

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 16, 2024

Daniel Simpson

Tasman Geosciences

6855 W. 119th Ave.

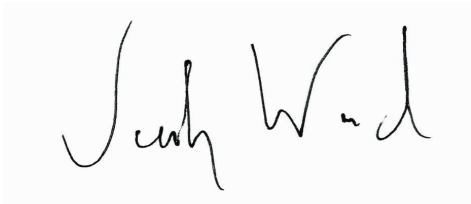
Broomfield, CO 80020

RE: Noble - Houndskeeper HOI-17 Facility

Work Order #2411268

Enclosed are the results of analyses for samples received by Summit Scientific on 11/14/24 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial 'J' and a distinct 'W'.

Jacob Wood For Paul Shrewsbury

President



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH17@28.5'	2411268-01	Soil	11/14/24 09:15	11/14/24 17:40
BH18@22'	2411268-02	Soil	11/14/24 10:10	11/14/24 17:40
BH18@27.5'	2411268-03	Soil	11/14/24 10:25	11/14/24 17:40
BH19@9'	2411268-04	Soil	11/14/24 11:00	11/14/24 17:40
BH19@28'	2411268-05	Soil	11/14/24 11:15	11/14/24 17:40
BH20@22.5'	2411268-06	Soil	11/14/24 13:00	11/14/24 17:40
BH20@28'	2411268-07	Soil	11/14/24 13:15	11/14/24 17:40
BH21@14'	2411268-08	Soil	11/14/24 14:00	11/14/24 17:40
BH21@20'	2411268-09	Soil	11/14/24 14:15	11/14/24 17:40

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

Lab ID	Page 1 of 1
2411268	

Send Data To:		Send Invoice To:	
Client: Tasman, Inc.	Project Manager: Daniel Simpson	Company: <i>Noble</i>	
Address: 6855 W. 119th Ave.	E-Mail: Tas-chevron-5@tasman-geo.com	Project Name/Location: <i>Houndskeeper H01-17 Facility</i>	
City/State/Zip: Broomfield / CO / 80020		AFE#:	
Phone: 303-487-1228	Project Name: <i>Houndskeeper H01-17 Facility</i>	PO/Billing Codes:	
Sampler Name: <i>Patrick Downs</i>	Project Number:	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	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH		Boron - HWS	HOLD			
1	BH17e29.5	11-14-24	9:15	2			X			X						X	X	X	X	X	X		SAR, EC, pH by saturated paste
2	BH19e22'		10:10																				
3	BH18e27.5'		10:25																				
4	BH19e9'		11:00																				
5	BH19C29'		11:15																				
6	BH20e22.5'		13:00																				
7	BH20e29'		13:15																				
8	BH21e14'		14:00																				
9	BH21e20'	↓	14:15	↓												↓	↓	↓	↓	↓	↓		
10																							
11																							
12																							
13																							
14																							
15																							

Relinquished by: <i>Patrick Downs</i>	Date/Time: <i>11-14-24 / 17:15</i>	Received by: <i>Tasman Lockbox</i>	Date/Time: <i>11-14-24 / 17:15</i>	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <i>Tasman Lockbox</i>	Date/Time: <i>11/14/24 17:40</i>	Received by: <i>[Signature]</i>	Date/Time: <i>11/14/24 17:40</i>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: <i>6.3</i>	Corrected Temperature: <i>6</i>	IR gun #: <i>1</i>	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2411268

Client: Tarman/Noble Client Project ID: Houndskeeper Hol-17 Facility

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 2UE
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):

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

AS
Custodian Printed Name

11/19/24
Date/Time



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH17@28.5'
2411268-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHK0933	11/18/24	11/19/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	0.023	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.091	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.053	0.0050		"	"	"	"	"	"	
Naphthalene	0.0089	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.1	0.50		"	"	"	"	"	"	

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0358	89.6 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0402	100 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0404	101 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	180	50		mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.31	74.5 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Houndskeeper HOI-17 Facility

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BH17@28.5'
2411268-01 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	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	0.0117	0.00500	"	"	"	"	"	"	

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0199	59.6 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0236	70.7 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/25/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH17@28.5'
2411268-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.19	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B
Barium	58.8	0.400	"	"	"	"	"	"
Cadmium	0.451	0.200	"	"	"	"	"	"
Copper	6.38	0.400	"	"	"	"	"	"
Lead	15.2	0.200	"	"	"	"	"	"
Nickel	13.3	0.400	"	"	"	"	"	"
Silver	0.0488	0.0200	"	"	"	"	"	"
Zinc	41.9	0.400	"	"	"	"	"	"
Selenium	0.291	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 09:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 09:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	9.85	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	6.28	0.0500	"	"	"	"	"	"	
Sodium	28.9	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 09:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.77	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 09:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Houndskeeper HOI-17 Facility

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12/16/24 10:10

BH17@28.5'
2411268-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.4	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 09:15**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.232	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.47		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

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Project Number: [none]
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12/16/24 10:10

BH18@22'
2411268-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.020		mg/kg	10	BHK0933	11/18/24	11/20/24	EPA 8260B	R-05
Toluene	ND	0.050		"	"	"	"	"	"	R-05
Ethylbenzene	1.3	0.050		"	"	"	"	"	"	
Xylenes (total)	16	0.10		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	15	0.050		"	"	"	"	"	"	E
1,3,5-Trimethylbenzene	12	0.050		"	"	"	"	"	"	E
Naphthalene	0.47	0.038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	580	5.0		"	"	"	"	"	"	

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0400	100 %		50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0422	106 %		50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0575	144 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	190	50		mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: o-Terphenyl</i>	10.7	85.6 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: [none]
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BH18@22'
2411268-02 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	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	0.00879	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	0.0830	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.00664	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.661	0.100	"	20	"	"	11/20/24	"	
2-Methylnaphthalene	1.80	0.100	"	"	"	"	"	"	

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.00291	8.72 %	40-140		"	"	11/19/24	"	S-02
Surrogate: Fluoranthene-d10	0.0186	55.9 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

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12/16/24 10:10

BH18@22'
2411268-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	7.77	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B
Barium	54.7	0.400	"	"	"	"	"	"
Cadmium	0.507	0.200	"	"	"	"	"	"
Copper	5.74	0.400	"	"	"	"	"	"
Lead	12.5	0.200	"	"	"	"	"	"
Nickel	8.36	0.400	"	"	"	"	"	"
Silver	0.0719	0.0200	"	"	"	"	"	"
Zinc	33.1	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	12.8	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	6.32	0.0500	"	"	"	"	"	"	
Sodium	35.2	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.01	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH18@22'
2411268-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	84.1	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 10:10**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.280	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.20		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

Summit Scientific



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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH18@27.5'
2411268-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHK0933	11/18/24	11/20/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.0078	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	0.0091	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0419	105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0412	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0385	96.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.91	79.3 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH18@27.5'
2411268-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0197	59.2 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0228	68.3 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH18@27.5'
2411268-03 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	1.21	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B
Barium	23.2	0.400	"	"	"	"	"	"
Cadmium	0.352	0.200	"	"	"	"	"	"
Copper	4.36	0.400	"	"	"	"	"	"
Lead	10.4	0.200	"	"	"	"	"	"
Nickel	8.95	0.400	"	"	"	"	"	"
Silver	0.0299	0.0200	"	"	"	"	"	"
Zinc	25.9	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 10:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 10:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	11.5	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	6.06	0.0500	"	"	"	"	"	"	
Sodium	3.54	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 10:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.210	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 10:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH18@27.5'
2411268-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	86.9	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 10:25**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0765	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.14		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

Summit Scientific



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Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@9'
2411268-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	7.3	0.20		mg/kg	100	BHK0933	11/18/24	11/20/24	EPA 8260B	
Toluene	ND	0.50		"	"	"	"	"	"	R-05
Ethylbenzene	7.6	0.50		"	"	"	"	"	"	
Xylenes (total)	120	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	31	0.50		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	22	0.50		"	"	"	"	"	"	
Naphthalene	1.3	0.38		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1600	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0411	103 %		50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0406	102 %		50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0458	115 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	3100	50		mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	190	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: o-Terphenyl</i>	10.9	86.9 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@9'
2411268-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	EPA 8270D SIM	
Anthracene	0.102	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0460	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	0.0120	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0190	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	2.29	0.100	"	20	"	"	11/20/24	"	
2-Methylnaphthalene	5.98	0.100	"	"	"	"	"	"	E

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0220	66.0 %	40-140		"	"	11/19/24	"	
Surrogate: Fluoranthene-d10	0.0222	66.5 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@9'
2411268-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	5.18	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B	
Barium	138	0.400	"	"	"	"	"	"	
Cadmium	0.436	0.200	"	"	"	"	"	"	
Copper	5.85	0.400	"	"	"	"	"	"	
Lead	9.49	0.200	"	"	"	"	"	"	
Nickel	8.08	0.400	"	"	"	"	"	"	
Silver	0.0377	0.0200	"	"	"	"	"	"	
Zinc	19.1	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	288	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	15.2	0.0500	"	"	"	"	"	"	
Sodium	28.0	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.436	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@9'
2411268-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	85.3	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 11:00**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.435	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.86		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@28'
2411268-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHK0933	11/18/24	11/20/24	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	0.0040	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0420	105 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0405	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0391	97.6 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.80	78.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@28'
2411268-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0198	59.4 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0222	66.6 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@28'
2411268-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.92	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B
Barium	42.3	0.400	"	"	"	"	"	"
Cadmium	0.590	0.200	"	"	"	"	"	"
Copper	6.05	0.400	"	"	"	"	"	"
Lead	13.5	0.200	"	"	"	"	"	"
Nickel	16.1	0.400	"	"	"	"	"	"
Silver	0.0457	0.0200	"	"	"	"	"	"
Zinc	43.2	0.400	"	"	"	"	"	"
Selenium	0.323	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	9.63	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	4.87	0.0500	"	"	"	"	"	"	
Sodium	16.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.07	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH19@28'
2411268-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	85.5	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 11:15**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.202	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.49		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@22.5'
2411268-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	0.64	0.20		mg/kg	100	BHK0933	11/18/24	11/20/24	EPA 8260B	
Toluene	ND	0.50		"	"	"	"	"	"	R-05
Ethylbenzene	2.1	0.50		"	"	"	"	"	"	
Xylenes (total)	16	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	11	0.50		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	7.8	0.50		"	"	"	"	"	"	
Naphthalene	0.58	0.38		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	510	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0407	102 %		50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0390	97.6 %		50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0426	107 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	800	50		mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	79	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: o-Terphenyl</i>	11.3	90.2 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@22.5'
2411268-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.00698	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	0.442	0.100	"	20	"	"	11/20/24	"	
2-Methylnaphthalene	1.19	0.100	"	"	"	"	"	"	

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0758	227 %	40-140		"	"	11/19/24	"	S-02
Surrogate: Fluoranthene-d10	0.0201	60.4 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@22.5'
2411268-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	6.11	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B
Barium	218	0.400	"	"	"	"	"	"
Cadmium	2.63	0.200	"	"	"	"	"	"
Copper	10.8	0.400	"	"	"	"	"	"
Lead	27.6	0.200	"	"	"	"	"	"
Nickel	78.9	0.400	"	"	"	"	"	"
Silver	0.172	0.0200	"	"	"	"	"	"
Zinc	24.1	0.400	"	"	"	"	"	"
Selenium	0.592	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	5.65	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	2.03	0.0500	"	"	"	"	"	"	
Sodium	12.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.18	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@22.5'
2411268-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	70.0	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 13:00**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.395	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.17		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

Summit Scientific



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Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@28'
2411268-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHK0933	11/18/24	11/20/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0418	105 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0410	102 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0393	98.2 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	8.48	67.9 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@28'
2411268-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0194	58.2 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0209	62.7 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@28'
2411268-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	1.52	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B
Barium	28.3	0.400	"	"	"	"	"	"
Cadmium	0.395	0.200	"	"	"	"	"	"
Copper	6.50	0.400	"	"	"	"	"	"
Lead	11.2	0.200	"	"	"	"	"	"
Nickel	9.65	0.400	"	"	"	"	"	"
Silver	0.0351	0.0200	"	"	"	"	"	"
Zinc	30.8	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	13.8	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	6.48	0.0500	"	"	"	"	"	"	
Sodium	4.26	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.237	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH20@28'
2411268-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	88.4	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 13:15**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.135	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.37		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH21@14'
2411268-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHK0933	11/18/24	11/20/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0402	100 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0412	103 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0383	95.8 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.33	74.7 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH21@14'
2411268-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/19/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0188	56.3 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0202	60.5 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH21@14'
2411268-08 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	5.44	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B
Barium	55.7	0.400	"	"	"	"	"	"
Cadmium	0.294	0.200	"	"	"	"	"	"
Copper	6.14	0.400	"	"	"	"	"	"
Lead	8.83	0.200	"	"	"	"	"	"
Nickel	11.5	0.400	"	"	"	"	"	"
Silver	0.0217	0.0200	"	"	"	"	"	"
Zinc	22.7	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	22.1	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	8.52	0.0500	"	"	"	"	"	"	
Sodium	39.2	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.80	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 14:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH21@14'
2411268-08 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	88.4	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 14:00**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.379	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.46		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

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BH21@20'
2411268-09 (Soil)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHK0933	11/18/24	11/19/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0379	94.8 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0405	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	98.6 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHK0935	11/18/24	11/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	10.2	82.0 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: [none]
Project Manager: Daniel Simpson

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12/16/24 10:10

BH21@20'
2411268-09 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHK0958	11/19/24	11/20/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0187	56.2 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0213	64.0 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHK1251	11/25/24	11/26/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH21@20'
2411268-09 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.18	0.200	mg/kg dry	1	BHL0032	12/02/24	12/05/24	EPA 6020B	
Barium	82.7	0.400	"	"	"	"	"	"	
Cadmium	0.485	0.200	"	"	"	"	"	"	
Copper	5.60	0.400	"	"	"	"	"	"	
Lead	10.3	0.200	"	"	"	"	"	"	
Nickel	11.4	0.400	"	"	"	"	"	"	
Silver	0.0359	0.0200	"	"	"	"	"	"	
Zinc	54.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 11/14/24 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHL0087	12/03/24	12/03/24	EPA 7196A	

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

Date Sampled: 11/14/24 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	8.95	0.0500	mg/L dry	1	BHL0382	12/10/24	12/12/24	EPA 6020B	
Magnesium	5.08	0.0500	"	"	"	"	"	"	
Sodium	20.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 11/14/24 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.34	0.00100	units	1	BHL0629	12/13/24	12/13/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 11/14/24 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

BH21@20'
2411268-09 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	87.3	%	1	BHK1077	11/21/24	11/21/24	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/14/24 14:15**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.237	0.0100	mmhos/cm	1	BHL0388	12/10/24	12/11/24	EPA 120.1	

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

Date Sampled: **11/14/24 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.60		pH Units	1	BHL0385	12/10/24	12/11/24	EPA 9045D	

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHK0933 - EPA 5030 Soil MS

Blank (BHK0933-BLK1)

Prepared: 11/18/24 Analyzed: 11/19/24

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0361		"	0.0400		90.2	50-150			
<i>Surrogate: Toluene-d8</i>	0.0409		"	0.0400		102	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0379		"	0.0400		94.6	50-150			

LCS (BHK0933-BS1)

Prepared: 11/18/24 Analyzed: 11/19/24

Benzene	0.102	0.0020	mg/kg	0.100		102	70-130			
Toluene	0.102	0.0050	"	0.100		102	70-130			
Ethylbenzene	0.104	0.0050	"	0.100		104	70-130			
m,p-Xylene	0.210	0.010	"	0.200		105	70-130			
o-Xylene	0.104	0.0050	"	0.100		104	70-130			
1,2,4-Trimethylbenzene	0.0996	0.0050	"	0.100		99.6	70-130			
1,3,5-Trimethylbenzene	0.101	0.0050	"	0.100		101	70-130			
Naphthalene	0.0773	0.0038	"	0.100		77.3	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0366		"	0.0400		91.4	50-150			
<i>Surrogate: Toluene-d8</i>	0.0411		"	0.0400		103	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0377		"	0.0400		94.2	50-150			

Matrix Spike (BHK0933-MS1)

Source: 2411256-22

Prepared: 11/18/24 Analyzed: 11/19/24

Benzene	0.0848	0.0020	mg/kg	0.100	ND	84.8	70-130			
Toluene	0.0843	0.0050	"	0.100	ND	84.3	70-130			
Ethylbenzene	0.0853	0.0050	"	0.100	ND	85.3	70-130			
m,p-Xylene	0.172	0.010	"	0.200	ND	85.9	70-130			
o-Xylene	0.0865	0.0050	"	0.100	ND	86.5	70-130			
1,2,4-Trimethylbenzene	0.0805	0.0050	"	0.100	ND	80.5	70-130			
1,3,5-Trimethylbenzene	0.0826	0.0050	"	0.100	ND	82.6	70-130			
Naphthalene	0.0714	0.0038	"	0.100	ND	71.4	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0391		"	0.0400		97.7	50-150			
<i>Surrogate: Toluene-d8</i>	0.0410		"	0.0400		103	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0399		"	0.0400		99.7	50-150			

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHK0933 - EPA 5030 Soil MS

Matrix Spike Dup (BHK0933-MSD1)	Source: 2411256-22			Prepared: 11/18/24 Analyzed: 11/19/24						
Benzene	0.0745	0.0020	mg/kg	0.100	ND	74.5	70-130	12.9	30	
Toluene	0.0769	0.0050	"	0.100	ND	76.9	70-130	9.27	30	
Ethylbenzene	0.0821	0.0050	"	0.100	ND	82.1	70-130	3.76	30	
m,p-Xylene	0.164	0.010	"	0.200	ND	81.9	70-130	4.78	30	
o-Xylene	0.0804	0.0050	"	0.100	ND	80.4	70-130	7.37	30	
1,2,4-Trimethylbenzene	0.0787	0.0050	"	0.100	ND	78.7	70-130	2.34	30	
1,3,5-Trimethylbenzene	0.0817	0.0050	"	0.100	ND	81.7	70-130	1.10	30	
Naphthalene	0.0710	0.0038	"	0.100	ND	71.0	70-130	0.674	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>		<i>97.4</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0387</i>		<i>"</i>	<i>0.0400</i>		<i>96.8</i>	<i>50-150</i>			

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHK0935 - EPA 3550A

Blank (BHK0935-BLK1)

Prepared & Analyzed: 11/18/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.5		"	12.5		108		30-150			

LCS (BHK0935-BS1)

Prepared & Analyzed: 11/18/24

C10-C28 (DRO)	401	50	mg/kg	500		80.2		70-130			
Surrogate: <i>o</i> -Terphenyl	11.8		"	12.5		94.1		30-150			

Matrix Spike (BHK0935-MS1)

Source: 2411256-22

Prepared & Analyzed: 11/18/24

C10-C28 (DRO)	427	50	mg/kg	500	30.7	79.3		70-130			
Surrogate: <i>o</i> -Terphenyl	9.82		"	12.5		78.6		30-150			

Matrix Spike Dup (BHK0935-MSD1)

Source: 2411256-22

Prepared: 11/18/24 Analyzed: 11/19/24

C10-C28 (DRO)	380	50	mg/kg	500	30.7	69.9		70-130	11.7	20	QM-05
Surrogate: <i>o</i> -Terphenyl	9.71		"	12.5		77.7		30-150			

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHK0958 - EPA 5030 Soil MS

Blank (BHK0958-BLK1)

Prepared & Analyzed: 11/19/24

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>0.0186</i>		"	<i>0.0333</i>		<i>55.7</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0255</i>		"	<i>0.0333</i>		<i>76.4</i>	<i>40-140</i>			

LCS (BHK0958-BS1)

Prepared & Analyzed: 11/19/24

Acenaphthene	0.0203	0.00500	mg/kg	0.0333		60.8	40-140			
Anthracene	0.0219	0.00500	"	0.0333		65.7	40-140			
Benzo (a) anthracene	0.0246	0.00500	"	0.0333		73.8	40-140			
Benzo (a) pyrene	0.0194	0.00500	"	0.0333		58.2	40-140			
Benzo (b) fluoranthene	0.0213	0.00500	"	0.0333		63.9	40-140			
Benzo (k) fluoranthene	0.0235	0.00500	"	0.0333		70.5	40-140			
Chrysene	0.0240	0.00500	"	0.0333		71.9	40-140			
Dibenz (a,h) anthracene	0.0173	0.00500	"	0.0333		51.9	40-140			
Fluoranthene	0.0222	0.00500	"	0.0333		66.6	40-140			
Fluorene	0.0216	0.00500	"	0.0333		64.8	40-140			
Indeno (1,2,3-cd) pyrene	0.0170	0.00500	"	0.0333		50.9	40-140			
Pyrene	0.0247	0.00500	"	0.0333		74.0	40-140			
1-Methylnaphthalene	0.0202	0.00500	"	0.0333		60.5	40-140			
2-Methylnaphthalene	0.0204	0.00500	"	0.0333		61.1	40-140			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0203</i>		"	<i>0.0333</i>		<i>60.9</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0234</i>		"	<i>0.0333</i>		<i>70.3</i>	<i>40-140</i>			

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHK0958 - EPA 5030 Soil MS

Matrix Spike (BHK0958-MS1)	Source: 2411268-01			Prepared & Analyzed: 11/19/24						
Acenaphthene	0.0182	0.00500	mg/kg	0.0333	ND	54.8	40-140			
Anthracene	0.0183	0.00500	"	0.0333	ND	54.8	40-140			
Benzo (a) anthracene	0.0221	0.00500	"	0.0333	ND	66.2	40-140			
Benzo (a) pyrene	0.0139	0.00500	"	0.0333	ND	41.8	40-140			
Benzo (b) fluoranthene	0.0138	0.00500	"	0.0333	ND	41.4	40-140			
Benzo (k) fluoranthene	0.0161	0.00500	"	0.0333	ND	48.4	40-140			
Chrysene	0.0175	0.00500	"	0.0333	ND	52.6	40-140			
Dibenz (a,h) anthracene	0.0155	0.00500	"	0.0333	ND	46.5	40-140			
Fluoranthene	0.0180	0.00500	"	0.0333	ND	54.0	40-140			
Fluorene	0.0225	0.00500	"	0.0333	ND	67.5	40-140			
Indeno (1,2,3-cd) pyrene	0.0155	0.00500	"	0.0333	ND	46.5	40-140			
Pyrene	0.0214	0.00500	"	0.0333	ND	64.1	40-140			
1-Methylnaphthalene	0.0273	0.00500	"	0.0333	ND	82.0	40-140			
2-Methylnaphthalene	0.0447	0.00500	"	0.0333	0.0117	99.1	40-140			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0160</i>		<i>"</i>	<i>0.0333</i>		<i>47.9</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0193</i>		<i>"</i>	<i>0.0333</i>		<i>57.8</i>	<i>40-140</i>			

Matrix Spike Dup (BHK0958-MSD1)	Source: 2411268-01			Prepared & Analyzed: 11/19/24						
Acenaphthene	0.0175	0.00500	mg/kg	0.0333	ND	52.4	40-140	4.43	30	
Anthracene	0.0179	0.00500	"	0.0333	ND	53.8	40-140	1.92	30	
Benzo (a) anthracene	0.0213	0.00500	"	0.0333	ND	64.0	40-140	3.29	30	
Benzo (a) pyrene	0.0137	0.00500	"	0.0333	ND	41.2	40-140	1.49	30	
Benzo (b) fluoranthene	0.0135	0.00500	"	0.0333	ND	40.6	40-140	1.99	30	
Benzo (k) fluoranthene	0.0154	0.00500	"	0.0333	ND	46.2	40-140	4.51	30	
Chrysene	0.0168	0.00500	"	0.0333	ND	50.5	40-140	4.08	30	
Dibenz (a,h) anthracene	0.0166	0.00500	"	0.0333	ND	49.9	40-140	7.05	30	
Fluoranthene	0.0180	0.00500	"	0.0333	ND	54.0	40-140	0.0759	30	
Fluorene	0.0210	0.00500	"	0.0333	ND	63.0	40-140	6.89	30	
Indeno (1,2,3-cd) pyrene	0.0145	0.00500	"	0.0333	ND	43.4	40-140	6.95	30	
Pyrene	0.0204	0.00500	"	0.0333	ND	61.3	40-140	4.41	30	
1-Methylnaphthalene	0.0262	0.00500	"	0.0333	ND	78.5	40-140	4.33	30	
2-Methylnaphthalene	0.0426	0.00500	"	0.0333	0.0117	92.9	40-140	4.72	30	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0156</i>		<i>"</i>	<i>0.0333</i>		<i>46.7</i>	<i>40-140</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0192</i>		<i>"</i>	<i>0.0333</i>		<i>57.5</i>	<i>40-140</i>			

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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

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

Batch BHK1251 - EPA 3050B

Blank (BHK1251-BLK1)

Prepared & Analyzed: 11/25/24

Boron ND 2.00 mg/L

LCS (BHK1251-BS1)

Prepared & Analyzed: 11/25/24

Boron 5.34 2.00 mg/L 5.00 107 80-120

Duplicate (BHK1251-DUP1)

Source: 2411268-01

Prepared & Analyzed: 11/25/24

Boron 0.523 2.00 mg/L 0.617 16.4 20

Matrix Spike (BHK1251-MS1)

Source: 2411268-01

Prepared: 11/25/24 Analyzed: 11/26/24

Boron 5.19 2.00 mg/L 5.00 0.617 91.5 75-125

Matrix Spike Dup (BHK1251-MSD1)

Source: 2411268-01

Prepared: 11/25/24 Analyzed: 11/26/24

Boron 4.99 2.00 mg/L 5.00 0.617 87.4 75-125 4.02 25

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHL0032 - EPA 3050B

Blank (BHL0032-BLK1)

Prepared: 12/02/24 Analyzed: 12/05/24

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 (BHL0032-BS1)

Prepared: 12/02/24 Analyzed: 12/05/24

Arsenic	37.6	0.200	mg/kg wet	41.0	91.6	80-120
Barium	39.0	0.400	"	41.0	95.2	80-120
Cadmium	1.86	0.200	"	2.05	90.6	80-120
Copper	40.5	0.400	"	41.0	98.9	80-120
Lead	18.8	0.200	"	20.5	91.6	80-120
Nickel	37.1	0.400	"	41.0	90.6	80-120
Silver	2.10	0.0200	"	2.05	103	80-120
Zinc	40.2	0.400	"	41.0	98.0	80-120
Selenium	3.95	0.260	"	4.10	96.3	80-120

Duplicate (BHL0032-DUP1)

Source: 2411268-01

Prepared: 12/02/24 Analyzed: 12/05/24

Arsenic	2.20	0.200	mg/kg dry	2.19	0.660	20	
Barium	63.9	0.400	"	58.8	8.28	20	
Cadmium	0.612	0.200	"	0.451	30.2	20	QR-01
Copper	6.12	0.400	"	6.38	4.19	20	
Lead	14.7	0.200	"	15.2	3.72	20	
Nickel	17.3	0.400	"	13.3	26.2	20	QR-04
Silver	0.0536	0.0200	"	0.0488	9.20	20	
Zinc	40.7	0.400	"	41.9	3.00	20	
Selenium	0.257	0.260	"	0.291	12.6	20	

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Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHL0032 - EPA 3050B

Matrix Spike (BHL0032-MS1)

Source: 2411268-01

Prepared: 12/02/24 Analyzed: 12/05/24

Arsenic	43.7	0.200	mg/kg dry	46.5	2.19	89.3	75-125			
Barium	121	0.400	"	46.5	58.8	134	75-125			QM-05
Cadmium	3.67	0.200	"	2.33	0.451	138	75-125			QM-05
Copper	21.7	0.400	"	46.5	6.38	33.0	75-125			QM-05
Lead	36.3	0.200	"	23.3	15.2	90.5	75-125			
Nickel	74.6	0.400	"	46.5	13.3	132	75-125			QM-05
Silver	2.43	0.0200	"	2.33	0.0488	102	75-125			
Zinc	60.1	0.400	"	46.5	41.9	39.1	75-125			QM-05
Selenium	3.82	0.260	"	4.65	0.291	75.9	75-125			

Matrix Spike Dup (BHL0032-MSD1)

Source: 2411268-01

Prepared: 12/02/24 Analyzed: 12/05/24

Arsenic	43.1	0.200	mg/kg dry	46.9	2.19	87.3	75-125	1.41	25	
Barium	135	0.400	"	46.9	58.8	162	75-125	10.4	25	QM-05
Cadmium	3.58	0.200	"	2.34	0.451	134	75-125	2.25	25	QM-05
Copper	21.5	0.400	"	46.9	6.38	32.1	75-125	1.32	25	QM-05
Lead	36.5	0.200	"	23.4	15.2	90.8	75-125	0.638	25	
Nickel	72.4	0.400	"	46.9	13.3	126	75-125	2.94	25	QM-05
Silver	2.40	0.0200	"	2.34	0.0488	100	75-125	1.29	25	
Zinc	60.2	0.400	"	46.9	41.9	39.0	75-125	0.205	25	QM-05
Selenium	3.68	0.260	"	4.69	0.291	72.3	75-125	3.77	25	QM-05

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BHL0087 - 3060A Mod

Blank (BHL0087-BLK1)

Prepared & Analyzed: 12/03/24

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BHL0087-BS1)

Prepared & Analyzed: 12/03/24

Chromium, Hexavalent 25.9 0.30 mg/kg wet 25.0 104 80-120

Duplicate (BHL0087-DUP1)

Source: 2411268-01

Prepared & Analyzed: 12/03/24

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BHL0087-MS1)

Source: 2411268-01

Prepared & Analyzed: 12/03/24

Chromium, Hexavalent 29.9 0.30 mg/kg dry 28.6 ND 105 75-125

Matrix Spike Dup (BHL0087-MSD1)

Source: 2411268-01

Prepared & Analyzed: 12/03/24

Chromium, Hexavalent 29.2 0.30 mg/kg dry 28.6 ND 102 75-125 2.32 20

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHL0382 - General Preparation

Blank (BHL0382-BLK1)

Prepared: 12/10/24 Analyzed: 12/12/24

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

LCS (BHL0382-BS1)

Prepared: 12/10/24 Analyzed: 12/12/24

Calcium	4.89	0.0500	mg/L wet	5.00	97.7	70-130				
Magnesium	5.16	0.0500	"	5.00	103	70-130				
Sodium	5.22	0.0500	"	5.00	104	70-130				

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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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

Summit Scientific

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

Batch BHK1077 - General Preparation


Duplicate (BHK1077-DUP1)

Source: 2411265-01

Prepared & Analyzed: 11/21/24

% Solids	89.1		%		89.3			0.222	20	
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Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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

Summit Scientific

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

Batch BHL0388 - General Preparation

Blank (BHL0388-BLK1)

Prepared: 12/10/24 Analyzed: 12/11/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BHL0388-BS1)

Prepared: 12/10/24 Analyzed: 12/11/24

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

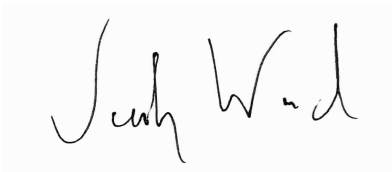
Duplicate (BHL0388-DUP1)

Source: 2411268-01

Prepared: 12/10/24 Analyzed: 12/11/24

Specific Conductance (EC) 0.230 0.0100 mmhos/cm 0.232 0.953 20

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Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

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 BHL0385 - General Preparation

LCS (BHL0385-BS1)

Prepared: 12/10/24 Analyzed: 12/11/24

pH	9.13	pH Units	9.18	99.5	95-105
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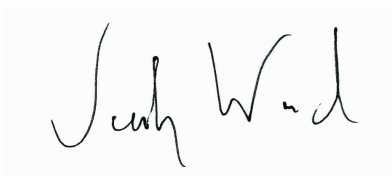
Duplicate (BHL0385-DUP1)

Source: 2411268-01

Prepared: 12/10/24 Analyzed: 12/11/24

pH	8.38	pH Units	8.47	1.07	20
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Houndskeeper HOI-17 Facility

Project Number: [none]
Project Manager: Daniel Simpson

Reported:
12/16/24 10:10

Notes and Definitions

- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- R-05 The reporting limit for this sample has been raised due to the presence of high levels of non-target analytes.
- 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.
- 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.
- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- 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