

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80401

303.277.9310

February 14, 2024

Ben Shoup

Citation Oil & Gas

14077 Cutten Rd

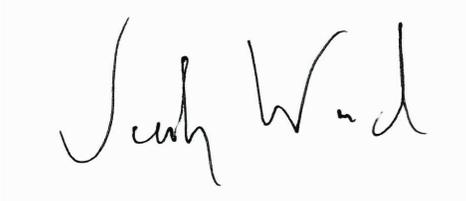
Houston, TX. 77069-2212

RE: Absaroka - Bill 32-26 #5

Work Order # 2401589

Enclosed are the results of analyses for samples received by Summit Scientific on 01/31/24 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and a long, sweeping underline.

Jacob Wood For Paul Shrewsbury

President



Citation Oil & Gas
14077 Cutten Rd
Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
Project Manager: Ben Shoup

Reported:
02/14/24 10:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@5'	2401589-01	Soil	01/31/24 08:45	01/31/24 16:30
BKG01@5'	2401589-02	Soil	01/31/24 09:00	01/31/24 16:30

Summit Scientific

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4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
24015801	

Client: <u>Citation</u>	Send Data To:	Send Invoice To:
Address:	Project Manager: <u>Ben Shoup / Max Dahlgren</u>	Company: <u>Absarok</u>
City/State/Zip:	E-Mail:	Project Name/Location:
Phone:	Project Name: <u>B:11 32-26 #5</u>	AFE#:
Sampler Name: <u>Max Dahlgren</u>	Project Number:	PO/Billing Codes:
		Contact:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Foil	915 Sw-tc	915-PH, PC, SAR	915-metals		Bara -th-S
1	SS01 @ 5'	1/31/24	845	3			X			X			X					
2	BKG01 @ 5'		900	1			X			X				X				
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

Relinquished by: <u>[Signature]</u>	Date/Time: <u>1/31/24 1540</u>	Received by: <u>[Signature]</u>	Date/Time: <u>1/31/24 1630</u>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <u>[Signature]</u>	Date/Time: <u>1/31/24 (1030)</u>	Received by: <u>[Signature]</u>	Date/Time: <u>1/31/24 1630</u>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by: <u>[Signature]</u>	Date/Time: <u>1/31/24</u>	Received by: <u>[Signature]</u>	Date/Time: <u>1/31/24</u>	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: <u>8.1</u>	Corrected Temperature: <u>8</u>	IR gun #:	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2401589

Client: Citation Client Project ID: Bill 32-20 #5

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

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

Temp (°C)

Thermometer #

	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on 2 CE
If custody seals are present, are they intact? ⁽¹⁾	<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 ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

includes bags

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

AS

Custodian Printed Name

1/31/24
Date/Time



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14077 Cutten Rd
Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
Project Manager: Ben Shoup

Reported:
02/14/24 10:02

SS01@5'
2401589-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020	0.000098	mg/kg	1	BHB0127	02/05/24	02/05/24	EPA 8260B	
Toluene	ND	0.0050	0.00025	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	0.00021	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	0.00044	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	0.00024	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	0.00024	"	"	"	"	"	"	
Naphthalene	ND	0.0038	0.00036	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		96.8 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50	4.3	mg/kg	1	BHB0129	02/05/24	02/05/24	EPA 8015M	
C28-C36 (ORO)	ND	50	4.3	"	"	"	"	"	"	

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		63.3 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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2401589-01 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Acenaphthene	ND	0.00500	0.000620	mg/kg	1	BHB0109	02/05/24	02/05/24	EPA 8270D SIM	
Anthracene	ND	0.00500	0.000308	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	0.000363	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	0.000234	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	0.000433	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	0.000423	"	"	"	"	"	"	
Chrysene	ND	0.00500	0.000237	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	0.00167	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	0.000373	"	"	"	"	"	"	
Fluorene	ND	0.00500	0.000477	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	0.00118	"	"	"	"	"	"	
Pyrene	ND	0.00500	0.000317	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	0.00185	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	0.00189	"	"	"	"	"	"	

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 2-Methylnaphthalene-d10		45.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		44.8 %		40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Boron	0.0282	2.00	0.00690	mg/L	1	BHB0264	02/08/24	02/09/24	EPA 6020B	J

Total Metals by EPA 6020B

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							

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Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
Project Manager: Ben Shoup

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02/14/24 10:02

SS01@5'
2401589-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.488	0.200	0.168	mg/kg dry	1	BHB0317	02/09/24	02/10/24	EPA 6020B	
Barium	73.2	0.400	0.316	"	"	"	"	"	"	
Cadmium	ND	0.200	0.00720	"	"	"	"	"	"	
Copper	1.25	0.400	0.0209	"	"	"	"	"	"	
Lead	1.64	0.200	0.0550	"	"	"	"	"	"	
Nickel	1.09	0.400	0.0610	"	"	"	"	"	"	
Silver	ND	0.0200	0.00267	"	"	"	"	"	"	
Zinc	3.15	0.400	0.266	"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 01/31/24 08:45

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	0.040	mg/kg dry	1	BHB0166	02/06/24	02/06/24	EPA 7196A	

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

Date Sampled: 01/31/24 08:45

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	26.2	0.0500		mg/L dry	1	BHB0048	02/01/24	02/06/24	EPA 6020B	
Magnesium	5.43	0.0500		"	"	"	"	"	"	
Sodium	1.21	0.0500		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 01/31/24 08:45

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0562	0.00100		units	1	BHB0228	02/07/24	02/07/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

SS01@5'
2401589-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	97.3			%	1	BHB0186	02/06/24	02/07/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.102	0.0100	0.00100	mmhos/cm	1	BHB0054	02/02/24	02/02/24	EPA 120.1	

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

Date Sampled: **01/31/24 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.93			pH Units	1	BHB0053	02/02/24	02/02/24	EPA 9045D	

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BKG01@5'
2401589-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Boron	0.0326	2.00	0.00690	mg/L	1	BHB0264	02/08/24	02/09/24	EPA 6020B	J

Total Metals by EPA 6020B

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Arsenic	0.713	0.200	0.168	mg/kg dry	1	BHB0317	02/09/24	02/10/24	EPA 6020B	
Barium	86.9	0.400	0.316	"	"	"	"	"	"	
Cadmium	ND	0.200	0.00720	"	"	"	"	"	"	
Copper	1.30	0.400	0.0209	"	"	"	"	"	"	
Lead	1.68	0.200	0.0550	"	"	"	"	"	"	
Nickel	1.03	0.400	0.0610	"	"	"	"	"	"	
Silver	ND	0.0200	0.00267	"	"	"	"	"	"	
Zinc	3.01	0.400	0.266	"	"	"	"	"	"	
Selenium	ND	0.260	0.175	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Chromium, Hexavalent	ND	0.30	0.040	mg/kg dry	1	BHB0166	02/06/24	02/06/24	EPA 7196A	

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

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Calcium	76.4	0.0500		mg/L dry	1	BHB0048	02/01/24	02/06/24	EPA 6020B	
Magnesium	5.63	0.0500		"	"	"	"	"	"	
Sodium	8.69	0.0500		"	"	"	"	"	"	

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Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

BKG01@5'
2401589-02 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Sodium Adsorption Ratio	0.259	0.00100		units	1	BHB0228	02/07/24	02/07/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	97.4			%	1	BHB0186	02/06/24	02/07/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	0.159	0.0100	0.00100	mmhos/cm	1	BHB0054	02/02/24	02/02/24	EPA 120.1	

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

Date Sampled: **01/31/24 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.89			pH Units	1	BHB0053	02/02/24	02/02/24	EPA 9045D	

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Project: Absaroka - Bill 32-26 #5

Project Number: [none]
Project Manager: Ben Shoup

Reported:
02/14/24 10:02

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHB0127 - EPA 5030 Soil MS

Blank (BHB0127-BLK1)

Prepared & Analyzed: 02/05/24

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	0.0373		"	0.0400		93.2	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0423		"	0.0400		106	50-150			

LCS (BHB0127-BS1)

Prepared & Analyzed: 02/05/24

Benzene	0.102	0.0020	mg/kg	0.100		102	70-130			
Toluene	0.0948	0.0050	"	0.100		94.8	70-130			
Ethylbenzene	0.0917	0.0050	"	0.100		91.7	70-130			
m,p-Xylene	0.179	0.010	"	0.200		89.3	70-130			
o-Xylene	0.0905	0.0050	"	0.100		90.5	70-130			
1,2,4-Trimethylbenzene	0.0922	0.0050	"	0.100		92.2	70-130			
1,3,5-Trimethylbenzene	0.0894	0.0050	"	0.100		89.4	70-130			
Naphthalene	0.105	0.0038	"	0.100		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0400		92.4	50-150			
Surrogate: Toluene-d8	0.0408		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400		104	50-150			

Matrix Spike (BHB0127-MS1)

Source: 2401417-01

Prepared & Analyzed: 02/05/24

Benzene	0.0906	0.0020	mg/kg	0.100	ND	90.6	70-130			
Toluene	0.0821	0.0050	"	0.100	ND	82.1	70-130			
Ethylbenzene	0.0760	0.0050	"	0.100	ND	76.0	70-130			
m,p-Xylene	0.147	0.010	"	0.200	ND	73.7	70-130			
o-Xylene	0.0746	0.0050	"	0.100	ND	74.6	70-130			
1,2,4-Trimethylbenzene	0.0700	0.0050	"	0.100	ND	70.0	70-130			
1,3,5-Trimethylbenzene	0.0680	0.0050	"	0.100	ND	68.0	70-130			QM-07
Naphthalene	0.0728	0.0038	"	0.100	ND	72.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0394		"	0.0400		98.6	50-150			
Surrogate: Toluene-d8	0.0405		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	50-150			

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Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

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

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

Batch BHB0127 - EPA 5030 Soil MS

Matrix Spike Dup (BHB0127-MSD1)	Source: 2401417-01			Prepared & Analyzed: 02/05/24						
Benzene	0.0856	0.0020	mg/kg	0.100	ND	85.6	70-130	5.62	30	
Toluene	0.0765	0.0050	"	0.100	ND	76.5	70-130	7.07	30	
Ethylbenzene	0.0718	0.0050	"	0.100	ND	71.8	70-130	5.64	30	
m,p-Xylene	0.138	0.010	"	0.200	ND	68.8	70-130	6.82	30	QM-07
o-Xylene	0.0700	0.0050	"	0.100	ND	70.0	70-130	6.47	30	
1,2,4-Trimethylbenzene	0.0637	0.0050	"	0.100	ND	63.7	70-130	9.42	30	QM-07
1,3,5-Trimethylbenzene	0.0614	0.0050	"	0.100	ND	61.4	70-130	10.1	30	QM-07
Naphthalene	0.0697	0.0038	"	0.100	ND	69.7	70-130	4.38	30	QM-07
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.4</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0411</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>50-150</i>			

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Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

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 BHB0129 - EPA 3550A

Blank (BHB0129-BLK1)

Prepared & Analyzed: 02/05/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	10.7		"	12.5		85.9	30-150				

LCS (BHB0129-BS1)

Prepared & Analyzed: 02/05/24

C10-C28 (DRO)	450	50	mg/kg	500		90.1	70-130				
Surrogate: <i>o</i> -Terphenyl	9.56		"	12.5		76.4	30-150				

Matrix Spike (BHB0129-MS1)

Source: 2401417-01

Prepared & Analyzed: 02/05/24

C10-C28 (DRO)	396	50	mg/kg	500	13.6	76.4	70-130				
Surrogate: <i>o</i> -Terphenyl	5.49		"	12.5		44.0	30-150				

Matrix Spike Dup (BHB0129-MSD1)

Source: 2401417-01

Prepared & Analyzed: 02/05/24

C10-C28 (DRO)	421	50	mg/kg	500	13.6	81.5	70-130	6.23	20		
Surrogate: <i>o</i> -Terphenyl	5.42		"	12.5		43.4	30-150				

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Citation Oil & Gas
14077 Cutten Rd
Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
Project Manager: Ben Shoup

Reported:
02/14/24 10:02

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 BHB0109 - EPA 5030 Soil MS

Blank (BHB0109-BLK1)

Prepared & Analyzed: 02/05/24

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>0.0250</i>		"	<i>0.0333</i>		<i>74.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0272</i>		"	<i>0.0333</i>		<i>81.5</i>	<i>40-150</i>			

LCS (BHB0109-BS1)

Prepared & Analyzed: 02/05/24

Acenaphthene	0.0257	0.00500	mg/kg	0.0333		77.1	31-137			
Anthracene	0.0260	0.00500	"	0.0333		78.0	30-120			
Benzo (a) anthracene	0.0141	0.00500	"	0.0333		42.3	30-120			
Benzo (a) pyrene	0.0213	0.00500	"	0.0333		63.8	30-120			
Benzo (b) fluoranthene	0.0189	0.00500	"	0.0333		56.6	30-120			
Benzo (k) fluoranthene	0.0243	0.00500	"	0.0333		73.0	30-120			
Chrysene	0.0267	0.00500	"	0.0333		80.0	30-120			
Dibenz (a,h) anthracene	0.0190	0.00500	"	0.0333		57.1	30-120			
Fluoranthene	0.0256	0.00500	"	0.0333		76.7	30-120			
Fluorene	0.0254	0.00500	"	0.0333		76.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0217	0.00500	"	0.0333		65.1	30-120			
Pyrene	0.0275	0.00500	"	0.0333		82.5	35-142			
1-Methylnaphthalene	0.0316	0.00500	"	0.0333		94.8	35-142			
2-Methylnaphthalene	0.0228	0.00500	"	0.0333		68.5	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0319</i>		"	<i>0.0333</i>		<i>95.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0260</i>		"	<i>0.0333</i>		<i>78.1</i>	<i>40-150</i>			

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Citation Oil & Gas
14077 Cutten Rd
Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
Project Manager: Ben Shoup

Reported:
02/14/24 10:02

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 BHB0109 - EPA 5030 Soil MS

Matrix Spike (BHB0109-MS1)	Source: 2401589-01			Prepared & Analyzed: 02/05/24							
Acenaphthene	0.0190	0.00500	mg/kg	0.0333	ND	57.0	31-137				
Anthracene	0.0192	0.00500	"	0.0333	ND	57.7	30-120				
Benzo (a) anthracene	0.0129	0.00500	"	0.0333	ND	38.7	30-120				
Benzo (a) pyrene	0.0178	0.00500	"	0.0333	ND	53.3	30-120				
Benzo (b) fluoranthene	0.0144	0.00500	"	0.0333	ND	43.1	30-120				
Benzo (k) fluoranthene	0.0186	0.00500	"	0.0333	ND	55.8	30-120				
Chrysene	0.0197	0.00500	"	0.0333	ND	59.2	30-120				
Dibenz (a,h) anthracene	0.0162	0.00500	"	0.0333	ND	48.7	30-120				
Fluoranthene	0.0205	0.00500	"	0.0333	ND	61.6	30-120				
Fluorene	0.0196	0.00500	"	0.0333	ND	58.7	30-120				
Indeno (1,2,3-cd) pyrene	0.0166	0.00500	"	0.0333	ND	49.7	30-120				
Pyrene	0.0214	0.00500	"	0.0333	ND	64.1	35-142				
1-Methylnaphthalene	0.0212	0.00500	"	0.0333	ND	63.7	15-130				
2-Methylnaphthalene	0.0157	0.00500	"	0.0333	ND	47.0	15-130				
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0243</i>		<i>"</i>	<i>0.0333</i>		<i>73.0</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0217</i>		<i>"</i>	<i>0.0333</i>		<i>65.2</i>	<i>40-150</i>				

Matrix Spike Dup (BHB0109-MSD1)	Source: 2401589-01			Prepared & Analyzed: 02/05/24							
Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.5	31-137	6.25	30		
Anthracene	0.0186	0.00500	"	0.0333	ND	55.9	30-120	3.12	30		
Benzo (a) anthracene	0.0133	0.00500	"	0.0333	ND	39.9	30-120	2.98	30		
Benzo (a) pyrene	0.0179	0.00500	"	0.0333	ND	53.6	30-120	0.496	30		
Benzo (b) fluoranthene	0.0145	0.00500	"	0.0333	ND	43.5	30-120	0.959	30		
Benzo (k) fluoranthene	0.0180	0.00500	"	0.0333	ND	54.1	30-120	3.14	30		
Chrysene	0.0186	0.00500	"	0.0333	ND	55.8	30-120	5.96	30		
Dibenz (a,h) anthracene	0.0162	0.00500	"	0.0333	ND	48.5	30-120	0.572	30		
Fluoranthene	0.0197	0.00500	"	0.0333	ND	59.0	30-120	4.23	30		
Fluorene	0.0187	0.00500	"	0.0333	ND	56.1	30-120	4.43	30		
Indeno (1,2,3-cd) pyrene	0.0164	0.00500	"	0.0333	ND	49.3	30-120	0.818	30		
Pyrene	0.0195	0.00500	"	0.0333	ND	58.6	35-142	9.00	30		
1-Methylnaphthalene	0.0174	0.00500	"	0.0333	ND	52.2	15-130	19.8	50		
2-Methylnaphthalene	0.0139	0.00500	"	0.0333	ND	41.6	15-130	12.2	50		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0186</i>		<i>"</i>	<i>0.0333</i>		<i>55.8</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0207</i>		<i>"</i>	<i>0.0333</i>		<i>62.0</i>	<i>40-150</i>				

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Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

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 BHB0264 - EPA 3050B

Blank (BHB0264-BLK1)

Prepared: 02/08/24 Analyzed: 02/09/24

Boron ND 2.00 mg/L

LCS (BHB0264-BS1)

Prepared: 02/08/24 Analyzed: 02/09/24

Boron 4.52 2.00 mg/L 5.00 90.5 80-120

Duplicate (BHB0264-DUP1)

Source: 2401569-01

Prepared: 02/08/24 Analyzed: 02/09/24

Boron 0.0602 2.00 mg/L 0.0630 4.61 20 J

Matrix Spike (BHB0264-MS1)

Source: 2401569-01

Prepared: 02/08/24 Analyzed: 02/09/24

Boron 4.88 2.00 mg/L 5.00 0.0630 96.4 75-125

Matrix Spike Dup (BHB0264-MSD1)

Source: 2401569-01

Prepared: 02/08/24 Analyzed: 02/09/24

Boron 4.96 2.00 mg/L 5.00 0.0630 97.9 75-125 1.52 25

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Citation Oil & Gas
14077 Cutten Rd
Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
Project Manager: Ben Shoup

Reported:
02/14/24 10:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHB0317 - EPA 3050B

Blank (BHB0317-BLK1)

Prepared: 02/09/24 Analyzed: 02/10/24

Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

LCS (BHB0317-BS1)

Prepared: 02/09/24 Analyzed: 02/10/24

Arsenic	40.5	0.200	mg/kg wet	40.0		101	80-120
Barium	36.7	0.400	"	40.0		91.7	80-120
Cadmium	1.73	0.200	"	2.00		86.5	80-120
Copper	41.9	0.400	"	40.0		105	80-120
Lead	17.5	0.200	"	20.0		87.3	80-120
Nickel	41.0	0.400	"	40.0		102	80-120
Silver	1.74	0.0200	"	2.00		87.0	80-120
Zinc	39.7	0.400	"	40.0		99.1	80-120
Selenium	4.14	0.260	"	4.00		103	80-120

Duplicate (BHB0317-DUP1)

Source: 2401582-01

Prepared: 02/09/24 Analyzed: 02/10/24

Arsenic	0.737	0.200	mg/kg dry	0.729		1.06	20
Barium	60.9	0.400	"	58.9		3.19	20
Cadmium	0.0735	0.200	"	0.0692		6.06	20
Copper	3.16	0.400	"	3.24		2.36	20
Lead	5.24	0.200	"	5.13		1.95	20
Nickel	3.08	0.400	"	3.12		1.34	20
Silver	0.0320	0.0200	"	0.0324		1.34	20
Zinc	9.96	0.400	"	10.1		1.80	20
Selenium	ND	0.260	"	ND			20

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Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BHB0317 - EPA 3050B

Matrix Spike (BHB0317-MS1)

Source: 2401582-01

Prepared: 02/09/24 Analyzed: 02/10/24

Arsenic	16.0	0.200	mg/kg dry	43.2	0.729	35.3	75-125				QM-07
Barium	98.0	0.400	"	43.2	58.9	90.4	75-125				
Cadmium	2.03	0.200	"	2.16	0.0692	90.8	75-125				
Copper	18.8	0.400	"	43.2	3.24	35.9	75-125				QM-07
Lead	23.7	0.200	"	21.6	5.13	85.7	75-125				
Nickel	18.8	0.400	"	43.2	3.12	36.3	75-125				QM-07
Silver	1.97	0.0200	"	2.16	0.0324	89.5	75-125				
Zinc	25.6	0.400	"	43.2	10.1	35.8	75-125				QM-07
Selenium	4.53	0.260	"	4.32	ND	105	75-125				

Matrix Spike Dup (BHB0317-MSD1)

Source: 2401582-01

Prepared: 02/09/24 Analyzed: 02/10/24

Arsenic	16.1	0.200	mg/kg dry	43.2	0.729	35.7	75-125	1.05	25		QM-07
Barium	97.0	0.400	"	43.2	58.9	88.0	75-125	1.05	25		
Cadmium	2.02	0.200	"	2.16	0.0692	90.4	75-125	0.363	25		
Copper	19.1	0.400	"	43.2	3.24	36.6	75-125	1.58	25		QM-07
Lead	23.2	0.200	"	21.6	5.13	83.5	75-125	2.09	25		
Nickel	19.1	0.400	"	43.2	3.12	37.0	75-125	1.53	25		QM-07
Silver	1.94	0.0200	"	2.16	0.0324	88.3	75-125	1.39	25		
Zinc	25.7	0.400	"	43.2	10.1	35.9	75-125	0.211	25		QM-07
Selenium	4.78	0.260	"	4.32	ND	110	75-125	5.36	25		

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Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHB0166 - 3060A Mod

Blank (BHB0166-BLK1)		Prepared & Analyzed: 02/06/24									
Chromium, Hexavalent	ND	0.30	mg/kg wet								
LCS (BHB0166-BS1)		Prepared & Analyzed: 02/06/24									
Chromium, Hexavalent	23.0	0.30	mg/kg wet	25.0	92.0	80-120					
Duplicate (BHB0166-DUP1)		Source: 2311627-01		Prepared & Analyzed: 02/06/24							
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND					20	
Matrix Spike (BHB0166-MS1)		Source: 2311627-01		Prepared & Analyzed: 02/06/24							
Chromium, Hexavalent	24.8	0.30	mg/kg dry	27.0	ND	91.8	75-125				
Matrix Spike Dup (BHB0166-MSD1)		Source: 2311627-01		Prepared & Analyzed: 02/06/24							
Chromium, Hexavalent	24.6	0.30	mg/kg dry	27.0	ND	91.2	75-125	0.656		20	

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Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

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

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

Batch BHB0048 - General Preparation

Blank (BHB0048-BLK1)

Prepared: 02/01/24 Analyzed: 02/06/24

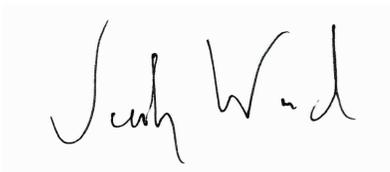
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BHB0048-BS1)

Prepared: 02/01/24 Analyzed: 02/06/24

Calcium	5.68	0.0500	mg/L wet	5.00	114	70-130
Magnesium	5.14	0.0500	"	5.00	103	70-130
Sodium	5.14	0.0500	"	5.00	103	70-130

Summit Scientific



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Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

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

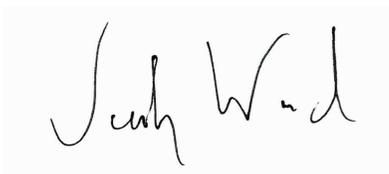
Summit Scientific

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

Batch BHB0186 - General Preparation

Duplicate (BHB0186-DUP1)	Source: 2401553-01	Prepared: 02/06/24	Analyzed: 02/07/24
% Solids	93.3	%	93.7
			0.477
			20

Summit Scientific



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Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

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

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

Batch BHB0054 - General Preparation

Blank (BHB0054-BLK1)

Prepared & Analyzed: 02/02/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHB0054-BS1)

Prepared & Analyzed: 02/02/24

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.6 95-105

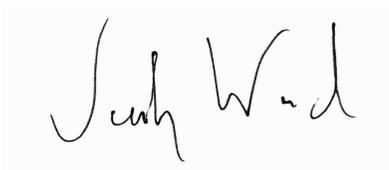
Duplicate (BHB0054-DUP1)

Source: 2401589-01

Prepared & Analyzed: 02/02/24

Specific Conductance (EC) 0.102 0.0100 mmhos/cm 0.102 0.687 20

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.



Citation Oil & Gas
 14077 Cutten Rd
 Houston TX., 77069-2212

Project: Absaroka - Bill 32-26 #5

Project Number: [none]
 Project Manager: Ben Shoup

Reported:
 02/14/24 10:02

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 BHB0053 - General Preparation

LCS (BHB0053-BS1)

Prepared & Analyzed: 02/02/24

pH	9.12	pH Units	9.18	99.3	95-105
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Duplicate (BHB0053-DUP1)

Source: 2401589-01

Prepared & Analyzed: 02/02/24

pH	8.78	pH Units	8.93	1.69	20
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Summit Scientific

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Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- J Detected but below the Reporting Limit; therefore, result is an estimated concentration
- 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