.6	40-150		

Summit Scientific

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



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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

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 BEK0374 - EPA 3050B

Blank (BEK0374-BLK1)

Prepared: 11/17/21 Analyzed: 11/24/21

Boron ND 0.0100 mg/L

LCS (BEK0374-BS1)

Prepared: 11/17/21 Analyzed: 11/24/21

Boron 5.30 0.0100 mg/L 5.00 106 80-120

Duplicate (BEK0374-DUP1)

Source: 2110397-01

Prepared: 11/17/21 Analyzed: 11/24/21

Boron 0.0120 0.0100 mg/L 0.0169 34.1 20 QR-03

Matrix Spike (BEK0374-MS1)

Source: 2110397-01

Prepared: 11/17/21 Analyzed: 11/24/21

Boron 5.19 0.0100 mg/L 5.00 0.0169 104 75-125

Matrix Spike Dup (BEK0374-MSD1)

Source: 2110397-01

Prepared: 11/17/21 Analyzed: 11/24/21

Boron 5.22 0.0100 mg/L 5.00 0.0169 104 75-125 0.610 25

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

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 BEK0370 - General Preparation

Blank (BEK0370-BLK1)

Prepared: 11/16/21 Analyzed: 11/24/21

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

LCS (BEK0370-BS1)

Prepared: 11/16/21 Analyzed: 11/24/21

Calcium	5.48	0.0500	mg/L wet	5.00	110	70-130
Magnesium	5.15	0.0500	"	5.00	103	70-130
Sodium	4.88	0.0500	"	5.00	97.6	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: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

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 BEK0401 - General Preparation

Duplicate (BEK0401-DUP1)		Source: 2111064-04		Prepared: 11/17/21 Analyzed: 11/18/21	
% Solids	88.1		%	87.9	0.272 20

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

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 BEK0425 - General Preparation

Blank (BEK0425-BLK1)

Prepared & Analyzed: 11/18/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEK0425-BS1)

Prepared & Analyzed: 11/18/21

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 102 95-105

Duplicate (BEK0425-DUP1)

Source: 2111210-02

Prepared & Analyzed: 11/18/21

Specific Conductance (EC) 0.873 0.0100 mmhos/cm 0.874 0.0458 20

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

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

Summit Scientific

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

Batch BEK0426 - General Preparation

LCS (BEK0426-BS1)

Prepared & Analyzed: 11/18/21

pH	9.10	pH Units	9.18	99.1	95-105
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Duplicate (BEK0426-DUP1)

Source: 2111044-10

Prepared & Analyzed: 11/18/21

pH	8.32	pH Units	8.31	0.120	20
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Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/24/21 15:46

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

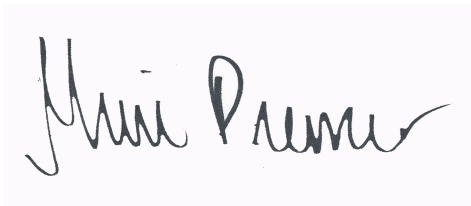
303.277.9310

December 03, 2021

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Stroh RO 2-2 Wellhead
Work Order #2111295

Enclosed are the results of analyses for samples received by Summit Scientific on 11/16/21 13:52. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer For Paul Shrewsbury
President



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

Project: Stroh RO 2-2 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-01@4'	2111295-01	Soil	11/16/21 10:58	11/16/21 13:52
FLR01@6'	2111295-02	Soil	11/16/21 11:07	11/16/21 13:52

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

2111295

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 4 ¹/₂

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: STROH RD 2-2 Wellhead

Sampler Name: Mataya Wright

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	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAH - 915			
1	FL01-D1 @ 4'		1058	2			X			X				X	X	X					on hold
2	WH01 @ 10'		1102	3			X			X				X	X	X	X	X			mm
3	FLR01 @ 16'		1107	3			X			X				X	X	X	X	X			
4	BK601 @ 4'		1118	1			X			X											X
5	BK601 @ 10'		1119	1			X			X											X
6																					
7																					
8																					
9																					
10																					

Relinquished by: <i>Mataya Wright</i>	Date/Time: 1352 11-10-21	Received by: Tasman's Lock Box	Date/Time: 11-10-21 1352	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: <i>[Signature]</i>	Date/Time: 11-10-21 1352	Sample Integrity: Temperature Upon Receipt: 1.8	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

S₂

Sample Receipt Checklist

S2 Work Order# _____

2111295

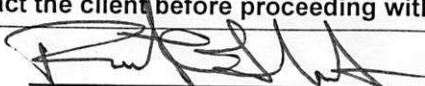
Client: PDC/TasmanClient Project ID: STROH RO 2-2 wellheadShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Temp (°C)	1.8
-----------	-----

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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


 Custodian Printed Name or Initials

11.16.21
 Date/Time



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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

FL01-01@4'
2111295-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/16/21 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEK0446	11/19/21	11/20/21	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: **11/16/21 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/16/21 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEK0447	11/19/21	11/20/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/16/21 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		81.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

FLR01@6'
2111295-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEK0446	11/19/21	11/20/21	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: **11/16/21 11:07**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEK0447	11/19/21	11/20/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		125 %	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: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

FLR01@6'
2111295-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEK0433	11/19/21	11/22/21	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: **11/16/21 11:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		52.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		53.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0621	0.0100	mg/L	1	BEK0493	11/22/21	12/01/21	EPA 6020B	

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

Date Sampled: **11/16/21 11:07**

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: Stroh RO 2-2 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

FLR01@6'
2111295-02 (Soil)

Summit Scientific

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

Calcium	58.2	0.0585	mg/L dry	1	BEK0488	11/22/21	12/02/21	EPA 6020B
Magnesium	17.0	0.0585	"	"	"	"	"	"
Sodium	18.7	0.0585	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.555	0.00100	units	1	BEL0052	12/03/21	12/03/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.5		%	1	BEK0502	11/23/21	11/23/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.547	0.0100	mmhos/cm	1	BEK0507	11/23/21	11/23/21	EPA 120.1	

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

Date Sampled: **11/16/21 11:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.89		pH Units	1	BEK0508	11/23/21	11/23/21	EPA 9045D	

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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 BEK0446 - EPA 5030 Soil MS

Blank (BEK0446-BLK1)

Prepared: 11/19/21 Analyzed: 11/20/21

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	0.0406		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0408		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

LCS (BEK0446-BS1)

Prepared: 11/19/21 Analyzed: 11/20/21

Benzene	0.102	0.0020	mg/kg	0.100		102	70-130			
Toluene	0.0973	0.0050	"	0.100		97.3	70-130			
Ethylbenzene	0.0883	0.0050	"	0.100		88.3	70-130			
m,p-Xylene	0.170	0.010	"	0.200		85.2	70-130			
o-Xylene	0.0890	0.0050	"	0.100		89.0	70-130			
1,2,4-Trimethylbenzene	0.0844	0.0050	"	0.100		84.4	70-130			
1,3,5-Trimethylbenzene	0.0813	0.0050	"	0.100		81.3	70-130			
Naphthalene	0.0797	0.0038	"	0.100		79.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0392		"	0.0400		97.9	23-173			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		98.9	21-167			

Matrix Spike (BEK0446-MS1)

Source: 2111292-01

Prepared: 11/19/21 Analyzed: 11/20/21

Benzene	0.0948	0.0020	mg/kg	0.100	ND	94.8	70-130			
Toluene	0.0914	0.0050	"	0.100	ND	91.4	70-130			
Ethylbenzene	0.0784	0.0050	"	0.100	ND	78.4	70-130			
m,p-Xylene	0.147	0.010	"	0.200	ND	73.7	70-130			
o-Xylene	0.0763	0.0050	"	0.100	ND	76.3	70-130			
1,2,4-Trimethylbenzene	0.0948	0.0050	"	0.100	ND	94.8	70-130			
1,3,5-Trimethylbenzene	0.0990	0.0050	"	0.100	ND	99.0	70-130			
Naphthalene	0.110	0.0038	"	0.100	ND	110	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0415		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	21-167			

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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 BEK0446 - EPA 5030 Soil MS

Matrix Spike Dup (BEK0446-MSD1)		Source: 2111292-01			Prepared: 11/19/21 Analyzed: 11/20/21					
Benzene	0.0979	0.0020	mg/kg	0.100	ND	97.9	70-130	3.24	30	
Toluene	0.0936	0.0050	"	0.100	ND	93.6	70-130	2.34	30	
Ethylbenzene	0.0798	0.0050	"	0.100	ND	79.8	70-130	1.75	30	
m,p-Xylene	0.151	0.010	"	0.200	ND	75.5	70-130	2.39	30	
o-Xylene	0.0784	0.0050	"	0.100	ND	78.4	70-130	2.72	30	
1,2,4-Trimethylbenzene	0.0955	0.0050	"	0.100	ND	95.5	70-130	0.757	30	
1,3,5-Trimethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130	1.44	30	
Naphthalene	0.106	0.0038	"	0.100	ND	106	70-130	3.89	30	
Surrogate: 1,2-Dichloroethane-d4		0.0416	"	0.0400		104	23-173			
Surrogate: Toluene-d8		0.0419	"	0.0400		105	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: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEK0447 - EPA 3550A

Blank (BEK0447-BLK1)

Prepared: 11/19/21 Analyzed: 11/20/21

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

LCS (BEK0447-BS1)

Prepared: 11/19/21 Analyzed: 11/20/21

C10-C28 (DRO)	409	50	mg/kg	500	81.7	70-130
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Matrix Spike (BEK0447-MS1)

Source: 2111292-01

Prepared: 11/19/21 Analyzed: 11/20/21

C10-C28 (DRO)	466	50	mg/kg	500	12.8	90.6	70-130
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Matrix Spike Dup (BEK0447-MSD1)

Source: 2111292-01

Prepared: 11/19/21 Analyzed: 11/20/21

C10-C28 (DRO)	441	50	mg/kg	500	12.8	85.6	70-130	5.51	20
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Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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 BEK0433 - EPA 5030 Soil MS

Blank (BEK0433-BLK1)

Prepared: 11/19/21 Analyzed: 11/22/21

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	0.0318		"	0.0333		95.4	40-150			
Surrogate: Fluoranthene-d10	0.0298		"	0.0333		89.5	40-150			

LCS (BEK0433-BS1)

Prepared: 11/19/21 Analyzed: 11/22/21

Acenaphthene	0.0298	0.00500	mg/kg	0.0333		89.4	31-137			
Anthracene	0.0310	0.00500	"	0.0333		92.9	30-120			
Benzo (a) anthracene	0.0283	0.00500	"	0.0333		84.8	30-120			
Benzo (a) pyrene	0.0292	0.00500	"	0.0333		87.6	30-120			
Benzo (b) fluoranthene	0.0308	0.00500	"	0.0333		92.5	30-120			
Benzo (k) fluoranthene	0.0372	0.00500	"	0.0333		112	30-120			
Chrysene	0.0293	0.00500	"	0.0333		87.9	30-120			
Dibenz (a,h) anthracene	0.0240	0.00500	"	0.0333		72.1	30-120			
Fluoranthene	0.0281	0.00500	"	0.0333		84.3	30-120			
Fluorene	0.0314	0.00500	"	0.0333		94.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0301	0.00500	"	0.0333		90.2	30-120			
Pyrene	0.0326	0.00500	"	0.0333		97.7	35-142			
1-Methylnaphthalene	0.0281	0.00500	"	0.0333		84.4	35-142			
2-Methylnaphthalene	0.0292	0.00500	"	0.0333		87.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0316		"	0.0333		94.9	40-150			
Surrogate: Fluoranthene-d10	0.0319		"	0.0333		95.7	40-150			

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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 BEK0433 - EPA 5030 Soil MS

Matrix Spike (BEK0433-MS1)			Source: 2111293-01		Prepared: 11/19/21		Analyzed: 11/22/21			
Acenaphthene	0.0214	0.00500	mg/kg	0.0333	ND	64.2	31-137			
Anthracene	0.0213	0.00500	"	0.0333	ND	63.9	30-120			
Benzo (a) anthracene	0.0211	0.00500	"	0.0333	ND	63.2	30-120			
Benzo (a) pyrene	0.0200	0.00500	"	0.0333	ND	60.1	30-120			
Benzo (b) fluoranthene	0.0209	0.00500	"	0.0333	ND	62.7	30-120			
Benzo (k) fluoranthene	0.0238	0.00500	"	0.0333	ND	71.3	30-120			
Chrysene	0.0212	0.00500	"	0.0333	ND	63.6	30-120			
Dibenz (a,h) anthracene	0.0172	0.00500	"	0.0333	ND	51.5	30-120			
Fluoranthene	0.0225	0.00500	"	0.0333	ND	67.6	30-120			
Fluorene	0.0228	0.00500	"	0.0333	ND	68.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0215	0.00500	"	0.0333	ND	64.4	30-120			
Pyrene	0.0224	0.00500	"	0.0333	ND	67.3	35-142			
1-Methylnaphthalene	0.0214	0.00500	"	0.0333	ND	64.1	15-130			
2-Methylnaphthalene	0.0232	0.00500	"	0.0333	ND	69.5	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0237		"	0.0333		71.1	40-150			
Surrogate: Fluoranthene-d10	0.0251		"	0.0333		75.2	40-150			

Matrix Spike Dup (BEK0433-MSD1)			Source: 2111293-01		Prepared: 11/19/21		Analyzed: 11/22/21			
Acenaphthene	0.0226	0.00500	mg/kg	0.0333	ND	67.7	31-137	5.31	30	
Anthracene	0.0237	0.00500	"	0.0333	ND	71.0	30-120	10.5	30	
Benzo (a) anthracene	0.0226	0.00500	"	0.0333	ND	67.7	30-120	6.82	30	
Benzo (a) pyrene	0.0223	0.00500	"	0.0333	ND	67.0	30-120	10.9	30	
Benzo (b) fluoranthene	0.0224	0.00500	"	0.0333	ND	67.1	30-120	6.67	30	
Benzo (k) fluoranthene	0.0248	0.00500	"	0.0333	ND	74.4	30-120	4.24	30	
Chrysene	0.0228	0.00500	"	0.0333	ND	68.3	30-120	7.19	30	
Dibenz (a,h) anthracene	0.0185	0.00500	"	0.0333	ND	55.5	30-120	7.45	30	
Fluoranthene	0.0239	0.00500	"	0.0333	ND	71.7	30-120	5.84	30	
Fluorene	0.0243	0.00500	"	0.0333	ND	72.8	30-120	6.11	30	
Indeno (1,2,3-cd) pyrene	0.0248	0.00500	"	0.0333	ND	74.5	30-120	14.6	30	
Pyrene	0.0236	0.00500	"	0.0333	ND	70.8	35-142	5.15	30	
1-Methylnaphthalene	0.0225	0.00500	"	0.0333	ND	67.5	15-130	5.16	50	
2-Methylnaphthalene	0.0235	0.00500	"	0.0333	ND	70.6	15-130	1.47	50	
Surrogate: 2-Methylnaphthalene-d10	0.0262		"	0.0333		78.5	40-150			
Surrogate: Fluoranthene-d10	0.0273		"	0.0333		82.0	40-150			

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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 BEK0493 - EPA 3050B

Blank (BEK0493-BLK1)

Prepared: 11/22/21 Analyzed: 12/01/21

Boron ND 0.0100 mg/L

LCS (BEK0493-BS1)

Prepared: 11/22/21 Analyzed: 12/01/21

Boron 5.18 0.0100 mg/L 5.00 104 80-120

Duplicate (BEK0493-DUP1)

Source: 2111261-01

Prepared: 11/22/21 Analyzed: 12/01/21

Boron 0.148 0.0100 mg/L 0.155 4.65 20

Matrix Spike (BEK0493-MS1)

Source: 2111261-01

Prepared: 11/22/21 Analyzed: 12/01/21

Boron 5.30 0.0100 mg/L 5.00 0.155 103 75-125

Matrix Spike Dup (BEK0493-MSD1)

Source: 2111261-01

Prepared: 11/22/21 Analyzed: 12/01/21

Boron 5.38 0.0100 mg/L 5.00 0.155 104 75-125 1.40 25

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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

Summit Scientific

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

Batch BEK0488 - General Preparation

Blank (BEK0488-BLK1)

Prepared: 11/22/21 Analyzed: 12/02/21

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

LCS (BEK0488-BS1)

Prepared: 11/22/21 Analyzed: 12/02/21

Calcium	5.91	0.0500	mg/L wet	5.00	118	70-130
Magnesium	5.64	0.0500	"	5.00	113	70-130
Sodium	5.50	0.0500	"	5.00	110	70-130

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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 BEK0502 - General Preparation

Duplicate (BEK0502-DUP1)		Source: 2111086-01		Prepared & Analyzed: 11/23/21	
% Solids	89.6		%	89.8	0.252 20

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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

Summit Scientific

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

Batch BEK0507 - General Preparation

Blank (BEK0507-BLK1)

Prepared & Analyzed: 11/23/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEK0507-BS1)

Prepared & Analyzed: 11/23/21

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 100 95-105

Duplicate (BEK0507-DUP1)

Source: 2111262-07

Prepared & Analyzed: 11/23/21

Specific Conductance (EC) 1.16 0.0100 mmhos/cm 1.18 1.54 20

Summit Scientific

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

Project: Stroh RO 2-2 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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

Summit Scientific

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

Batch BEK0508 - General Preparation

LCS (BEK0508-BS1)

Prepared & Analyzed: 11/23/21

pH	9.11	pH Units	9.18	99.2	95-105
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Duplicate (BEK0508-DUP1)

Source: 2111262-07

Prepared & Analyzed: 11/23/21

pH	8.08	pH Units	8.05	0.372	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: Stroh RO 2-2 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/03/21 11:58

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