

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

February 18, 2025

Bryce Goldade

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Hanscome C28-18

Work Order #2412371

Enclosed are the results of analyses for samples received by Summit Scientific on 12/17/24 17:58. 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 fluid and cursive, with the first name being more prominent.

Natalie Tessier For Paul Shrewsbury
President



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

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-01@4'	2412371-01	Soil	12/17/24 12:30	12/17/24 17:58
FL01-06@4'	2412371-02	Soil	12/17/24 15:52	12/17/24 17:58

Summit Scientific

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Client: Noble/Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W. 119th Ave.		Project Manager: Bryce Goldade		Company: Noble	
City/State/Zip: Broomfield/CO/ 80020		E-Mail: tas-chevron-4@tasman-geo.com		Project Name/Location:	
Phone: 727-365-4138		rbueuf27@chevron.com		AFE#:	
Sampler Name: Matt Bush		Project Name: Hanscom C 28-78		PO/Billing Codes:	
		Project Number: 34732		Contact: Miguel Barron	

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	ELG1-01 E41	12/17/24	1230	3			X			X			X	X	X	X	X	X		SAR, EC, pH by saturated paste
2	ELG1-06 E4	1	1552	3			X			X			X	X	X	X	X	X		
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: MS	Date/Time: 12/17/24 1720	Received by: Tasman Lock Box	Date/Time: 12/17/24 1720	TAT Business Days	Field DO	Notes:
Relinquished by: Tasman Lock Box	Date/Time: 12/17/24 1758	Received by: [Signature]	Date/Time: 12/17/24 1758	Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
Temperature Upon Receipt: 8.4	Corrected Temperature: 8	IR gun #:		Standard	X Field Turb.	
				HNO3 lot #:		

S₂

Sample Receipt Checklist

S2 Work Order# 2412371Client: Noble Tasman Client Project ID: Harscome C23-18Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐
☐ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 8.4Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>m20e</u>
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<u>date/time @ lockbox</u>
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

12/17/24
Date/Time



Tasman Geosciences
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Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

FL01-01@4'
2412371-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHL1263	12/27/24	12/31/24	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: **12/17/24 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0376	94.1 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0404	101 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0374	93.4 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHL1266	12/27/24	01/04/25	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.86	62.8 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHL1274	12/29/24	01/01/25	EPA 8270D SIM	
Anthracene	0.00852	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0133	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.00911	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0124	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.0110	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0291	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0110	0.00500	"	"	"	"	"	"	
Pyrene	0.0223	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0174	52.3 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0177	53.1 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BIB0433	02/10/25	02/18/25	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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FL01-01@4'
2412371-01 (Soil)

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Total Metals by EPA 6020B

Arsenic	2.11	0.200	mg/kg dry	1	BIB0301	02/06/25	02/15/25	EPA 6020B
Barium	45.9	0.400	"	"	"	"	"	"
Cadmium	0.208	0.200	"	"	"	"	"	"
Copper	4.66	0.400	"	"	"	"	"	"
Lead	6.00	0.200	"	"	"	"	"	"
Nickel	4.00	0.400	"	"	"	"	"	"
Silver	0.0268	0.0200	"	"	"	"	"	"
Zinc	19.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BIA0466	01/12/25	01/13/25	EPA 7196A	

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

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.3	0.0500	mg/L dry	1	BIA0496	01/13/25	01/21/25	EPA 6020B	
Magnesium	7.74	0.0500	"	"	"	"	"	"	
Sodium	76.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.29	0.00100	units	1	BIA0950	01/21/25	01/21/25	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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2412371-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	93.3	%	1	BIA0601	01/14/25	01/15/25	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.586	0.0100	mmhos/cm	1	BIA0481	01/13/25	01/16/25	EPA 120.1	

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

Date Sampled: **12/17/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.05		pH Units	1	BIA0476	01/13/25	01/16/25	EPA 9045D	

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FL01-06@4'
2412371-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BHL1263	12/27/24	12/31/24	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: **12/17/24 15:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0375	93.7 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0409	102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0372	92.9 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BHL1266	12/27/24	01/04/25	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.19	57.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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FL01-06@4'
2412371-02 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHL1274	12/29/24	01/01/25	EPA 8270D SIM	
Anthracene	0.00688	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0124	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.00880	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.0107	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.00963	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0268	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0108	0.00500	"	"	"	"	"	"	
Pyrene	0.0182	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0283	84.9 %	40-140		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0280	84.1 %	40-140		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BIB0433	02/10/25	02/18/25	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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FL01-06@4'
2412371-02 (Soil)

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Total Metals by EPA 6020B

Arsenic	2.65	0.200	mg/kg dry	1	BIB0301	02/06/25	02/15/25	EPA 6020B
Barium	58.8	0.400	"	"	"	"	"	"
Cadmium	0.277	0.200	"	"	"	"	"	"
Copper	6.00	0.400	"	"	"	"	"	"
Lead	8.48	0.200	"	"	"	"	"	"
Nickel	4.67	0.400	"	"	"	"	"	"
Silver	0.0360	0.0200	"	"	"	"	"	"
Zinc	23.9	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BIA0466	01/12/25	01/13/25	EPA 7196A	

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

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	135	0.0500	mg/L dry	1	BIA0496	01/13/25	01/21/25	EPA 6020B	
Magnesium	30.0	0.0500	"	"	"	"	"	"	
Sodium	38.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.787	0.00100	units	1	BIA0950	01/21/25	01/21/25	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project Manager: Bryce Goldade

Reported:
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FL01-06@4'
2412371-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	94.1	%	1	BIA0601	01/14/25	01/15/25	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.32	0.0100	mmhos/cm	1	BIA0481	01/13/25	01/16/25	EPA 120.1	

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

Date Sampled: **12/17/24 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.91		pH Units	1	BIA0476	01/13/25	01/16/25	EPA 9045D	

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Reported:
02/18/25 07:41

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BHL1263 - EPA 5030 Soil MS

Blank (BHL1263-BLK1)

Prepared: 12/27/24 Analyzed: 12/30/24

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0382		"	0.0400		95.6	50-150			
Surrogate: Toluene-d8	0.0402		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	50-150			

LCS (BHL1263-BS1)

Prepared: 12/27/24 Analyzed: 12/30/24

Benzene	0.0893	0.0020	mg/kg	0.100		89.3	70-130			
Toluene	0.0900	0.0050	"	0.100		90.0	70-130			
Ethylbenzene	0.0907	0.0050	"	0.100		90.7	70-130			
m,p-Xylene	0.185	0.010	"	0.200		92.5	70-130			
o-Xylene	0.0939	0.0050	"	0.100		93.9	70-130			
1,2,4-Trimethylbenzene	0.0888	0.0050	"	0.100		88.8	70-130			
1,3,5-Trimethylbenzene	0.0889	0.0050	"	0.100		88.9	70-130			
Naphthalene	0.0787	0.0038	"	0.100		78.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0378		"	0.0400		94.5	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	50-150			

Matrix Spike (BHL1263-MS1)

Source: 2412368-01

Prepared: 12/27/24 Analyzed: 12/31/24

Benzene	0.0760	0.0020	mg/kg	0.100	ND	76.0	70-130			
Toluene	0.0749	0.0050	"	0.100	ND	74.9	70-130			
Ethylbenzene	0.0744	0.0050	"	0.100	ND	74.4	70-130			
m,p-Xylene	0.150	0.010	"	0.200	ND	74.9	70-130			
o-Xylene	0.0767	0.0050	"	0.100	ND	76.7	70-130			
1,2,4-Trimethylbenzene	0.0663	0.0050	"	0.100	ND	66.3	70-130			QM-05
1,3,5-Trimethylbenzene	0.0650	0.0050	"	0.100	ND	65.0	70-130			QM-05
Naphthalene	0.0590	0.0038	"	0.100	ND	59.0	70-130			QM-05
Surrogate: 1,2-Dichloroethane-d4	0.0375		"	0.0400		93.7	50-150			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.3	50-150			

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

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

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

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

Batch BHL1263 - EPA 5030 Soil MS

Matrix Spike Dup (BHL1263-MSD1)	Source: 2412368-01			Prepared: 12/27/24 Analyzed: 12/31/24						
Benzene	0.0787	0.0020	mg/kg	0.100	ND	78.7	70-130	3.45	30	
Toluene	0.0784	0.0050	"	0.100	ND	78.4	70-130	4.58	30	
Ethylbenzene	0.0752	0.0050	"	0.100	ND	75.2	70-130	1.00	30	
m,p-Xylene	0.153	0.010	"	0.200	ND	76.4	70-130	1.88	30	
o-Xylene	0.0788	0.0050	"	0.100	ND	78.8	70-130	2.70	30	
1,2,4-Trimethylbenzene	0.0701	0.0050	"	0.100	ND	70.1	70-130	5.59	30	
1,3,5-Trimethylbenzene	0.0692	0.0050	"	0.100	ND	69.2	70-130	6.35	30	QM-05
Naphthalene	0.0653	0.0038	"	0.100	ND	65.3	70-130	10.2	30	QM-05
Surrogate: 1,2-Dichloroethane-d4	0.0406		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.4	50-150			

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Broomfield CO, 80020

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BHL1266 - EPA 3550A

Blank (BHL1266-BLK1)

Prepared: 12/27/24 Analyzed: 01/03/25

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	8.58		"	12.5		68.7	30-150			

LCS (BHL1266-BS1)

Prepared: 12/27/24 Analyzed: 01/03/25

C10-C28 (DRO)	397	50	mg/kg	500		79.3	70-130			
Surrogate: o-Terphenyl	7.80		"	12.5		62.4	30-150			

Matrix Spike (BHL1266-MS1)

Source: 2412368-01

Prepared: 12/27/24 Analyzed: 01/03/25

C10-C28 (DRO)	462	50	mg/kg	500	14.7	89.4	70-130			
Surrogate: o-Terphenyl	7.74		"	12.5		61.9	30-150			

Matrix Spike Dup (BHL1266-MSD1)

Source: 2412368-01

Prepared: 12/27/24 Analyzed: 01/03/25

C10-C28 (DRO)	453	50	mg/kg	500	14.7	87.7	70-130	1.84	20	
Surrogate: o-Terphenyl	7.42		"	12.5		59.4	30-150			

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Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHL1274 - EPA 5030 Soil MS

Blank (BHL1274-BLK1)

Prepared: 12/29/24 Analyzed: 12/31/24

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	"							
Surrogate: 2-Methylnaphthalene-d10	0.0306		"	0.0333		91.8	40-140			
Surrogate: Fluoranthene-d10	0.0326		"	0.0333		97.9	40-140			

LCS (BHL1274-BS1)

Prepared: 12/29/24 Analyzed: 12/31/24

Acenaphthene	0.0262	0.00500	mg/kg	0.0333		78.7	40-140			
Anthracene	0.0279	0.00500	"	0.0333		83.6	40-140			
Benzo (a) anthracene	0.0254	0.00500	"	0.0333		76.3	40-140			
Benzo (a) pyrene	0.0258	0.00500	"	0.0333		77.5	40-140			
Benzo (b) fluoranthene	0.0244	0.00500	"	0.0333		73.1	40-140			
Benzo (k) fluoranthene	0.0267	0.00500	"	0.0333		80.1	40-140			
Chrysene	0.0278	0.00500	"	0.0333		83.5	40-140			
Dibenz (a,h) anthracene	0.0234	0.00500	"	0.0333		70.2	40-140			
Fluoranthene	0.0269	0.00500	"	0.0333		80.8	40-140			
Fluorene	0.0262	0.00500	"	0.0333		78.7	40-140			
Indeno (1,2,3-cd) pyrene	0.0265	0.00500	"	0.0333		79.5	40-140			
Pyrene	0.0283	0.00500	"	0.0333		84.9	40-140			
1-Methylnaphthalene	0.0287	0.00500	"	0.0333		86.0	40-140			
2-Methylnaphthalene	0.0285	0.00500	"	0.0333		85.6	40-140			
Surrogate: 2-Methylnaphthalene-d10	0.0296		"	0.0333		88.7	40-140			
Surrogate: Fluoranthene-d10	0.0281		"	0.0333		84.3	40-140			

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Broomfield CO, 80020

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BHL1274 - EPA 5030 Soil MS

Matrix Spike (BHL1274-MS1)			Source: 2412359-01		Prepared: 12/29/24 Analyzed: 12/31/24						
Acenaphthene	0.0407	0.00500	mg/kg	0.0333	ND	122	40-140				
Anthracene	0.0349	0.00500	"	0.0333	ND	105	40-140				
Benzo (a) anthracene	0.0355	0.00500	"	0.0333	ND	107	40-140				
Benzo (a) pyrene	0.0352	0.00500	"	0.0333	ND	106	40-140				
Benzo (b) fluoranthene	0.0352	0.00500	"	0.0333	ND	106	40-140				
Benzo (k) fluoranthene	0.0336	0.00500	"	0.0333	ND	101	40-140				
Chrysene	0.0402	0.00500	"	0.0333	ND	120	40-140				
Dibenz (a,h) anthracene	0.0188	0.00500	"	0.0333	ND	56.4	40-140				
Fluoranthene	0.0377	0.00500	"	0.0333	ND	113	40-140				
Fluorene	0.0495	0.00500	"	0.0333	0.0106	117	40-140				
Indeno (1,2,3-cd) pyrene	0.0254	0.00500	"	0.0333	ND	76.1	40-140				
Pyrene	0.0310	0.00500	"	0.0333	ND	93.1	40-140				
1-Methylnaphthalene	0.181	0.00500	"	0.0333	0.0670	342	40-140				QM-01
2-Methylnaphthalene	0.239	0.00500	"	0.0333	0.0929	438	40-140				QM-01
Surrogate: 2-Methylnaphthalene-d10	0.0344		"	0.0333		103	40-140				
Surrogate: Fluoranthene-d10	0.0389		"	0.0333		117	40-140				

Matrix Spike Dup (BHL1274-MSD1)			Source: 2412359-01		Prepared: 12/29/24 Analyzed: 12/31/24						
Acenaphthene	0.0420	0.00500	mg/kg	0.0333	ND	126	40-140	3.05	30		
Anthracene	0.0349	0.00500	"	0.0333	ND	105	40-140	0.0697	30		
Benzo (a) anthracene	0.0354	0.00500	"	0.0333	ND	106	40-140	0.193	30		
Benzo (a) pyrene	0.0325	0.00500	"	0.0333	ND	97.6	40-140	7.88	30		
Benzo (b) fluoranthene	0.0353	0.00500	"	0.0333	ND	106	40-140	0.139	30		
Benzo (k) fluoranthene	0.0294	0.00500	"	0.0333	ND	88.2	40-140	13.4	30		
Chrysene	0.0317	0.00500	"	0.0333	ND	95.0	40-140	23.7	30		
Dibenz (a,h) anthracene	0.0173	0.00500	"	0.0333	ND	51.9	40-140	8.18	30		
Fluoranthene	0.0385	0.00500	"	0.0333	ND	115	40-140	2.11	30		
Fluorene	0.0570	0.00500	"	0.0333	0.0106	139	40-140	14.1	30		
Indeno (1,2,3-cd) pyrene	0.0256	0.00500	"	0.0333	ND	76.9	40-140	1.03	30		
Pyrene	0.0395	0.00500	"	0.0333	ND	118	40-140	24.0	30		
1-Methylnaphthalene	0.267	0.00500	"	0.0333	0.0670	602	40-140	38.6	30		QM-01
2-Methylnaphthalene	0.372	0.00500	"	0.0333	0.0929	837	40-140	43.5	30		QM-01
Surrogate: 2-Methylnaphthalene-d10	0.0328		"	0.0333		98.5	40-140				
Surrogate: Fluoranthene-d10	0.0384		"	0.0333		115	40-140				

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

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

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

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

Batch BIB0433 - EPA 3050B

Blank (BIB0433-BLK1)

Prepared: 02/10/25 Analyzed: 02/18/25

Boron ND 2.00 mg/L

LCS (BIB0433-BS1)

Prepared: 02/10/25 Analyzed: 02/18/25

Boron 4.90 2.00 mg/L 5.00 98.1 80-120

Duplicate (BIB0433-DUP1)

Source: 2412364-01

Prepared: 02/10/25 Analyzed: 02/18/25

Boron 0.303 2.00 mg/L 0.352 14.9 20

Matrix Spike (BIB0433-MS1)

Source: 2412364-01

Prepared: 02/10/25 Analyzed: 02/18/25

Boron 5.12 2.00 mg/L 5.00 0.352 95.5 75-125

Matrix Spike Dup (BIB0433-MSD1)

Source: 2412364-01

Prepared: 02/10/25 Analyzed: 02/18/25

Boron 5.35 2.00 mg/L 5.00 0.352 100 75-125 4.34 25

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Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BIB0301 - EPA 3050B

Blank (BIB0301-BLK1)

Prepared: 02/06/25 Analyzed: 02/15/25

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 (BIB0301-BS1)

Prepared: 02/06/25 Analyzed: 02/15/25

Arsenic	38.2	0.200	mg/kg wet	41.7	91.7	80-120
Barium	40.6	0.400	"	41.7	97.6	80-120
Cadmium	2.10	0.200	"	2.08	101	80-120
Copper	46.7	0.400	"	41.7	112	80-120
Lead	20.8	0.200	"	20.8	99.9	80-120
Nickel	46.0	0.400	"	41.7	110	80-120
Silver	2.11	0.0200	"	2.08	101	80-120
Zinc	45.9	0.400	"	41.7	110	80-120
Selenium	3.80	0.260	"	4.17	91.1	80-120

Duplicate (BIB0301-DUP1)

Source: 2412284-01

Prepared: 02/06/25 Analyzed: 02/15/25

Arsenic	1.66	0.200	mg/kg dry	1.58	5.45	20
Barium	21.2	0.400	"	20.6	2.74	20
Cadmium	0.0812	0.200	"	0.0748	8.15	20
Copper	1.65	0.400	"	1.56	5.10	20
Lead	2.77	0.200	"	2.73	1.55	20
Nickel	1.43	0.400	"	1.30	9.31	20
Silver	0.00715	0.0200	"	0.00728	1.79	20
Zinc	8.13	0.400	"	7.32	10.6	20
Selenium	ND	0.260	"	ND		20

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Broomfield CO, 80020

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BIB0301 - EPA 3050B

Matrix Spike (BIB0301-MS1)

Source: 2412284-01

Prepared: 02/06/25 Analyzed: 02/15/25

Arsenic	40.7	0.200	mg/kg dry	42.8	1.58	91.6	75-125
Barium	61.1	0.400	"	42.8	20.6	94.7	75-125
Cadmium	2.20	0.200	"	2.14	0.0748	99.4	75-125
Copper	42.2	0.400	"	42.8	1.56	95.1	75-125
Lead	23.8	0.200	"	21.4	2.73	98.7	75-125
Nickel	41.7	0.400	"	42.8	1.30	94.4	75-125
Silver	2.05	0.0200	"	2.14	0.00728	95.4	75-125
Zinc	49.6	0.400	"	42.8	7.32	98.9	75-125
Selenium	3.86	0.260	"	4.28	ND	90.2	75-125

Matrix Spike Dup (BIB0301-MSD1)

Source: 2412284-01

Prepared: 02/06/25 Analyzed: 02/15/25

Arsenic	41.3	0.200	mg/kg dry	43.1	1.58	92.1	75-125	1.34	25
Barium	62.2	0.400	"	43.1	20.6	96.4	75-125	1.76	25
Cadmium	2.22	0.200	"	2.16	0.0748	99.7	75-125	1.15	25
Copper	42.3	0.400	"	43.1	1.56	94.5	75-125	0.206	25
Lead	23.9	0.200	"	21.6	2.73	98.4	75-125	0.387	25
Nickel	41.6	0.400	"	43.1	1.30	93.5	75-125	0.163	25
Silver	2.06	0.0200	"	2.16	0.00728	95.5	75-125	0.837	25
Zinc	50.2	0.400	"	43.1	7.32	99.4	75-125	1.09	25
Selenium	3.97	0.260	"	4.31	ND	92.0	75-125	2.81	25

Summit Scientific

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

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BIA0466 - 3060A Mod

Blank (BIA0466-BLK1)

Prepared: 01/12/25 Analyzed: 01/13/25

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BIA0466-BS1)

Prepared: 01/12/25 Analyzed: 01/13/25

Chromium, Hexavalent 28.0 0.30 mg/kg wet 25.8 109 80-120

Duplicate (BIA0466-DUP1)

Source: 2412332-01

Prepared: 01/12/25 Analyzed: 01/13/25

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BIA0466-MS1)

Source: 2412332-01

Prepared: 01/12/25 Analyzed: 01/13/25

Chromium, Hexavalent 26.9 0.30 mg/kg dry 25.8 ND 104 75-125

Matrix Spike Dup (BIA0466-MSD1)

Source: 2412332-01

Prepared: 01/12/25 Analyzed: 01/13/25

Chromium, Hexavalent 26.9 0.30 mg/kg dry 26.3 ND 102 75-125 0.0620 20

Summit Scientific

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

Project: Noble - Hanscome C28-18
Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

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

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

Batch BIA0496 - General Preparation

Blank (BIA0496-BLK1)

Prepared: 01/13/25 Analyzed: 01/21/25

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

LCS (BIA0496-BS1)

Prepared: 01/13/25 Analyzed: 01/21/25

Calcium	5.55	0.0500	mg/L wet	5.00	111	70-130
Magnesium	5.20	0.0500	"	5.00	104	70-130
Sodium	5.26	0.0500	"	5.00	105	70-130

Summit Scientific

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

Project: Noble - Hanscome C28-18

Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

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

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

Batch BIA0601 - General Preparation

Duplicate (BIA0601-DUP1)		Source: 2412368-40			Prepared: 01/14/25 Analyzed: 01/15/25					
% Solids	77.0		%		74.8		2.95		20	

Summit Scientific

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Project: Noble - Hanscome C28-18

Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

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

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

Batch BIA0481 - General Preparation

Blank (BIA0481-BLK1)

Prepared: 01/13/25 Analyzed: 01/16/25

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BIA0481-BS1)

Prepared: 01/13/25 Analyzed: 01/16/25

Specific Conductance (EC) 1.40 0.0100 mmhos/cm 1.41 98.9 95-105

Duplicate (BIA0481-DUP1)

Source: 2412349-01

Prepared: 01/13/25 Analyzed: 01/16/25

Specific Conductance (EC) 0.101 0.0100 mmhos/cm 0.0994 1.82 20

Summit Scientific

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

Project: Noble - Hanscome C28-18

Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

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

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

Batch BIA0476 - General Preparation

LCS (BIA0476-BS1)

Prepared: 01/13/25 Analyzed: 01/16/25

pH	9.01	pH Units	9.18	98.2	95-105
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Duplicate (BIA0476-DUP1)

Source: 2412349-01

Prepared: 01/13/25 Analyzed: 01/16/25

pH	8.59	pH Units	8.62	0.303	20
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Summit Scientific

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

Project: Noble - Hanscome C28-18

Project Number: UWRWE-A4115-ABN 34732
Project Manager: Bryce Goldade

Reported:
02/18/25 07:41

Notes and Definitions

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.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample 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