

TABLE 1
FORMER UYEMURA 34-31 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'	4/6/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 4'	4/6/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SEP01-FL @ 4'	4/6/2022	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 UYEMURA 34-31 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'	4/6/2022	6 ft. bgs	7.88	1.46	1.89	0.117
FLR01 @ 4'	4/6/2022	4 ft. bgs	7.89	1.24	0.727	0.0670

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 UYEMURA 34-31 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'	4/6/2022	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'	4/6/2022	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:

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.

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 = Methylanthalene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

TABLE 4
FORMER UYEMURA 34-31 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude / Longitude			
WHS01-N @ 0-6"	4/6/2022	0-6 in. bgs	40.523811	-104.590646	1.0	0.1
WHS01-W @ 0-6"	4/6/2022	0-6 in. bgs	40.523772	-104.590691	1.1	0.1
WHS01-S @ 0-6"	4/6/2022	0-6 in. bgs	40.523739	-104.590654	1.0	0.0
WHS01-E @ 0-6"	4/6/2022	0-6 in. bgs	40.523771	-104.590601	1.0	0.0
WH01 @ 6'	4/6/2022	6 ft. bgs	40.523774	-104.590639	1.0	1.6
FLR01 @ 4'	4/6/2022	4 ft. bgs	40.523768	-104.590625	1.0	0.3
SEP01-FL @ 4'	4/6/2022	4 ft. bgs	40.523646	-104.589283	1.2	0.3
BKG01 @ 4'	4/6/2022	4 ft. bgs	40.523834	-104.590775	1.1	0.0
BKG01 @ 6'	4/6/2022	6 ft. bgs	40.523834	-104.590775	1.1	0.0

Notes:

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

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

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 18, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Uyemura 34-31 Wellhead

Work Order #2204087

Enclosed are the results of analyses for samples received by Summit Scientific on 04/06/22 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Muri Premer
Project Manager



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

Project: Uyemura 34-31 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2204087-01	Soil	04/06/22 10:10	04/06/22 14:00
FLR01@4'	2204087-02	Soil	04/06/22 10:15	04/06/22 14:00
SEP01-FL@4'	2204087-03	Soil	04/06/22 10:50	04/06/22 14:00

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

2204087

S₂

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: Uyemura 34-31 Wellhead
Sampler Name: David Vrigl Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	TMBs (1,2,4)&(1,3,5)	PAH - 915	Metals - 915			
1	WHol @6'	4/6/22	1010	3			X			X				X	X	X	X	X	X	X		pH, EC, SAR by saturated paste
2	FLRol @4'		1015	3			X			X				X	X	X	X	X	X			
3	SEPOL-FL @4'		1050	3			X			X				X	X			X				
4	BKhol @4'		1020	1			X			X												
5	BKhol @6'		1025	1			X			X												X
6																						
7																						
8																						
9																						
10																						

Relinquished by:	Date/Time: 4/6/22 1400	Received by: Tasman's Lock Box Summit	Date/Time: 4/6/22 1400	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: 4.8 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box Summit	Date/Time: 4/6/22 1400	Received by:	Date/Time: 4/6/22 1400		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

2204087

Sample Receipt Checklist

S2 Work Order# _____

Client: BC/Tasmanian Client Project ID: Uyemura 3431 wellhead

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

-

Matrix (Check all that apply) Air Soil/Solid Water Other

Temp (°C) 4.8 Thermometer # 1

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

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

[Signature]
Custodian Printed Name

4.6.22
Date/Time



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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

WH01@6'
2204087-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0131	04/07/22	04/08/22	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: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		137 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0132	04/07/22	04/08/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	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: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

WH01@6'
2204087-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0130	04/07/22	04/08/22	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: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		44.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		49.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.117	0.0100	mg/L	1	BFD0223	04/12/22	04/15/22	EPA 6020B	

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

Date Sampled: **04/06/22 10:10**

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: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

WH01@6'
2204087-01 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	95.3	0.0593	mg/L dry	1	BFD0294	04/14/22	04/17/22	EPA 6020B	
Magnesium	36.9	0.0593	"	"	"	"	"	"	
Sodium	85.6	0.0593	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.89	0.00100	units	1	BFD0339	04/18/22	04/18/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.3		%	1	BFD0239	04/12/22	04/12/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.46	0.0100	mmhos/cm	1	BFD0315	04/15/22	04/15/22	EPA 120.1	

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

Date Sampled: **04/06/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.88		pH Units	1	BFD0313	04/15/22	04/15/22	EPA 9045D	

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Denver CO, 80203

Project: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

FLR01@4'
2204087-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0131	04/07/22	04/08/22	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: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		139 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		105 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0132	04/07/22	04/08/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

FLR01@4'
2204087-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0130	04/07/22	04/08/22	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: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		41.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		43.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0670	0.0100	mg/L	1	BFD0223	04/12/22	04/15/22	EPA 6020B	

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

Date Sampled: **04/06/22 10:15**

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: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

FLR01@4'
2204087-02 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	113	0.0611	mg/L dry	1	BFD0294	04/14/22	04/17/22	EPA 6020B	
Magnesium	38.0	0.0611	"	"	"	"	"	"	
Sodium	35.0	0.0611	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.727	0.00100	units	1	BFD0339	04/18/22	04/18/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.8		%	1	BFD0239	04/12/22	04/12/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.24	0.0100	mmhos/cm	1	BFD0315	04/15/22	04/15/22	EPA 120.1	

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

Date Sampled: **04/06/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.89		pH Units	1	BFD0313	04/15/22	04/15/22	EPA 9045D	

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

SEP01-FL@4'
2204087-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/06/22 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0131	04/07/22	04/08/22	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: **04/06/22 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		144 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		105 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/06/22 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFD0132	04/07/22	04/08/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/06/22 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

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 BFD0131 - EPA 5030 Soil MS

Blank (BFD0131-BLK1)

Prepared: 04/07/22 Analyzed: 04/08/22

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0558		"	0.0400		140	50-150			
<i>Surrogate: Toluene-d8</i>	0.0411		"	0.0400		103	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0413		"	0.0400		103	50-150			

LCS (BFD0131-BS1)

Prepared: 04/07/22 Analyzed: 04/08/22

Benzene	0.0918	0.0020	mg/kg	0.100		91.8	70-130			
Toluene	0.102	0.0050	"	0.100		102	70-130			
Ethylbenzene	0.0900	0.0050	"	0.100		90.0	70-130			
m,p-Xylene	0.195	0.010	"	0.200		97.7	70-130			
o-Xylene	0.0978	0.0050	"	0.100		97.8	70-130			
1,2,4-Trimethylbenzene	0.105	0.0050	"	0.100		105	70-130			
1,3,5-Trimethylbenzene	0.100	0.0050	"	0.100		100	70-130			
Naphthalene	0.101	0.0038	"	0.100		101	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0555		"	0.0400		139	50-150			
<i>Surrogate: Toluene-d8</i>	0.0410		"	0.0400		102	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0431		"	0.0400		108	50-150			

Matrix Spike (BFD0131-MS1)

Source: 2204053-01

Prepared: 04/07/22 Analyzed: 04/08/22

Benzene	0.0957	0.0020	mg/kg	0.100	ND	95.7	70-130			
Toluene	0.104	0.0050	"	0.100	ND	104	70-130			
Ethylbenzene	0.0916	0.0050	"	0.100	ND	91.6	70-130			
m,p-Xylene	0.191	0.010	"	0.200	ND	95.3	70-130			
o-Xylene	0.0977	0.0050	"	0.100	ND	97.7	70-130			
1,2,4-Trimethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
1,3,5-Trimethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130			
Naphthalene	0.111	0.0038	"	0.100	ND	111	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0523		"	0.0400		131	50-150			
<i>Surrogate: Toluene-d8</i>	0.0414		"	0.0400		103	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0429		"	0.0400		107	50-150			

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BFD0131 - EPA 5030 Soil MS

Matrix Spike Dup (BFD0131-MSD1)	Source: 2204053-01			Prepared: 04/07/22 Analyzed: 04/08/22							
Benzene	0.0958	0.0020	mg/kg	0.100	ND	95.8	70-130	0.188	30		
Toluene	0.105	0.0050	"	0.100	ND	105	70-130	0.544	30		
Ethylbenzene	0.0948	0.0050	"	0.100	ND	94.8	70-130	3.48	30		
m,p-Xylene	0.198	0.010	"	0.200	ND	98.9	70-130	3.75	30		
o-Xylene	0.101	0.0050	"	0.100	ND	101	70-130	3.29	30		
1,2,4-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	7.30	30		
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	4.02	30		
Naphthalene	0.109	0.0038	"	0.100	ND	109	70-130	1.39	30		
Surrogate: 1,2-Dichloroethane-d4	0.0520		"	0.0400		130	50-150				
Surrogate: Toluene-d8	0.0415		"	0.0400		104	50-150				
Surrogate: 4-Bromofluorobenzene	0.0427		"	0.0400		107	50-150				

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BFD0132 - EPA 3550A

Blank (BFD0132-BLK1)

Prepared & Analyzed: 04/07/22

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

LCS (BFD0132-BS1)

Prepared & Analyzed: 04/07/22

C10-C28 (DRO)	476	50	mg/kg	500	95.2	70-130				
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Matrix Spike (BFD0132-MS1)

Source: 2204053-01

Prepared & Analyzed: 04/07/22

C10-C28 (DRO)	454	50	mg/kg	500	16.9	87.5	70-130			
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Matrix Spike Dup (BFD0132-MSD1)

Source: 2204053-01

Prepared & Analyzed: 04/07/22

C10-C28 (DRO)	433	50	mg/kg	500	16.9	83.2	70-130	4.83	20	
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BFD0130 - EPA 5030 Soil MS

Blank (BFD0130-BLK1)

Prepared: 04/07/22 Analyzed: 04/08/22

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0159</i>		"	<i>0.0333</i>		<i>47.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0169</i>		"	<i>0.0333</i>		<i>50.8</i>	<i>40-150</i>			

LCS (BFD0130-BS1)

Prepared: 04/07/22 Analyzed: 04/08/22

Acenaphthene	0.0165	0.00500	mg/kg	0.0333		49.5	31-137			
Anthracene	0.0172	0.00500	"	0.0333		51.5	30-120			
Benzo (a) anthracene	0.0187	0.00500	"	0.0333		56.0	30-120			
Benzo (a) pyrene	0.0162	0.00500	"	0.0333		48.5	30-120			
Benzo (b) fluoranthene	0.0170	0.00500	"	0.0333		50.9	30-120			
Benzo (k) fluoranthene	0.0168	0.00500	"	0.0333		50.3	30-120			
Chrysene	0.0179	0.00500	"	0.0333		53.7	30-120			
Dibenz (a,h) anthracene	0.0128	0.00500	"	0.0333		38.3	30-120			
Fluoranthene	0.0170	0.00500	"	0.0333		51.1	30-120			
Fluorene	0.0157	0.00500	"	0.0333		47.2	30-120			
Indeno (1,2,3-cd) pyrene	0.0185	0.00500	"	0.0333		55.5	30-120			
Pyrene	0.0186	0.00500	"	0.0333		55.9	35-142			
1-Methylnaphthalene	0.0151	0.00500	"	0.0333		45.4	35-142			
2-Methylnaphthalene	0.0150	0.00500	"	0.0333		45.1	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0159</i>		"	<i>0.0333</i>		<i>47.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0176</i>		"	<i>0.0333</i>		<i>52.9</i>	<i>40-150</i>			

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BFD0130 - EPA 5030 Soil MS

Matrix Spike (BFD0130-MS1)	Source: 2204086-01			Prepared: 04/07/22 Analyzed: 04/08/22						
Acenaphthene	0.0183	0.00500	mg/kg	0.0333	ND	54.8	31-137			
Anthracene	0.0186	0.00500	"	0.0333	ND	55.9	30-120			
Benzo (a) anthracene	0.0210	0.00500	"	0.0333	ND	62.9	30-120			
Benzo (a) pyrene	0.0177	0.00500	"	0.0333	ND	53.2	30-120			
Benzo (b) fluoranthene	0.0191	0.00500	"	0.0333	ND	57.2	30-120			
Benzo (k) fluoranthene	0.0184	0.00500	"	0.0333	ND	55.1	30-120			
Chrysene	0.0199	0.00500	"	0.0333	ND	59.7	30-120			
Dibenz (a,h) anthracene	0.0139	0.00500	"	0.0333	ND	41.7	30-120			
Fluoranthene	0.0190	0.00500	"	0.0333	ND	57.0	30-120			
Fluorene	0.0183	0.00500	"	0.0333	ND	55.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0197	0.00500	"	0.0333	ND	59.2	30-120			
Pyrene	0.0222	0.00500	"	0.0333	ND	66.6	35-142			
1-Methylnaphthalene	0.0180	0.00500	"	0.0333	ND	54.0	15-130			
2-Methylnaphthalene	0.0171	0.00500	"	0.0333	ND	51.4	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0181</i>		<i>"</i>	<i>0.0333</i>		<i>54.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0199</i>		<i>"</i>	<i>0.0333</i>		<i>59.8</i>	<i>40-150</i>			

Matrix Spike Dup (BFD0130-MSD1)	Source: 2204086-01			Prepared: 04/07/22 Analyzed: 04/08/22						
Acenaphthene	0.0163	0.00500	mg/kg	0.0333	ND	48.8	31-137	11.7	30	
Anthracene	0.0171	0.00500	"	0.0333	ND	51.4	30-120	8.36	30	
Benzo (a) anthracene	0.0199	0.00500	"	0.0333	ND	59.6	30-120	5.32	30	
Benzo (a) pyrene	0.0169	0.00500	"	0.0333	ND	50.8	30-120	4.56	30	
Benzo (b) fluoranthene	0.0181	0.00500	"	0.0333	ND	54.4	30-120	5.10	30	
Benzo (k) fluoranthene	0.0173	0.00500	"	0.0333	ND	51.9	30-120	6.00	30	
Chrysene	0.0188	0.00500	"	0.0333	ND	56.3	30-120	5.83	30	
Dibenz (a,h) anthracene	0.0127	0.00500	"	0.0333	ND	38.0	30-120	9.15	30	
Fluoranthene	0.0176	0.00500	"	0.0333	ND	52.9	30-120	7.62	30	
Fluorene	0.0161	0.00500	"	0.0333	ND	48.4	30-120	12.8	30	
Indeno (1,2,3-cd) pyrene	0.0191	0.00500	"	0.0333	ND	57.2	30-120	3.51	30	
Pyrene	0.0207	0.00500	"	0.0333	ND	62.2	35-142	6.72	30	
1-Methylnaphthalene	0.0166	0.00500	"	0.0333	ND	49.9	15-130	7.78	50	
2-Methylnaphthalene	0.0148	0.00500	"	0.0333	ND	44.3	15-130	14.8	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0157</i>		<i>"</i>	<i>0.0333</i>		<i>47.2</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0184</i>		<i>"</i>	<i>0.0333</i>		<i>55.1</i>	<i>40-150</i>			

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

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

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

Batch BFD0223 - EPA 3050B

Blank (BFD0223-BLK1)

Prepared: 04/12/22 Analyzed: 04/14/22

Boron ND 0.0100 mg/L

LCS (BFD0223-BS1)

Prepared: 04/12/22 Analyzed: 04/14/22

Boron 4.83 0.0100 mg/L 5.00 96.6 80-120

Duplicate (BFD0223-DUP1)

Source: 2204086-01

Prepared: 04/12/22 Analyzed: 04/14/22

Boron 0.0410 0.0100 mg/L 0.0435 6.02 20

Matrix Spike (BFD0223-MS1)

Source: 2204086-01

Prepared: 04/12/22 Analyzed: 04/14/22

Boron 5.30 0.0100 mg/L 5.00 0.0435 105 75-125

Matrix Spike Dup (BFD0223-MSD1)

Source: 2204086-01

Prepared: 04/12/22 Analyzed: 04/14/22

Boron 4.98 0.0100 mg/L 5.00 0.0435 98.7 75-125 6.20 25

Summit Scientific

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

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

Summit Scientific

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

Batch BFD0294 - General Preparation

Blank (BFD0294-BLK1)

Prepared: 04/14/22 Analyzed: 04/17/22

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

LCS (BFD0294-BS1)

Prepared: 04/14/22 Analyzed: 04/17/22

Calcium	5.37	0.0500	mg/L wet	5.00	107	70-130
Magnesium	5.70	0.0500	"	5.00	114	70-130
Sodium	5.19	0.0500	"	5.00	104	70-130

Summit Scientific

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

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

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

Batch BFD0239 - General Preparation

Duplicate (BFD0239-DUP1)		Source: 2204053-01			Prepared & Analyzed: 04/12/22			
% Solids	95.9		%		94.7		1.27	20

Summit Scientific

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

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

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

Batch BFD0315 - General Preparation

Blank (BFD0315-BLK1)

Prepared & Analyzed: 04/15/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BFD0315-BS1)

Prepared & Analyzed: 04/15/22

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BFD0315-DUP1)

Source: 2204061-01

Prepared & Analyzed: 04/15/22

Specific Conductance (EC) 4.11 0.0100 mmhos/cm 4.17 1.35 20

Summit Scientific

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

Project: Uyemura 34-31 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/18/22 14:26

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

Summit Scientific

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

Batch BFD0313 - General Preparation

LCS (BFD0313-BS1)

Prepared & Analyzed: 04/15/22

pH 9.03 pH Units 9.18 98.4 95-105

Duplicate (BFD0313-DUP1)

Source: 2204061-01

Prepared & Analyzed: 04/15/22

pH 8.04 pH Units 7.99 0.624 20

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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: Uyemura 34-31 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/18/22 14:26

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