

**TABLE 1**  
**WACKER 10G-302 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 <sup>(4)</sup> (mg/kg)
<b>Residential SSL <sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL <sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
SB01 @ 0-6"	7/18/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB02 @ 0-6"	7/18/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB03 @ 0-6"	7/18/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB04 @ 0-6"	7/18/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB05 @ 0-6"	7/18/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB01 @ 1'	9/21/2022	1 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB02 @ 1'	9/21/2022	1 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB03 @ 1'	9/21/2022	1 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB04 @ 1'	9/21/2022	1 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB05 @ 1'	9/21/2022	1 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB06 @ 0-6"	9/21/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB07 @ 0-6"	9/21/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB08 @ 0-6"	9/21/2022	0-6 in. 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

in. = Inches

ft. = Feet

bgs = Below ground surface

TABLE 2  
WACKER 10G-302 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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			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
SB01 @ 0-6"	7/18/2022	0-6 in. 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
SB02 @ 0-6"	7/18/2022	0-6 in. 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
SB03 @ 0-6"	7/18/2022	0-6 in. 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
SB04 @ 0-6"	7/18/2022	0-6 in. 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	0.00512
SB05 @ 0-6"	7/18/2022	0-6 in. 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
SB01 @ 1'	9/21/2022	1 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
SB02 @ 1'	9/21/2022	1 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
SB03 @ 1'	9/21/2022	1 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
SB04 @ 1'	9/21/2022	1 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
SB05 @ 1'	9/21/2022	1 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
SB06 @ 0-6"	9/21/2022	0-6 in. 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
SB07 @ 0-6"	9/21/2022	0-6 in. 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
SB08 @ 0-6"	9/21/2022	0-6 in. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.  
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.  
3. SSLs are applicable if a pathway for communication with

COGCC = Colorado Oil and Gas Conservation Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
PAHs = Polycyclic aromatic hydrocarbons

Benz(a) = Benzanthracene  
Benzo(a) = Benzopyrene  
Benzo(b) = Benzofluoranthene  
Benzo(k) = Benzofluoranthene  
A,H = Dibenzoanthracene  
1,2,3-CD = Indenopyrene  
M = Methylnaphthalene  
mg/kg = Milligrams per kilogram  
ft. = Feet  
in. = Inches  
bgs = Below ground surface

**TABLE 3**  
**WACKER 10G-302 WELLHEAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
SB01 @ 0-6"	7/18/2022	0-6 in. bgs	40.415063	-104.544219	1.0	0.4
SB02 @ 0-6"	7/18/2022	0-6 in. bgs	40.415038	-104.544191	1.0	0.0
SB03 @ 0-6"	7/18/2022	0-6 in. bgs	40.415096	-104.544174	1.0	0.0
SB04 @ 0-6"	7/18/2022	0-6 in. bgs	40.415148	-104.544220	1.1	0.0
SB05 @ 0-6"	7/18/2022	0-6 in. bgs	40.415108	-104.544233	1.3	0.1
BKG01 @ 0-6"	7/18/2022	0-6 in. bgs	40.414964	-104.544143	1.3	0.0
SB01 @ 1'	9/21/2022	1 ft. bgs	40.415063	-104.544219	1.0	0.0
SB02 @ 1'	9/21/2022	1 ft. bgs	40.415038	-104.544191	1.0	0.0
SB03 @ 1'	9/21/2022	1 ft. bgs	40.415096	-104.544174	1.0	0.0
SB04 @ 1'	9/21/2022	1 ft. bgs	40.415148	-104.544220	1.1	0.1
SB05 @ 1'	9/21/2022	1 ft. bgs	40.415108	-104.544233	1.3	0.0
SB06 @ 0-6"	9/21/2022	0-6 in. bgs	40.415149	-104.544077	NA	0.0
SB07 @ 0-6"	9/21/2022	0-6 in. bgs	40.415096	-104.544077	NA	0.1
SB08 @ 0-6"	9/21/2022	0-6 in. bgs	40.415030	-104.544080	NA	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

NA = Not applicable

## **ATTACHMENT A**

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 25, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Wacker 10G-302 Wellhead

Work Order #2207239

Enclosed are the results of analyses for samples received by Summit Scientific on 07/18/22 17:14. 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, flowing script.

Paul Shrewsbury

President



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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@0-6"	2207239-01	Soil	07/18/22 13:20	07/18/22 17:14
SB02@0-6"	2207239-02	Soil	07/18/22 13:40	07/18/22 17:14
SB03@0-6"	2207239-03	Soil	07/18/22 13:55	07/18/22 17:14
SB04@0-6"	2207239-04	Soil	07/18/22 14:05	07/18/22 17:14
SB05@0-6"	2207239-05	Soil	07/18/22 14:10	07/18/22 17:14

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

2207239

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: Wacker 10G-302 wellhead

Sampler Name: David Vigil

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	SB0100-6"	7/18/22	1320	3			X			X				X	X	X	X	X	X	X		pH, EC, SAR by saturated paste
2	SB0200-6"		1340	3			X			X				X	X	X	X	X	X	X		
3	SB0300-6"		1355	3			X			X				X	X	X	X	X	X	X		
4	SB0400-6"		1405	3			X			X				X	X	X	X	X	X	X		
5	SB0500-6"		1410	3			X			X				X	X	X	X	X	X	X		
6	SB060100-6"		1420	1			X			X										X		
7																						
8																						
9																						
10																						

Relinquished by: <i>David Vigil</i>	Date/Time: 7/18/22 1640	Received by: Tasman's Lock Box	Date/Time: 7/18/22 1640	<b>Turn Around Time</b> (Check) Same Day — 72 hours — 24 hours — Standard <input checked="" type="checkbox"/> 48 hours — <b>Sample Integrity:</b> Temperature Upon Receipt: 5.1 Samples Intact: YES No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box	Date/Time: 7/18/22 1714	Received by: <i>[Signature]</i>	Date/Time: 7/18/22 1714		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2207239

Client: Poc/Tasman Client Project ID: Wacker 106-302 wellhead

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

	-			
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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 5.1Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ice
Were all samples received intact <sup>(1)</sup> ?	-			
Was adequate sample volume provided <sup>(1)</sup> ?	-			
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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 <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			-	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				

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


Custodian Printed Name

71822

Date/Time





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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB01@0-6"**  
**2207239-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/18/22 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFG0331	07/19/22	07/20/22	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: **07/18/22 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0364	91.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0417	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0436	109 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/22 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0333	07/19/22	07/20/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/18/22 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.0	104 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB01@0-6"**  
**2207239-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/18/22 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BFG0327	07/19/22	07/22/22	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: **07/18/22 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0286	85.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0352	106 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB02@0-6"**  
**2207239-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/18/22 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0331	07/19/22	07/20/22	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: **07/18/22 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0342	85.4 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0417	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0420	105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/22 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0333	07/19/22	07/20/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/18/22 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	14.2	114 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB02@0-6"**  
**2207239-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/18/22 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BFG0327	07/19/22	07/22/22	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: **07/18/22 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0286	85.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0349	105 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB03@0-6"**  
**2207239-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/18/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0331	07/19/22	07/20/22	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: **07/18/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0342	85.5 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0417	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0418	105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0333	07/19/22	07/20/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/18/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.0	104 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB03@0-6"**  
**2207239-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/18/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BFG0327	07/19/22	07/22/22	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: **07/18/22 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0323	96.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0314	94.3 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB04@0-6"**  
**2207239-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/18/22 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0331	07/19/22	07/20/22	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: **07/18/22 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0351	87.7 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0418	105 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0421	105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/22 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0333	07/19/22	07/20/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/18/22 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	12.9	103 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB04@0-6"**  
**2207239-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/18/22 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BFG0327	07/19/22	07/22/22	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	"	"	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>0.00512</b>	0.00500	"	"	"	"	"	"	

Date Sampled: **07/18/22 14:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0345	104 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0336	101 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB05@0-6"**  
**2207239-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/18/22 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0331	07/19/22	07/20/22	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: **07/18/22 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0330	82.5 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0412	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0422	105 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/22 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0333	07/19/22	07/20/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/18/22 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.8	110 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**SB05@0-6"**  
**2207239-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/18/22 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BFG0327	07/19/22	07/22/22	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: **07/18/22 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0333	99.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0305	91.5 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

## 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 BFG0331 - EPA 5030 Soil MS

##### Blank (BFG0331-BLK1)

Prepared & Analyzed: 07/19/22

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0386		"	0.0400		96.4	50-150			
Surrogate: Toluene-d8	0.0418		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0428		"	0.0400		107	50-150			

##### LCS (BFG0331-BS1)

Prepared & Analyzed: 07/19/22

Benzene	0.139	0.0020	mg/kg	0.125		112	70-130			
Toluene	0.162	0.0050	"	0.125		129	70-130			
Ethylbenzene	0.138	0.0050	"	0.125		110	70-130			
m,p-Xylene	0.276	0.010	"	0.250		110	70-130			
o-Xylene	0.129	0.0050	"	0.125		103	70-130			
1,2,4-Trimethylbenzene	0.143	0.0050	"	0.125		114	70-130			
1,3,5-Trimethylbenzene	0.149	0.0050	"	0.125		119	70-130			
Naphthalene	0.100	0.0038	"	0.125		80.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0378		"	0.0400		94.4	50-150			
Surrogate: Toluene-d8	0.0425		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	50-150			

##### Matrix Spike (BFG0331-MS1)

Source: 2207213-01

Prepared & Analyzed: 07/19/22

Benzene	0.139	0.0020	mg/kg	0.125	ND	111	70-130			
Toluene	0.160	0.0050	"	0.125	ND	128	70-130			
Ethylbenzene	0.140	0.0050	"	0.125	ND	112	70-130			
m,p-Xylene	0.278	0.010	"	0.250	ND	111	70-130			
o-Xylene	0.133	0.0050	"	0.125	ND	107	70-130			
1,2,4-Trimethylbenzene	0.149	0.0050	"	0.125	ND	119	70-130			
1,3,5-Trimethylbenzene	0.154	0.0050	"	0.125	ND	123	70-130			
Naphthalene	0.110	0.0038	"	0.125	ND	87.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0369		"	0.0400		92.2	50-150			
Surrogate: Toluene-d8	0.0420		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0422		"	0.0400		106	50-150			

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**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 BFG0331 - EPA 5030 Soil MS**

Matrix Spike Dup (BFG0331-MSD1)	Source: 2207213-01			Prepared & Analyzed: 07/19/22						
Benzene	0.136	0.0020	mg/kg	0.125	ND	108	70-130	2.32	30	
Toluene	0.157	0.0050	"	0.125	ND	126	70-130	2.10	30	
Ethylbenzene	0.139	0.0050	"	0.125	ND	111	70-130	0.215	30	
m,p-Xylene	0.272	0.010	"	0.250	ND	109	70-130	1.95	30	
o-Xylene	0.129	0.0050	"	0.125	ND	104	70-130	2.79	30	
1,2,4-Trimethylbenzene	0.142	0.0050	"	0.125	ND	114	70-130	5.03	30	
1,3,5-Trimethylbenzene	0.148	0.0050	"	0.125	ND	118	70-130	4.23	30	
Naphthalene	0.103	0.0038	"	0.125	ND	82.2	70-130	6.75	30	
Surrogate: 1,2-Dichloroethane-d4	0.0350		"	0.0400		87.6	50-150			
Surrogate: Toluene-d8	0.0422		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	50-150			

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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

**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 BFG0333 - EPA 3550A**

**Blank (BFG0333-BLK1)**

Prepared & Analyzed: 07/19/22

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

**LCS (BFG0333-BS1)**

Prepared & Analyzed: 07/19/22

C10-C28 (DRO)	609	50	mg/kg	500	122	70-130
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**Matrix Spike (BFG0333-MS1)**

Source: 2207213-01

Prepared & Analyzed: 07/19/22

C10-C28 (DRO)	510	50	mg/kg	500	16.9	98.6	70-130
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**Matrix Spike Dup (BFG0333-MSD1)**

Source: 2207213-01

Prepared & Analyzed: 07/19/22

C10-C28 (DRO)	460	50	mg/kg	500	16.9	88.6	70-130	10.4	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

## 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 BFG0327 - EPA 5030 Soil MS

##### Blank (BFG0327-BLK1)

Prepared: 07/19/22 Analyzed: 07/22/22

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	"								
Surrogate: 2-Methylnaphthalene-d10	0.0378		"	0.0333		113		40-150			
Surrogate: Fluoranthene-d10	0.0275		"	0.0333		82.6		40-150			

##### LCS (BFG0327-BS1)

Prepared: 07/19/22 Analyzed: 07/22/22

Acenaphthene	0.0355	0.00500	mg/kg	0.0333		107		31-137			
Anthracene	0.0370	0.00500	"	0.0333		111		30-120			
Benzo (a) anthracene	0.0373	0.00500	"	0.0333		112		30-120			
Benzo (a) pyrene	0.0397	0.00500	"	0.0333		119		30-120			
Benzo (b) fluoranthene	0.0359	0.00500	"	0.0333		108		30-120			
Benzo (k) fluoranthene	0.0381	0.00500	"	0.0333		114		30-120			
Chrysene	0.0364	0.00500	"	0.0333		109		30-120			
Dibenz (a,h) anthracene	0.0344	0.00500	"	0.0333		103		30-120			
Fluoranthene	0.0358	0.00500	"	0.0333		107		30-120			
Fluorene	0.0324	0.00500	"	0.0333		97.1		30-120			
Indeno (1,2,3-cd) pyrene	0.0368	0.00500	"	0.0333		110		30-120			
Pyrene	0.0321	0.00500	"	0.0333		96.2		35-142			
1-Methylnaphthalene	0.0385	0.00500	"	0.0333		115		35-142			
2-Methylnaphthalene	0.0359	0.00500	"	0.0333		108		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0353		"	0.0333		106		40-150			
Surrogate: Fluoranthene-d10	0.0307		"	0.0333		92.2		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: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

## 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 BFG0327 - EPA 5030 Soil MS

##### Matrix Spike (BFG0327-MS1)

Source: 2207239-01

Prepared: 07/19/22 Analyzed: 07/22/22

Acenaphthene	0.0248	0.00500	mg/kg	0.0333	ND	74.4	31-137		
Anthracene	0.0365	0.00500	"	0.0333	ND	110	30-120		
Benzo (a) anthracene	0.0299	0.00500	"	0.0333	ND	89.6	30-120		
Benzo (a) pyrene	0.0295	0.00500	"	0.0333	ND	88.5	30-120		
Benzo (b) fluoranthene	0.0293	0.00500	"	0.0333	ND	88.0	30-120		
Benzo (k) fluoranthene	0.0339	0.00500	"	0.0333	ND	102	30-120		
Chrysene	0.0333	0.00500	"	0.0333	ND	99.9	30-120		
Dibenz (a,h) anthracene	0.0299	0.00500	"	0.0333	ND	89.8	30-120		
Fluoranthene	0.0399	0.00500	"	0.0333	ND	120	30-120		
Fluorene	0.0237	0.00500	"	0.0333	ND	71.0	30-120		
Indeno (1,2,3-cd) pyrene	0.0272	0.00500	"	0.0333	ND	81.7	30-120		
Pyrene	0.0362	0.00500	"	0.0333	ND	109	35-142		
1-Methylnaphthalene	0.0305	0.00500	"	0.0333	ND	91.4	15-130		
2-Methylnaphthalene	0.0250	0.00500	"	0.0333	ND	74.8	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0260		"	0.0333		78.1	40-150		
Surrogate: Fluoranthene-d10	0.0360		"	0.0333		108	40-150		

##### Matrix Spike Dup (BFG0327-MSD1)

Source: 2207239-01

Prepared: 07/19/22 Analyzed: 07/22/22

Acenaphthene	0.0228	0.00500	mg/kg	0.0333	ND	68.5	31-137	8.26	30
Anthracene	0.0312	0.00500	"	0.0333	ND	93.7	30-120	15.6	30
Benzo (a) anthracene	0.0267	0.00500	"	0.0333	ND	80.1	30-120	11.1	30
Benzo (a) pyrene	0.0272	0.00500	"	0.0333	ND	81.7	30-120	7.92	30
Benzo (b) fluoranthene	0.0264	0.00500	"	0.0333	ND	79.2	30-120	10.5	30
Benzo (k) fluoranthene	0.0307	0.00500	"	0.0333	ND	92.1	30-120	9.94	30
Chrysene	0.0305	0.00500	"	0.0333	ND	91.6	30-120	8.71	30
Dibenz (a,h) anthracene	0.0264	0.00500	"	0.0333	ND	79.3	30-120	12.4	30
Fluoranthene	0.0317	0.00500	"	0.0333	ND	95.2	30-120	22.9	30
Fluorene	0.0227	0.00500	"	0.0333	ND	68.2	30-120	3.96	30
Indeno (1,2,3-cd) pyrene	0.0247	0.00500	"	0.0333	ND	74.2	30-120	9.61	30
Pyrene	0.0366	0.00500	"	0.0333	ND	110	35-142	1.00	30
1-Methylnaphthalene	0.0278	0.00500	"	0.0333	ND	83.3	15-130	9.34	50
2-Methylnaphthalene	0.0227	0.00500	"	0.0333	ND	68.0	15-130	9.66	50
Surrogate: 2-Methylnaphthalene-d10	0.0233		"	0.0333		70.0	40-150		
Surrogate: Fluoranthene-d10	0.0295		"	0.0333		88.6	40-150		

Summit Scientific

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/25/22 10:53

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference



# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 29, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Wacker 10G-302 Wellhead

Work Order #2209440

Enclosed are the results of analyses for samples received by Summit Scientific on 09/21/22 18:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mikayla Axtell For Paul Shrewsbury  
President



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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@1'	2209440-01	Soil	09/21/22 10:34	09/21/22 18:15
SB02@1'	2209440-02	Soil	09/21/22 10:44	09/21/22 18:15
SB03@1'	2209440-03	Soil	09/21/22 10:53	09/21/22 18:15
SB04@1'	2209440-04	Soil	09/21/22 11:05	09/21/22 18:15
SB05@1'	2209440-05	Soil	09/21/22 11:20	09/21/22 18:15
SB06@0-6"	2209440-06	Soil	09/21/22 11:33	09/21/22 18:15
SB07@0-6"	2209440-07	Soil	09/21/22 11:40	09/21/22 18:15
SB08@0-6"	2209440-08	Soil	09/21/22 11:47	09/21/22 18:15

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

S<sub>2</sub>

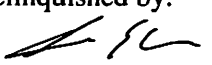
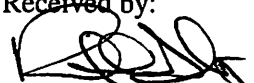
2209440

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

Page | of |

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: Wacker IDG - 362 Wellhead  
Sampler Name: Sam Anderson Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAHs	Metals			
1	SB01 c 1'	9/21/22	1034	2			X			X				X	X	X			X			pH, EC, SAR by saturated paste
2	SB02 c 1'		1044																			
3	SB03 c 1'		1053																			
4	SB04 c 1'		1105																			
5	SB05 c 1'		1120																			
6	SB06 c 0-6"		1133																			
7	SB07 c 0-6"		1140																			
8	SB08 c 0-6"	✓	1147	✓						✓				✓	✓	✓			✓			
9																						
10																						

Relinquished by: 	Date/Time: 9/21/22 1340	Received by: Tasman's Lock Box	Date/Time: 9/21/22 1340	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: 9/21/22 1815	Received by: 	Date/Time: 9/21/22 1815	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 73 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2209440Client: POC/TasmanClient Project ID: Wacker 10G-302 wellheadShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐

Airbill #: \_\_\_\_\_

☐ ☐ ☐ ☐ ☐

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☐

Other

☐

Temp (°C)

73

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> 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
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<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)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> 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):				

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

Custodian Printed Name

Date/Time

8-21-22

20:45



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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB01@1'**  
**2209440-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 10:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/23/22	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: **09/21/22 10:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		116 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		93.9 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 10:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 10:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		129 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB01@1'**  
**2209440-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 10:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 10:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		42.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		50.6 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB02@1'**  
**2209440-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/23/22	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: **09/21/22 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		114 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		93.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		130 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB02@1'**  
**2209440-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 10:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		51.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		49.6 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB03@1'**  
**2209440-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/23/22	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: **09/21/22 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		126 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		130 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB03@1'**  
**2209440-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 10:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		47.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		69.5 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB04@1'**  
**2209440-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/23/22	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: **09/21/22 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		95.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.6 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		133 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB04@1'**  
**2209440-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 11:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		55.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		79.4 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB05@1'**  
**2209440-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/23/22	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: **09/21/22 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		93.0 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.5 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		132 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB05@1'**  
**2209440-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		45.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		60.4 %	40-150		"	"	"	"	

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB06@0-6"**  
**2209440-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 11:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/23/22	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: **09/21/22 11:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		123 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		91.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 11:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 11:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		129 %	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: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB06@0-6"**  
**2209440-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 11:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 11:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		45.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		64.2 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB07@0-6"**  
**2209440-07 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/23/22	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: **09/21/22 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		93.7 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.5 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		126 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB07@0-6"**  
**2209440-07 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		54.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		73.5 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB08@0-6"**  
**2209440-08 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/21/22 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BF10585	09/22/22	09/29/22	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: **09/21/22 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.8 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		87.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.8 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/21/22 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BF10589	09/22/22	09/25/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/21/22 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		124 %	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: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**SB08@0-6"**  
**2209440-08 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/21/22 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BF10640	09/26/22	09/27/22	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: **09/21/22 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		46.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.7 %	40-150		"	"	"	"	

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

## 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 BFI0585 - EPA 5030 Soil MS

##### Blank (BFI0585-BLK1)

Prepared: 09/22/22 Analyzed: 09/23/22

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0397		"	0.0400		99.2	50-150			
Surrogate: Toluene-d8	0.0388		"	0.0400		97.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0371		"	0.0400		92.8	50-150			

##### LCS (BFI0585-BS1)

Prepared: 09/22/22 Analyzed: 09/23/22

Benzene	0.0610	0.0020	mg/kg	0.0750		81.3	70-130			
Toluene	0.0620	0.0050	"	0.0750		82.7	70-130			
Ethylbenzene	0.0536	0.0050	"	0.0750		71.5	70-130			
m,p-Xylene	0.107	0.010	"	0.150		71.5	70-130			
o-Xylene	0.0574	0.0050	"	0.0750		76.6	70-130			
1,2,4-Trimethylbenzene	0.0543	0.0050	"	0.0750		72.4	70-130			
1,3,5-Trimethylbenzene	0.0530	0.0050	"	0.0750		70.7	70-130			
Naphthalene	0.0538	0.0038	"	0.0750		71.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0414		"	0.0400		104	50-150			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.5	50-150			

##### Matrix Spike (BFI0585-MS1)

Source: 2209407-01

Prepared: 09/22/22 Analyzed: 09/23/22

Benzene	0.0568	0.0020	mg/kg	0.0750	ND	75.7	70-130			
Toluene	0.0591	0.0050	"	0.0750	ND	78.8	70-130			
Ethylbenzene	0.0581	0.0050	"	0.0750	ND	77.5	70-130			
m,p-Xylene	0.115	0.010	"	0.150	ND	76.9	70-130			
o-Xylene	0.0603	0.0050	"	0.0750	ND	80.4	70-130			
1,2,4-Trimethylbenzene	0.0564	0.0050	"	0.0750	ND	75.2	70-130			
1,3,5-Trimethylbenzene	0.0569	0.0050	"	0.0750	ND	75.9	70-130			
Naphthalene	0.0543	0.0038	"	0.0750	ND	72.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0357		"	0.0400		89.2	50-150			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0358		"	0.0400		89.6	50-150			

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

## 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 BFI0585 - EPA 5030 Soil MS

Matrix Spike Dup (BFI0585-MSD1)		Source: 2209407-01			Prepared: 09/22/22 Analyzed: 09/23/22					
Benzene	0.0602	0.0020	mg/kg	0.0750	ND	80.2	70-130	5.80	30	
Toluene	0.0641	0.0050	"	0.0750	ND	85.5	70-130	8.13	30	
Ethylbenzene	0.0580	0.0050	"	0.0750	ND	77.4	70-130	0.155	30	
m,p-Xylene	0.116	0.010	"	0.150	ND	77.1	70-130	0.338	30	
o-Xylene	0.0604	0.0050	"	0.0750	ND	80.5	70-130	0.0994	30	
1,2,4-Trimethylbenzene	0.0578	0.0050	"	0.0750	ND	77.1	70-130	2.42	30	
1,3,5-Trimethylbenzene	0.0574	0.0050	"	0.0750	ND	76.6	70-130	0.892	30	
Naphthalene	0.0585	0.0038	"	0.0750	ND	78.0	70-130	7.40	30	
Surrogate: 1,2-Dichloroethane-d4		0.0389	"	0.0400		97.2	50-150			
Surrogate: Toluene-d8		0.0400	"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene		0.0367	"	0.0400		91.8	50-150			

Summit Scientific

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

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

**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 BFI0589 - EPA 3550A**

**Blank (BFI0589-BLK1)**

Prepared: 09/22/22 Analyzed: 09/24/22

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

**LCS (BFI0589-BS1)**

Prepared: 09/22/22 Analyzed: 09/24/22

C10-C28 (DRO)	594	50	mg/kg	500	119	70-130
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**Matrix Spike (BFI0589-MS1)**

Source: 2209407-01

Prepared: 09/22/22 Analyzed: 09/24/22

C10-C28 (DRO)	623	50	mg/kg	500	16.0	121	70-130
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**Matrix Spike Dup (BFI0589-MSD1)**

Source: 2209407-01

Prepared: 09/22/22 Analyzed: 09/24/22

C10-C28 (DRO)	587	50	mg/kg	500	16.0	114	70-130	5.94	20
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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Wacker 10G-302 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

## 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 BFI0640 - EPA 5030 Soil MS

##### Blank (BFI0640-BLK1)

Prepared & Analyzed: 09/26/22

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	"								
Surrogate: 2-Methylnaphthalene-d10	0.0193		"	0.0333		58.0		40-150			
Surrogate: Fluoranthene-d10	0.0333		"	0.0333		99.8		40-150			

##### LCS (BFI0640-BS1)

Prepared & Analyzed: 09/26/22

Acenaphthene	0.0310	0.00500	mg/kg	0.0333		92.9		31-137			
Anthracene	0.0280	0.00500	"	0.0333		83.9		30-120			
Benzo (a) anthracene	0.0238	0.00500	"	0.0333		71.5		30-120			
Benzo (a) pyrene	0.0250	0.00500	"	0.0333		75.1		30-120			
Benzo (b) fluoranthene	0.0209	0.00500	"	0.0333		62.6		30-120			
Benzo (k) fluoranthene	0.0315	0.00500	"	0.0333		94.4		30-120			
Chrysene	0.0304	0.00500	"	0.0333		91.1		30-120			
Dibenz (a,h) anthracene	0.0141	0.00500	"	0.0333		42.3		30-120			
Fluoranthene	0.0310	0.00500	"	0.0333		93.1		30-120			
Fluorene	0.0328	0.00500	"	0.0333		98.4		30-120			
Indeno (1,2,3-cd) pyrene	0.0161	0.00500	"	0.0333		48.3		30-120			
Pyrene	0.0343	0.00500	"	0.0333		103		35-142			
1-Methylnaphthalene	0.0238	0.00500	"	0.0333		71.3		35-142			
2-Methylnaphthalene	0.0300	0.00500	"	0.0333		89.9		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0258		"	0.0333		77.3		40-150			
Surrogate: Fluoranthene-d10	0.0328		"	0.0333		98.4		40-150			

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

## 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 BFI0640 - EPA 5030 Soil MS

##### Matrix Spike (BFI0640-MS1)

Source: 2209440-01

Prepared & Analyzed: 09/26/22

Acenaphthene	0.0209	0.00500	mg/kg	0.0333	ND	62.7	31-137		
Anthracene	0.0219	0.00500	"	0.0333	ND	65.7	30-120		
Benzo (a) anthracene	0.0226	0.00500	"	0.0333	ND	67.7	30-120		
Benzo (a) pyrene	0.0202	0.00500	"	0.0333	ND	60.5	30-120		
Benzo (b) fluoranthene	0.0174	0.00500	"	0.0333	ND	52.1	30-120		
Benzo (k) fluoranthene	0.0226	0.00500	"	0.0333	ND	67.9	30-120		
Chrysene	0.0219	0.00500	"	0.0333	ND	65.6	30-120		
Dibenz (a,h) anthracene	0.0144	0.00500	"	0.0333	ND	43.2	30-120		
Fluoranthene	0.0248	0.00500	"	0.0333	ND	74.5	30-120		
Fluorene	0.0223	0.00500	"	0.0333	ND	66.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0172	0.00500	"	0.0333	ND	51.6	30-120		
Pyrene	0.0259	0.00500	"	0.0333	ND	77.7	35-142		
1-Methylnaphthalene	0.0201	0.00500	"	0.0333	ND	60.4	15-130		
2-Methylnaphthalene	0.0235	0.00500	"	0.0333	ND	70.6	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0208		"	0.0333		62.4	40-150		
Surrogate: Fluoranthene-d10	0.0263		"	0.0333		79.0	40-150		

##### Matrix Spike Dup (BFI0640-MSD1)

Source: 2209440-01

Prepared & Analyzed: 09/26/22

Acenaphthene	0.0184	0.00500	mg/kg	0.0333	ND	55.1	31-137	13.0	30
Anthracene	0.0185	0.00500	"	0.0333	ND	55.5	30-120	16.9	30
Benzo (a) anthracene	0.0193	0.00500	"	0.0333	ND	57.8	30-120	15.7	30
Benzo (a) pyrene	0.0160	0.00500	"	0.0333	ND	47.9	30-120	23.2	30
Benzo (b) fluoranthene	0.0143	0.00500	"	0.0333	ND	42.9	30-120	19.3	30
Benzo (k) fluoranthene	0.0179	0.00500	"	0.0333	ND	53.6	30-120	23.5	30
Chrysene	0.0171	0.00500	"	0.0333	ND	51.2	30-120	24.7	30
Dibenz (a,h) anthracene	0.0136	0.00500	"	0.0333	ND	40.9	30-120	5.47	30
Fluoranthene	0.0198	0.00500	"	0.0333	ND	59.5	30-120	22.3	30
Fluorene	0.0183	0.00500	"	0.0333	ND	55.0	30-120	19.4	30
Indeno (1,2,3-cd) pyrene	0.0137	0.00500	"	0.0333	ND	41.2	30-120	22.5	30
Pyrene	0.0213	0.00500	"	0.0333	ND	64.0	35-142	19.4	30
1-Methylnaphthalene	0.0176	0.00500	"	0.0333	ND	52.7	15-130	13.7	50
2-Methylnaphthalene	0.0220	0.00500	"	0.0333	ND	66.0	15-130	6.74	50
Surrogate: 2-Methylnaphthalene-d10	0.0181		"	0.0333		54.3	40-150		
Surrogate: Fluoranthene-d10	0.0212		"	0.0333		63.5	40-150		

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

Project: Wacker 10G-302 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/29/22 16:10

### 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