

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 05, 2025

Andy Sagen

Tasman Geosciences

4725 Independence St.

Wheat Ridge, CO 80033

RE: Noble - Hullabaloo State Y 21 Econode

Work Order #2505130

Enclosed are the results of analyses for samples received by Summit Scientific on 05/28/25 17:57. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie Tessier". The signature is written in a cursive, flowing style.

Natalie Tessier For Paul Shrewsbury

President



Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullaballoo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen


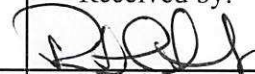

Reported:
06/05/25 12:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@8'	2505130-01	Soil	05/28/25 09:08	05/28/25 17:57

Client: PDC/Tasman/Noble	Send Data To: Project Manager: Andy Sagen	Send Invoice To: Company: PDC Energy Noble
Address: 4725 Independence St.	E-Mail: tas-chevron-1@tasman-geo.com	Project Name/Location: Hullaabaloo State Y21 Escanode
City/State/Zip: Wheat Ridge/CO/80033	RBUEUF27@chevron.com	AFE#:
Phone: 720-899-0834	Project Name: Hullaabaloo state Y21 Escanode	PO/Billing Codes:
Sampler Name: Dylan Sardinia	Project Number:	Contact: Karen Olson Dan Peterson

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		HOLD	
1	FS01@8'	5/28/25	0908	2			X			X			X	X	X	X	X	X		SAR, EC, pH by saturated paste	
2	SS01@4'	↓	0910	↓														X			
3	SS02@4'	↓	0912	↓														X			
4	SS03@4'	↓	0914	↓														X			
5	SS04@4'	↓	0916	↓														X			
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: 	Date/Time: 5/28/25 1401	Received by: Tasman Lock Box	Date/Time: 5/28/25 1401	TAT Business Days	Field DO	Notes:
				Same Day <input checked="" type="checkbox"/>	Field EC	
Relinquished by: Tasman Lock Box	Date/Time: 5/28/25 1757	Received by: 	Date/Time: 5/28/25 1757	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 4.2	Corrected Temperature: 	IR gun #:		HNO3 lot #:		

S₂

S2 Work Order# 250530

Sample Receipt Checklist

Client: Noble Casman Client Project ID: Hullabaloo State yr1 EcomodeReceived Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: _____Matrix (Circle all that apply) Air/Soil/Water/Other Temp (°C) 4.2 Thermometer # 1Bottle ware (Circle all that apply) Glass Jar/Voa/Amber/Poly/Other

	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.	-			m2ce
If custody seals are present, are they intact? ⁽¹⁾	-			
Are samples due within 48 hours?	-			Same day
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, Total Residual Chlorine (TRC)		-		
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	-			
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	✓			
Were all samples received intact? ⁽¹⁾	✓			
Was adequate sample volume provided? ⁽¹⁾	✓			
Were samples provided in appropriate bottle ware?	✓			
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	✓			
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are any samples/bottles preserved (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Are there requested analysis that cannot be performed by S2? Note analysis in the comments column			✓	
Additional Comments (if any):				

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

Control Form #: SRC-001

AS
Custodian Printed Name

5/28/25
Date/Time



Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

FS01@8'
2505130-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BIE0740	05/28/25	05/29/25	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: **05/28/25 09:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0345	86.2 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0390	97.6 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0380	95.0 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BIE0743	05/28/25	05/29/25	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	6.33	50.7 %		50-140		"	"	"	"	

PAH by EPA Method 8270D SIM

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FS01@8'
2505130-01 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BIE0772	05/30/25	06/04/25	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: **05/28/25 09:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0232	69.7 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0218	65.3 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L dry	1	BIE0750	05/28/25	05/30/25	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Manager: Andy Sagen

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FS01@8'
2505130-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	1.95	0.200	mg/kg dry	1	BIE0751	05/28/25	05/29/25	EPA 6020B
Barium	187	0.400	"	"	"	"	"	"
Cadmium	0.200	0.200	"	"	"	"	"	"
Copper	4.83	0.400	"	"	"	"	"	"
Lead	10.4	0.200	"	"	"	"	"	"
Nickel	4.98	0.400	"	"	"	"	"	"
Silver	0.0551	0.0200	"	"	"	"	"	"
Zinc	17.8	0.400	"	"	"	"	"	"
Selenium	0.283	0.260	"	"	"	"	"	"

Hexavalent Chromium by HACH M8023

Date Sampled: 05/28/25 09:08

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BIE0755	05/29/25	05/29/25	Hach 8000	

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

Date Sampled: 05/28/25 09:08

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	468	0.0500	mg/L dry	1	BIE0741	05/28/25	05/29/25	EPA 6020B	
Magnesium	158	0.0500	"	"	"	"	"	"	
Sodium	250	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 05/28/25 09:08

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.55	0.00100	units	1	BIE0779	05/30/25	05/30/25	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 05/28/25 09:08

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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FS01@8'
2505130-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	79.6	%	1	BIE0752	05/29/25	05/29/25	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.36	0.0100	mmhos/cm	1	BIE0745	05/28/25	05/29/25	EPA 120.1	

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

Date Sampled: **05/28/25 09:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.07		pH Units	1	BIE0744	05/28/25	05/29/25	EPA 9045D	

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Project Number: [none]
Project Manager: Andy Sagen

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06/05/25 12:24

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 BIE0740 - EPA 5030 Soil MS

Blank (BIE0740-BLK1)

Prepared: 05/28/25 Analyzed: 05/29/25

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0332		"	0.0400		82.9	50-150			
<i>Surrogate: Toluene-d8</i>	0.0392		"	0.0400		98.0	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0376		"	0.0400		94.0	50-150			

LCS (BIE0740-BS1)

Prepared: 05/28/25 Analyzed: 05/29/25

Benzene	0.0944	0.0020	mg/kg	0.100		94.4	70-130			
Toluene	0.0922	0.0050	"	0.100		92.2	70-130			
Ethylbenzene	0.0921	0.0050	"	0.100		92.1	70-130			
m,p-Xylene	0.178	0.010	"	0.200		89.2	70-130			
o-Xylene	0.0893	0.0050	"	0.100		89.3	70-130			
1,2,4-Trimethylbenzene	0.0871	0.0050	"	0.100		87.1	70-130			
1,3,5-Trimethylbenzene	0.0890	0.0050	"	0.100		89.0	70-130			
Naphthalene	0.103	0.0038	"	0.100		103	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0335		"	0.0400		83.8	50-150			
<i>Surrogate: Toluene-d8</i>	0.0390		"	0.0400		97.6	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0382		"	0.0400		95.6	50-150			

Matrix Spike (BIE0740-MS1)

Source: 2505127-01

Prepared: 05/28/25 Analyzed: 05/29/25

Benzene	0.0833	0.0020	mg/kg	0.100	ND	83.3	70-130			
Toluene	0.0767	0.0050	"	0.100	ND	76.7	70-130			
Ethylbenzene	0.0710	0.0050	"	0.100	ND	71.0	70-130			
m,p-Xylene	0.150	0.010	"	0.200	0.00345	73.1	70-130			
o-Xylene	0.0779	0.0050	"	0.100	ND	77.9	70-130			
1,2,4-Trimethylbenzene	0.0673	0.0050	"	0.100	0.00168	65.6	70-130			QM-05
1,3,5-Trimethylbenzene	0.0710	0.0050	"	0.100	0.00147	69.5	70-130			QM-05
Naphthalene	0.0664	0.0038	"	0.100	ND	66.4	70-130			QM-05
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0332		"	0.0400		83.1	50-150			
<i>Surrogate: Toluene-d8</i>	0.0393		"	0.0400		98.2	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0381		"	0.0400		95.2	50-150			

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Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

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 BIE0740 - EPA 5030 Soil MS

Matrix Spike Dup (BIE0740-MSD1)	Source: 2505127-01			Prepared: 05/28/25 Analyzed: 05/29/25						
Benzene	0.0821	0.0020	mg/kg	0.100	ND	82.1	70-130	1.52	30	
Toluene	0.0751	0.0050	"	0.100	ND	75.1	70-130	2.13	30	
Ethylbenzene	0.0706	0.0050	"	0.100	ND	70.6	70-130	0.551	30	
m,p-Xylene	0.148	0.010	"	0.200	0.00345	72.3	70-130	1.05	30	
o-Xylene	0.0776	0.0050	"	0.100	ND	77.6	70-130	0.424	30	
1,2,4-Trimethylbenzene	0.0654	0.0050	"	0.100	0.00168	63.8	70-130	2.80	30	QM-05
1,3,5-Trimethylbenzene	0.0682	0.0050	"	0.100	0.00147	66.7	70-130	4.05	30	QM-05
Naphthalene	0.0641	0.0038	"	0.100	ND	64.1	70-130	3.54	30	QM-05
Surrogate: 1,2-Dichloroethane-d4	0.0333		"	0.0400		83.3	50-150			
Surrogate: Toluene-d8	0.0390		"	0.0400		97.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0400		95.3	50-150			

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Project: Noble - Hullabaloo State Y 21 Econode
Project Number: [none]
Project Manager: Andy Sagen

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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 BIE0743 - EPA 3550A

Blank (BIE0743-BLK1)

Prepared: 05/28/25 Analyzed: 05/29/25

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	14.1		"	12.5		113	50-140				

LCS (BIE0743-BS1)

Prepared: 05/28/25 Analyzed: 05/29/25

C10-C28 (DRO)	574	50	mg/kg	500		115	50-140				
Surrogate: <i>o</i> -Terphenyl	13.0		"	12.5		104	50-140				

Matrix Spike (BIE0743-MS1)

Source: 2505127-01

Prepared: 05/28/25 Analyzed: 05/29/25

C10-C28 (DRO)	595	50	mg/kg	500	ND	119	50-140				
Surrogate: <i>o</i> -Terphenyl	12.0		"	12.5		96.0	50-140				

Matrix Spike Dup (BIE0743-MSD1)

Source: 2505127-01

Prepared: 05/28/25 Analyzed: 05/29/25

C10-C28 (DRO)	582	50	mg/kg	500	ND	116	50-140	2.19	20		
Surrogate: <i>o</i> -Terphenyl	11.4		"	12.5		91.4	50-140				

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Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

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06/05/25 12:24

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BIE0772 - EPA 5030 Soil MS

Blank (BIE0772-BLK1)

Prepared: 05/30/25 Analyzed: 06/04/25

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	0.0227		"	0.0333		68.0	40-140			
Surrogate: Fluoranthene-d10	0.0239		"	0.0333		71.6	40-140			

LCS (BIE0772-BS1)

Prepared: 05/30/25 Analyzed: 06/04/25

Acenaphthene	0.0258	0.00500	mg/kg	0.0333		77.4	40-140			
Anthracene	0.0268	0.00500	"	0.0333		80.3	40-140			
Benzo (a) anthracene	0.0265	0.00500	"	0.0333		79.5	40-140			
Benzo (a) pyrene	0.0288	0.00500	"	0.0333		86.4	40-140			
Benzo (b) fluoranthene	0.0349	0.00500	"	0.0333		105	40-140			
Benzo (k) fluoranthene	0.0315	0.00500	"	0.0333		94.6	40-140			
Chrysene	0.0261	0.00500	"	0.0333		78.2	40-140			
Dibenz (a,h) anthracene	0.0161	0.00500	"	0.0333		48.3	40-140			
Fluoranthene	0.0253	0.00500	"	0.0333		76.0	40-140			
Fluorene	0.0249	0.00500	"	0.0333		74.6	40-140			
Indeno (1,2,3-cd) pyrene	0.0179	0.00500	"	0.0333		53.7	40-140			
Pyrene	0.0377	0.00500	"	0.0333		113	40-140			
1-Methylnaphthalene	0.0251	0.00500	"	0.0333		75.2	40-140			
2-Methylnaphthalene	0.0233	0.00500	"	0.0333		69.8	40-140			
Surrogate: 2-Methylnaphthalene-d10	0.0255		"	0.0333		76.4	40-140			
Surrogate: Fluoranthene-d10	0.0263		"	0.0333		78.8	40-140			

Summit Scientific

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Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

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 BIE0772 - EPA 5030 Soil MS

Matrix Spike (BIE0772-MS1)	Source: 2505123-01			Prepared: 05/30/25 Analyzed: 06/04/25						
Acenaphthene	0.0198	0.00500	mg/kg	0.0333	ND	59.4	40-140			
Anthracene	0.0234	0.00500	"	0.0333	ND	70.2	40-140			
Benzo (a) anthracene	0.0206	0.00500	"	0.0333	ND	61.9	40-140			
Benzo (a) pyrene	0.0219	0.00500	"	0.0333	ND	65.6	40-140			
Benzo (b) fluoranthene	0.0273	0.00500	"	0.0333	ND	82.0	40-140			
Benzo (k) fluoranthene	0.0251	0.00500	"	0.0333	ND	75.4	40-140			
Chrysene	0.0219	0.00500	"	0.0333	ND	65.6	40-140			
Dibenz (a,h) anthracene	0.0128	0.00500	"	0.0333	ND	38.4	40-140			QM-05
Fluoranthene	0.0211	0.00500	"	0.0333	ND	63.3	40-140			
Fluorene	0.0189	0.00500	"	0.0333	ND	56.7	40-140			
Indeno (1,2,3-cd) pyrene	0.0140	0.00500	"	0.0333	ND	42.1	40-140			
Pyrene	0.0349	0.00500	"	0.0333	ND	105	40-140			
1-Methylnaphthalene	0.0215	0.00500	"	0.0333	ND	64.6	40-140			
2-Methylnaphthalene	0.0200	0.00500	"	0.0333	ND	59.9	40-140			
Surrogate: 2-Methylnaphthalene-d10	0.0217		"	0.0333		65.0	40-140			
Surrogate: Fluoranthene-d10	0.0203		"	0.0333		61.0	40-140			

Matrix Spike Dup (BIE0772-MSD1)	Source: 2505123-01			Prepared: 05/30/25 Analyzed: 06/04/25						
Acenaphthene	0.0239	0.00500	mg/kg	0.0333	ND	71.8	40-140	18.9	30	
Anthracene	0.0265	0.00500	"	0.0333	ND	79.4	40-140	12.2	30	
Benzo (a) anthracene	0.0240	0.00500	"	0.0333	ND	72.0	40-140	15.2	30	
Benzo (a) pyrene	0.0255	0.00500	"	0.0333	ND	76.5	40-140	15.3	30	
Benzo (b) fluoranthene	0.0314	0.00500	"	0.0333	ND	94.2	40-140	13.8	30	
Benzo (k) fluoranthene	0.0295	0.00500	"	0.0333	ND	88.5	40-140	16.0	30	
Chrysene	0.0245	0.00500	"	0.0333	ND	73.6	40-140	11.5	30	
Dibenz (a,h) anthracene	0.0159	0.00500	"	0.0333	ND	47.8	40-140	21.7	30	
Fluoranthene	0.0240	0.00500	"	0.0333	ND	71.9	40-140	12.7	30	
Fluorene	0.0230	0.00500	"	0.0333	ND	69.1	40-140	19.8	30	
Indeno (1,2,3-cd) pyrene	0.0170	0.00500	"	0.0333	ND	51.1	40-140	19.3	30	
Pyrene	0.0386	0.00500	"	0.0333	ND	116	40-140	10.1	30	
1-Methylnaphthalene	0.0238	0.00500	"	0.0333	ND	71.3	40-140	9.83	30	
2-Methylnaphthalene	0.0223	0.00500	"	0.0333	ND	66.8	40-140	10.9	30	
Surrogate: 2-Methylnaphthalene-d10	0.0229		"	0.0333		68.7	40-140			
Surrogate: Fluoranthene-d10	0.0234		"	0.0333		70.2	40-140			

Summit Scientific

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Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

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

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

Batch BIE0750 - EPA 3050B

Blank (BIE0750-BLK1)

Prepared: 05/28/25 Analyzed: 05/30/25

Boron ND 2.00 mg/L wet

LCS (BIE0750-BS1)

Prepared: 05/28/25 Analyzed: 05/30/25

Boron 4.78 2.00 mg/L wet 4.98 96.0 80-120

Duplicate (BIE0750-DUP1)

Source: 2505129-01

Prepared: 05/28/25 Analyzed: 05/30/25

Boron 0.152 2.00 mg/L dry 0.167 9.22 20

Matrix Spike (BIE0750-MS1)

Source: 2505129-01

Prepared: 05/28/25 Analyzed: 05/30/25

Boron 5.73 2.00 mg/L dry 5.35 0.167 104 75-125

Matrix Spike Dup (BIE0750-MSD1)

Source: 2505129-01

Prepared: 05/28/25 Analyzed: 05/30/25

Boron 5.49 2.00 mg/L dry 5.32 0.167 100 75-125 4.36 25

Summit Scientific

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Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

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 BIE0751 - EPA 3050B

Blank (BIE0751-BLK1)

Prepared: 05/28/25 Analyzed: 05/29/25

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 (BIE0751-BS1)

Prepared: 05/28/25 Analyzed: 05/30/25

Arsenic	39.0	0.200	mg/kg wet	41.3	94.5	80-120
Barium	42.5	0.400	"	41.3	103	80-120
Cadmium	2.00	0.200	"	2.07	96.6	80-120
Copper	40.1	0.400	"	41.3	97.0	80-120
Lead	20.7	0.200	"	20.7	100	80-120
Nickel	39.0	0.400	"	41.3	94.3	80-120
Silver	1.96	0.0200	"	2.07	94.7	80-120
Zinc	38.5	0.400	"	41.3	93.3	80-120
Selenium	4.50	0.260	"	4.13	109	80-120

Duplicate (BIE0751-DUP1)

Source: 2505123-01

Prepared: 05/28/25 Analyzed: 05/29/25

Arsenic	1.05	0.200	mg/kg dry	0.957	9.03	20	
Barium	38.6	0.400	"	36.0	7.12	20	
Cadmium	0.0623	0.200	"	0.0558	10.9	20	
Copper	2.64	0.400	"	2.52	4.69	20	
Lead	6.01	0.200	"	4.86	21.1	20	QR-04
Nickel	2.09	0.400	"	2.01	4.05	20	
Silver	0.0185	0.0200	"	0.0117	44.7	20	QR-01
Zinc	11.1	0.400	"	9.22	18.3	20	
Selenium	ND	0.260	"	ND		20	

Summit Scientific

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Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

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 BIE0751 - EPA 3050B

Matrix Spike (BIE0751-MS1)	Source: 2505123-01			Prepared: 05/28/25		Analyzed: 05/29/25					
Arsenic	28.7	0.200	mg/kg dry	46.9	0.957	59.2	75-125				QM-05
Barium	88.9	0.400	"	46.9	36.0	113	75-125				
Cadmium	2.30	0.200	"	2.35	0.0558	95.5	75-125				
Copper	32.0	0.400	"	46.9	2.52	62.8	75-125				QM-05
Lead	27.3	0.200	"	23.5	4.86	95.6	75-125				
Nickel	30.0	0.400	"	46.9	2.01	59.8	75-125				QM-05
Silver	2.18	0.0200	"	2.35	0.0117	92.4	75-125				
Zinc	39.0	0.400	"	46.9	9.22	63.5	75-125				QM-05
Selenium	5.61	0.260	"	4.69	ND	120	75-125				

Matrix Spike Dup (BIE0751-MSD1)	Source: 2505123-01			Prepared: 05/28/25		Analyzed: 05/29/25					
Arsenic	26.8	0.200	mg/kg dry	45.0	0.957	57.3	75-125	7.08	25		QM-05
Barium	81.9	0.400	"	45.0	36.0	102	75-125	8.21	25		
Cadmium	2.26	0.200	"	2.25	0.0558	97.8	75-125	1.68	25		
Copper	29.5	0.400	"	45.0	2.52	59.9	75-125	8.00	25		QM-05
Lead	27.2	0.200	"	22.5	4.86	99.4	75-125	0.184	25		
Nickel	28.3	0.400	"	45.0	2.01	58.3	75-125	6.11	25		QM-05
Silver	2.12	0.0200	"	2.25	0.0117	93.7	75-125	2.67	25		
Zinc	36.1	0.400	"	45.0	9.22	59.6	75-125	7.82	25		QM-05
Selenium	5.36	0.260	"	4.50	ND	119	75-125	4.49	25		

Summit Scientific

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Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

Hexavalent Chromium by HACH M8023 - Quality Control
Summit Scientific

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

Batch BIE0755 - 3060A Mod

Blank (BIE0755-BLK1)

Prepared & Analyzed: 05/29/25

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BIE0755-BS1)

Prepared & Analyzed: 05/29/25

Chromium, Hexavalent 23.5 0.30 mg/kg wet 25.8 91.0 80-120

Duplicate (BIE0755-DUP1)

Source: 2505125-01

Prepared & Analyzed: 05/29/25

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BIE0755-MS1)

Source: 2505125-01

Prepared & Analyzed: 05/29/25

Chromium, Hexavalent 30.1 0.30 mg/kg dry 28.9 ND 104 75-125

Matrix Spike Dup (BIE0755-MSD1)

Source: 2505125-01

Prepared & Analyzed: 05/29/25

Chromium, Hexavalent 28.4 0.30 mg/kg dry 29.5 ND 96.0 75-125 5.94 20

Summit Scientific

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Tasman Geosciences
 4725 Independence St.
 Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
 Project Manager: Andy Sagen

Reported:
 06/05/25 12:24

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

Summit Scientific

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

Batch BIE0741 - General Preparation

Blank (BIE0741-BLK1)

Prepared: 05/28/25 Analyzed: 05/30/25

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

LCS (BIE0741-BS1)

Prepared: 05/28/25 Analyzed: 05/29/25

Calcium	5.70	0.0500	mg/L wet	5.00		114	70-130			
Magnesium	5.63	0.0500	"	5.00		113	70-130			
Sodium	5.83	0.0500	"	5.00		117	70-130			

Summit Scientific

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Tasman Geosciences
 4725 Independence St.
 Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
 Project Manager: Andy Sagen

Reported:
 06/05/25 12:24

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 BIE0752 - General Preparation

Duplicate (BIE0752-DUP1)

Source: 2505123-01

Prepared & Analyzed: 05/29/25

% Solids	87.9		%		88.8			1.03		20	
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Summit Scientific

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Tasman Geosciences
 4725 Independence St.
 Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
 Project Manager: Andy Sagen

Reported:
 06/05/25 12:24

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 BIE0745 - General Preparation

Blank (BIE0745-BLK1)

Prepared: 05/28/25 Analyzed: 05/29/25

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BIE0745-BS1)

Prepared: 05/28/25 Analyzed: 05/29/25

Specific Conductance (EC) 0.149 0.0100 mmhos/cm 0.150 99.4 95-105

Duplicate (BIE0745-DUP1)

Source: 2505123-01

Prepared: 05/28/25 Analyzed: 05/29/25

Specific Conductance (EC) 0.476 0.0100 mmhos/cm 0.472 0.781 20

Summit Scientific

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Tasman Geosciences
 4725 Independence St.
 Wheat Ridge CO, 80033

Project: Noble - Hullabaloo State Y 21 Econode

Project Number: [none]
 Project Manager: Andy Sagen

Reported:
 06/05/25 12:24

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 BIE0744 - General Preparation

LCS (BIE0744-BS1)

Prepared: 05/28/25 Analyzed: 05/29/25

pH	9.20	pH Units	9.18	100	95-105
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Duplicate (BIE0744-DUP1)

Source: 2505123-01

Prepared: 05/28/25 Analyzed: 05/29/25

pH	8.36	pH Units	8.36	0.0598	20
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Summit Scientific

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Tasman Geosciences
4725 Independence St.
Wheat Ridge CO, 80033

Project: Noble - Hullaballoo State Y 21 Econode

Project Number: [none]
Project Manager: Andy Sagen

Reported:
06/05/25 12:24

Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values. Only applies to source/DUP and MS/MSD pairs.
- QR-01 Analyses are not controlled on RPD values from sample concentrations below the reporting limit. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. Sample results were accepted based on LCS and/or LCSD recoveries and/or RPD values.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference