

Tank Battery Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional attachments (optional):	Pit Closure	Wellhead Closure	Flowline Closure	Partially Buried Vault Closure
Site Name & COGCC Facility Number: 414233	Date: 5/20/2021			Remediation Project #: 1342 2052
Associated Wells: Herbolter F35-27	Age of Site: Unknown			Number of Photos Attached: 1-13
Location: (GPS coordinates of southeaster berm)	40.366456, -104.630210			Estimated Facility Size (acres): 1

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)

Good condition, no trash/debris

USCS Soil Type: CL - Lean Clay

Estimated Depth to Groundwater: >5'

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)

None Observed

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)

None Observed

Tanks

[illegible]

Other observations regarding tanks: Samples collected from 4 sidewalls & base of PWV
Sample collected underneath AST location

Separators

Separator size	-								
Vertical or Horizontal	Horizontal								
Age	-								
Soil impacts PAC	NO								
PID Readings	0.0								
Sample taken? Location/ Sample ID#	See Below								
Photo Number(s)	1-13								


Other observations regarding separators *Samples collected underneath dump lines & Flowline*

Third Party Equipment

[illegible]

Third Party	DLP																	
Removal Date	-																	
Sample taken?	Yes																	
PID Readings	0.0																	
Photo Number(s)	1-13																	
Other Facility Equipment																		
Equipment type	Flare (3x)																	
Equipment	✓																	
Age	-																	
Soil impacts	NO																	
PID Readings	0.0																	
Sample taken?	see Below																	
Photo Number(s)	1-13																	
Other observations regarding other facility or third party equipment: Grab samples collected underneath flare booms																		
Summary																		
Was impacted soil identified?																		
No		Yes - less than 10 cubic yards				Yes - more than 10 cubic yards												
Total number of samples field screened: 15					Total number of samples collected: 11													
Highest PID Reading: 0.0					Total number of samples submitted to lab for analysis: 5													
If more than 10 cubic yards of impacted soil were observed:																		
Vertical extent:					Estimated spill volume:													
Lateral extent:					Volume of soil removed:													
Is additional investigation required?																		
Was groundwater encountered during the investigation?																		
No		Yes - not impacted or in contact with impacted soils				Yes - groundwater impacted and/or in contact with impacted soils												
Measured depth to groundwater:					Was remedial groundwater removal conducted? Yes No													
Date Groundwater was encountered:					Commencement date of removal:													
Seen on groundwater? Yes No					Volume of groundwater removed prior to sampling:													
Free product observed? Yes No					Volume of groundwater removed post sampling:													
Total number of samples collected:					Total Volume of groundwater removed:													
Total number of samples submitted to lab for analysis:																		

Photographic Log

							
Equipment ID: PWV		Equipment Type: Partially Buried Vault		Equipment ID: PWV		Equipment Type: Partially Buried Vault	
Material: Fiberglass		Volume: 100 BBL		Material: Fiberglass		Volume: 100 BBL	
		Contents: Produced Water				Contents: Produced Water	
Notes/Conditions: Photo of SS01 @2.5' sample location				Notes/Conditions: Photo of SS02 @2.5' sample location			

Photographic Log

							
Equipment ID: PWV		Equipment Type: Partially Buried Vault		Equipment ID: PWV		Equipment Type: Above Ground Storage Tank	
Material: Fiberglass		Volume: 100 BBL		Material: Fiberglass		Volume: 100 BBL	
Contents: Produced Water				Contents: Produced Water			
Notes/Conditions: Photo of SS03 @2.5' sample location				Notes/Conditions: Photo of SS04 @2.5' sample location			

Photographic Log

							
Equipment ID: PWV		Equipment Type: Partially Buried Vault		Equipment ID: AST		Equipment Type: Above Ground Storage Tank	
Material: Fiberglass		Volume: 100 BBL		Material: Fiberglass		Volume: 300 BBL	
Contents: Produced Water				Contents: Crude Oil			
Notes/Conditions: Photo of FS01@5'				Notes/Conditions: Photo AST01@0.5' sample location and tank			

Photographic Log

							
Equipment ID: Flare01		Equipment Type: Emission Control Device		Equipment ID: Flare02		Equipment Type: Emission Control Device	
Material: Steel		Volume: NA		Material: Steel		Volume: NA	
		Contents: Gas				Contents: Gas	
Notes/Conditions: Photo of Flare01 @0.5' grab sample location				Notes/Conditions: Photo of Flare02 @0.5' grab sample location			

Photographic Log

							
Equipment ID: Flare03		Equipment Type: Emission Control Device		Equipment ID: MH01		Equipment Type: Meter House	
Material: Steel		Volume: NA		Material: Steel		Volume: NA	
		Contents: Gas				Contents: Crude Oil	
Notes/Conditions: Photo of Flare03@0.5' grab sample location							
				Notes/Conditions: Photo of MH01@0.5' grab sample location			

Photographic Log

											
Equipment ID: SEP01		Equipment Type: Separator		Equipment ID: SEP01		Equipment Type: Separator					
Material: Steel		Volume: NA		Contents: Oil/Gas/Water		Material: Steel		Volume: NA		Contents: Oil/Gas/Water	
Notes/Conditions: Photo of SEP01-FL@3' sample location collected near dump lines						Notes/Conditions: Photo of SEP01-FL@3' sample location collected near flowline					

Photographic Log


									
						Equipment ID: BG		Equipment Type: NA	
						Material: NA	Volume: NA	Contents: Soil	
						Notes/Conditions: Photo of background soil sample location			
Equipment ID:		Equipment Type:							
Material:	Volume:	Contents:							
Notes/Conditions:									

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - HERBSTER F35-27

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
AST01@0.5	05/20/21	0.0	No Staining	No Odor	Lab	40.366505	-104.630248	1.2
Flare01@0.5'	05/20/21	0.0	No Staining	No Odor	Grab	40.366254	-104.630373	1.0
Flare02@0.5'	05/20/21	0.0	No Staining	No Odor	Grab	40.366210	-104.630370	1.0
Flare03@0.5	05/20/21	0.0	No Staining	No Odor	Grab	40.366207	-104.630319	1.0
FS01@5'	05/20/21	0.0	No Staining	No Odor	Lab	40.366503	-104.630302	1.2
MH01@0.5'	05/20/21	0.0	No Staining	No Odor	Grab	40.366267	-104.630302	1.0
SEP01-DL@3'	05/20/21	0.0	No Staining	No Odor	Lab	40.366313	-104.630249	1.1
SEP01-FL@3'	05/20/21	0.0	No Staining	No Odor	Lab	40.366269	-104.630237	1.1
SS01@2.5'	05/20/21	0.0	No Staining	No Odor	Lab	40.366532	-104.630297	1.3
SS02@2.5'	05/20/21	0.0	No Staining	No Odor	Grab	40.366498	-104.630259	1.2
SS03@2.5'	05/20/21	0.0	No Staining	No Odor	Grab	40.366471	-104.630301	1.2
SS04@2.5'	05/20/21	0.0	No Staining	No Odor	Grab	40.366502	-104.630323	1.3
BG02@0.5'	05/20/21	0.0	No Staining	No Odor	Lab	40.366530	-104.630207	1.1
BG02@2.5'	05/20/21	0.0	No Staining	No Odor	Lab	40.366530	-104.630207	1.1
BG02@5'	05/20/21	0.0	No Staining	No Odor	Grab	40.366530	-104.630207	1.1

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

1.) Latitude and longitude coordinates will be provided in decimal degrees with an accuracy and precision of 5 decimals of a degree using the North American Datum ("NAD") of 1983

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - HERBSTER F35-27

Soil Sample ID	Date	¹ Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^{1,2}		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^{1,2,3}		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
AST01@0.5'	05/20/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FS01@5'	05/20/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-DL@3'	05/20/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-FL@3'	05/20/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS01@2.5'	05/20/21	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
SSR ^{1,2}		6 - 8.3	<6	<4mmhos/cm	2
AST01@0.5'	05/20/21	9.93	76.4	7.33	0.318
FS01@5'	05/20/21	8.40	2.23	0.870	0.423
SEP01-DL@3'	05/20/21	8.57	1.88	0.528	0.799
SEP01-FL@3'	05/20/21	9.74	1.80	0.411	1.04
SS01@2.5'	05/20/21	8.16	0.820	1.42	1.10
BG02@0.5'	05/20/21	8.27	3.24	0.928	0.631
BG02@2.5'	05/20/21	8.28	3.51	0.445	0.426

Notes:

1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.

2. Soil Screening Levels (SSL) and Soil Suitability for Reclamation (SSR) standards referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at

3. SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

ECMC = Energy and Carbon Management Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millmhos per centimeter

mg/L = Milligrams per liter

< = Analytical result is less than the indicated laboratory reporting limit

Highlighted results are equal to or exceed the ECMC Table 915-1 standard

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzo(a)anthracene

Benzo(b) = Benzo(b)fluoranthene

Benzo(k) = Benzo(k)fluoranthene

Benzo(a) = Benzo(a)pyrene

A,H = Dibenzo(a,h)anthracene

1,2,3-CD = Indeno(1,2,3-cd)pyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 15, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

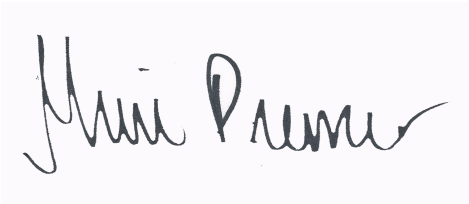
Broomfield, CO 80020

RE: Noble - Herbster F35-27

Work Order #2105335

Enclosed are the results of analyses for samples received by Summit Scientific on 05/20/21 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premier", is displayed on a light purple rectangular background.

Muri Premier For Paul Shrewsbury
President



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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@2.5'	2105335-01	Soil	05/20/21 13:00	05/20/21 17:15
FS01@5'	2105335-05	Soil	05/20/21 13:04	05/20/21 17:15
AST01@0.5'	2105335-06	Soil	05/20/21 13:05	05/20/21 17:15
SEP01-FL@3'	2105335-07	Soil	05/20/21 13:15	05/20/21 17:15
SEP01-DL@3'	2105335-08	Soil	05/20/21 13:16	05/20/21 17:15
BG02@0.5'	2105335-09	Soil	05/20/21 14:15	05/20/21 17:15
BG02@2.5'	2105335-10	Soil	05/20/21 14:16	05/20/21 17:15

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2105 335.1

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 2

Client: Tasman Geosciences/ Noble

Project Manager: Brandon Bruns; Invoice: Wade Fresten

Address: 6555 119th Ave

E-Mail: Tasman/Noble Team (On File)

City/State/Zip: Broomfield, CO 80020

Phone: 979-255-4235

Project Name: Herbster F35-27

Sampler Name: Max Garza

Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions			
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS					
1	SS01@2.5'	5/20/21	1300	2			X			X				X	X	X	X	X				
2	SS02@2.5'		1301				X			X				X	X	X	X	X				HOLD
3	SS03@2.5'		1302				X			X				X	X	X	X	X				HOLD
4	SS04@2.5'		1303				X			X				X	X	X	X	X				HOLD
5	FS01@5'		1304				X			X				X	X	X	X	X				
6	AST01@0.5'		1305				X			X				X	X	X	X	X				
7	Sep01-FL@3'		1315				X			X				X	X	X	X	X				
8	Sep01-DL@3'		1316	↓			X			X				X	X	X	X	X				
9	BG02@0.5'		1415	↓			X			X				X	X	X	X	X				HOLD
10	BG02@2.5'	↓	1416	↓			X			X				X	X	X	X	X				HOLD

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
	5/20/21 1600	Lock Box	5/20/21 1600	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Lock box	5/20/21 1715	Sam Br	5/20/21 1715	48 hours	<input checked="" type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	Temperature Upon Receipt:	
					7	
				Samples Intact:	Yes No	
					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

2105335.2

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 2

Client: Tasman Geosciences/ Noble

Project Manager: Brandon Bruns; Invoice: White Forest

Address: 6555 119th Ave

E-Mail: Tasman/Noble Team (On File)

City/State/Zip: Broomfield, CO 80020

Phone: 979-255-4235

Project Name: Herbster F35-27

Sampler Name: Max Garza

Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS			
1	B602 @ 5'	5/20/21	1417	1			X			X						X	X			HOLD
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: <u>Max Garza</u>	Date/Time: <u>5/20/21 1600</u>	Received by: <u>Lock Box</u>	Date/Time: <u>5/20/21 1800</u>	Turn Around Time (Check)	Notes:
Relinquished by: <u>Lockbox</u>	Date/Time: <u>5/20/21 1715</u>	Received by: <u>John Br</u>	Date/Time: <u>5/20/21 1715</u>	Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	
				48 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
				Temperature Upon Receipt: <u>7</u>	
				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

Sample Receipt Checklist

S2 Work Order 2105335

Client: Tasman / Noble

Client Project ID: Herbster F35-27

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

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Temp (°C)	<u>7</u>
-----------	----------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>On ice.</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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	
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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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, H2SO4, NaOH, HNO3, ect	<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.				

JB
Custodian Printed Name or Initials

Josh Brown
Signature of Custodian

5/20/21
Date/Time



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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

SS01@2.5'
2105335-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0409	05/21/21	05/22/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		85.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0410	05/21/21	05/23/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/15/21 12:46

SS01@2.5'
2105335-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0058	06/02/21	06/06/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		42.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		41.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	1.10	0.0100	mg/L	1	BEE0394	05/21/21	05/25/21	EPA 6020B	

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

Date Sampled: **05/20/21 13:00**

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 - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

SS01@2.5'
2105335-01 (Soil)

Summit Scientific

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

Calcium	113	0.0654	mg/L dry	1	BEE0436	05/24/21	05/26/21	EPA 6020B
Magnesium	59.2	0.0654	"	"	"	"	"	"
Sodium	43.2	0.0654	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.820	0.00100	units	1	BEE0537	05/28/21	05/28/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	76.5		%	1	BEE0518	05/27/21	05/27/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.42	0.0100	mmhos/cm	1	BEE0452	05/25/21	05/25/21	EPA 120.1	

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

Date Sampled: **05/20/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.16		pH Units	1	BEE0451	05/25/21	05/25/21	EPA 9045D	

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

FS01@5'
2105335-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEE0409	05/21/21	05/22/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		90.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		79.1 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0410	05/21/21	05/23/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		106 %	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 - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

FS01@5'
2105335-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0058	06/02/21	06/06/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		45.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		50.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.423	0.0100	mg/L	1	BEE0394	05/21/21	05/25/21	EPA 6020B	

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

Date Sampled: **05/20/21 13:04**

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 - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

FS01@5'
2105335-05 (Soil)

Summit Scientific

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

Calcium	58.7	0.0553	mg/L dry	1	BEE0436	05/24/21	05/26/21	EPA 6020B
Magnesium	31.5	0.0553	"	"	"	"	"	"
Sodium	85.1	0.0553	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.23	0.00100	units	1	BEE0537	05/28/21	05/28/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.5		%	1	BEE0518	05/27/21	05/27/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.870	0.0100	mmhos/cm	1	BEE0452	05/25/21	05/25/21	EPA 120.1	

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

Date Sampled: **05/20/21 13:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.40		pH Units	1	BEE0451	05/25/21	05/25/21	EPA 9045D	

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

AST01@0.5'
2105335-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0409	05/21/21	05/22/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.8 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0410	05/21/21	05/23/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.8 %	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 - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

AST01@0.5'
2105335-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0058	06/02/21	06/06/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		49.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		52.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.318	0.0100	mg/L	1	BEE0394	05/21/21	05/25/21	EPA 6020B	

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

Date Sampled: **05/20/21 13:05**

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 - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

AST01@0.5'
2105335-06 (Soil)

Summit Scientific

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

Calcium	12.8	0.0532	mg/L dry	1	BEE0436	05/24/21	05/26/21	EPA 6020B
Magnesium	24.4	0.0532	"	"	"	"	"	"
Sodium	2020	0.0532	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	76.4	0.00100	units	1	BEE0537	05/28/21	05/28/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.1		%	1	BEE0518	05/27/21	05/27/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	7.33	0.0100	mmhos/cm	1	BEE0452	05/25/21	05/25/21	EPA 120.1	

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

Date Sampled: **05/20/21 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.93		pH Units	1	BEE0451	05/25/21	05/25/21	EPA 9045D	

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

SEP01-FL@3'
2105335-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEE0409	05/21/21	05/22/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		87.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.7 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0410	05/21/21	05/23/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		104 %	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 - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

SEP01-FL@3'
2105335-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0058	06/02/21	06/06/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		42.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		46.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	1.04	0.0100	mg/L	1	BEE0394	05/21/21	05/25/21	EPA 6020B	

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

Date Sampled: **05/20/21 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 - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

SEP01-FL@3'
2105335-07 (Soil)

Summit Scientific

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

Calcium	31.6	0.0578	mg/L dry	1	BEE0436	05/24/21	05/26/21	EPA 6020B
Magnesium	12.6	0.0578	"	"	"	"	"	"
Sodium	47.4	0.0578	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.80	0.00100	units	1	BEE0537	05/28/21	05/28/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.5		%	1	BEE0518	05/27/21	05/27/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.411	0.0100	mmhos/cm	1	BEE0452	05/25/21	05/25/21	EPA 120.1	

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

Date Sampled: **05/20/21 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.74		pH Units	1	BEE0451	05/25/21	05/25/21	EPA 9045D	

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/15/21 12:46

SEP01-DL@3'
2105335-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEE0409	05/21/21	05/22/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.5 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0410	05/21/21	05/23/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		114 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Broomfield CO, 80020

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

SEP01-DL@3'
2105335-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0058	06/02/21	06/06/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		44.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		42.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.799	0.0100	mg/L	1	BEE0394	05/21/21	05/25/21	EPA 6020B	

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

Date Sampled: **05/20/21 13:16**

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

SEP01-DL@3'
2105335-08 (Soil)

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

Calcium	40.8	0.0636	mg/L dry	1	BEE0436	05/24/21	05/26/21	EPA 6020B
Magnesium	18.2	0.0636	"	"	"	"	"	"
Sodium	57.5	0.0636	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.88	0.00100	units	1	BEE0537	05/28/21	05/28/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	78.6		%	1	BEE0518	05/27/21	05/27/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.528	0.0100	mmhos/cm	1	BEE0452	05/25/21	05/25/21	EPA 120.1	

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

Date Sampled: **05/20/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.57		pH Units	1	BEE0451	05/25/21	05/25/21	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

BG02@0.5'
2105335-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/20/21 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.631	0.0100	mg/L	1	BEF0196	06/09/21	06/11/21	EPA 6020B	

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

Date Sampled: **05/20/21 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	51.5	0.0589	mg/L dry	1	BEF0245	06/10/21	06/14/21	EPA 6020B	
Magnesium	33.1	0.0589	"	"	"	"	"	"	
Sodium	121	0.0589	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **05/20/21 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.24	0.00100	units	1	BEF0325	06/15/21	06/15/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/20/21 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.9		%	1	BEF0273	06/11/21	06/14/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/20/21 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.928	0.0100	mmhos/cm	1	BEF0270	06/11/21	06/11/21	EPA 120.1	

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

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Broomfield CO, 80020

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

BG02@0.5'
2105335-09 (Soil)

Summit Scientific

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

Date Sampled: **05/20/21 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.27			pH Units	1	BEF0269	06/11/21	06/11/21	EPA 9045D	

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Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

BG02@2.5'
2105335-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/20/21 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.426	0.0100	mg/L	1	BEF0196	06/09/21	06/11/21	EPA 6020B	

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

Date Sampled: **05/20/21 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	17.0	0.0621	mg/L dry	1	BEF0245	06/10/21	06/14/21	EPA 6020B	
Magnesium	10.4	0.0621	"	"	"	"	"	"	
Sodium	74.4	0.0621	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **05/20/21 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.51	0.00100	units	1	BEF0325	06/15/21	06/15/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/20/21 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	80.5		%	1	BEF0273	06/11/21	06/14/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/20/21 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.445	0.0100	mmhos/cm	1	BEF0270	06/11/21	06/11/21	EPA 120.1	

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

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

BG02@2.5'
2105335-10 (Soil)

Summit Scientific

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

Date Sampled: **05/20/21 14:16**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.28			pH Units	1	BEF0269	06/11/21	06/11/21	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/15/21 12:46

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 BEE0409 - EPA 5030 Soil MS

Blank (BEE0409-BLK1)

Prepared & Analyzed: 05/21/21

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	0.0348		"	0.0400		87.0	23-173			
Surrogate: Toluene-d8	0.0413		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0335		"	0.0400		83.8	21-167			

LCS (BEE0409-BS1)

Prepared & Analyzed: 05/21/21

Benzene	0.0981	0.0020	mg/kg	0.100		98.1	70-130			
Toluene	0.0903	0.0050	"	0.100		90.3	70-130			
Ethylbenzene	0.110	0.0050	"	0.100		110	70-130			
m,p-Xylene	0.242	0.010	"	0.200		121	70-130			
o-Xylene	0.118	0.0050	"	0.100		118	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.100		115	70-130			
1,3,5-Trimethylbenzene	0.121	0.0050	"	0.100		121	70-130			
Naphthalene	0.108	0.0038	"	0.100		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0338		"	0.0400		84.4	23-173			
Surrogate: Toluene-d8	0.0427		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0331		"	0.0400		82.6	21-167			

Matrix Spike (BEE0409-MS1)

Source: 2105283-01

Prepared & Analyzed: 05/21/21

Benzene	0.0976	0.0020	mg/kg	0.100	ND	97.6	70-130			
Toluene	0.0923	0.0050	"	0.100	ND	92.3	70-130			
Ethylbenzene	0.110	0.0050	"	0.100	ND	110	70-130			
m,p-Xylene	0.239	0.010	"	0.200	0.00342	118	70-130			
o-Xylene	0.117	0.0050	"	0.100	ND	117	70-130			
1,2,4-Trimethylbenzene	0.119	0.0050	"	0.100	ND	119	70-130			
1,3,5-Trimethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130			
Naphthalene	0.111	0.0038	"	0.100	ND	111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.5	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0374		"	0.0400		93.4	21-167			

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Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

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 BEE0409 - EPA 5030 Soil MS

Matrix Spike Dup (BEE0409-MSD1)		Source: 2105283-01			Prepared & Analyzed: 05/21/21					
Benzene	0.0979	0.0020	mg/kg	0.100	ND	97.9	70-130	0.245	30	
Toluene	0.0874	0.0050	"	0.100	ND	87.4	70-130	5.44	30	
Ethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	0.434	30	
m,p-Xylene	0.214	0.010	"	0.200	0.00342	105	70-130	11.0	30	
o-Xylene	0.114	0.0050	"	0.100	ND	114	70-130	2.73	30	
1,2,4-Trimethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130	6.00	30	
1,3,5-Trimethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130	1.88	30	
Naphthalene	0.123	0.0038	"	0.100	ND	123	70-130	10.8	30	
Surrogate: 1,2-Dichloroethane-d4		0.0343	"	0.0400		85.8	23-173			
Surrogate: Toluene-d8		0.0391	"	0.0400		97.7	20-170			
Surrogate: 4-Bromofluorobenzene		0.0327	"	0.0400		81.8	21-167			

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Broomfield CO, 80020

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

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 BEE0410 - EPA 3550A

Blank (BEE0410-BLK1)

Prepared: 05/21/21 Analyzed: 05/22/21

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

LCS (BEE0410-BS1)

Prepared: 05/21/21 Analyzed: 05/22/21

C10-C28 (DRO)	434	50	mg/kg	500	86.7	70-130
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Matrix Spike (BEE0410-MS1)

Source: 2105283-01

Prepared: 05/21/21 Analyzed: 05/22/21

C10-C28 (DRO)	486	50	mg/kg	500	23.9	92.5	70-130
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Matrix Spike Dup (BEE0410-MSD1)

Source: 2105283-01

Prepared: 05/21/21 Analyzed: 05/22/21

C10-C28 (DRO)	476	50	mg/kg	500	23.9	90.5	70-130	2.15	20
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

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 BEF0058 - EPA 5030 Soil MS

Blank (BEF0058-BLK1)

Prepared: 06/02/21 Analyzed: 06/06/21

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	0.0188		"	0.0333		56.4	40-150			
Surrogate: Fluoranthene-d10	0.0196		"	0.0333		58.9	40-150			

LCS (BEF0058-BS1)

Prepared: 06/02/21 Analyzed: 06/06/21

Acenaphthene	0.0304	0.00500	mg/kg	0.0333	91.1	31-137
Anthracene	0.0304	0.00500	"	0.0333	91.3	30-120
Benzo (a) anthracene	0.0302	0.00500	"	0.0333	90.6	30-120
Benzo (a) pyrene	0.0297	0.00500	"	0.0333	89.0	30-120
Benzo (b) fluoranthene	0.0307	0.00500	"	0.0333	92.0	30-120
Benzo (k) fluoranthene	0.0307	0.00500	"	0.0333	92.0	30-120
Chrysene	0.0304	0.00500	"	0.0333	91.2	30-120
Dibenz (a,h) anthracene	0.0288	0.00500	"	0.0333	86.4	30-120
Fluoranthene	0.0376	0.00500	"	0.0333	113	30-120
Fluorene	0.0296	0.00500	"	0.0333	88.9	30-120
Indeno (1,2,3-cd) pyrene	0.0285	0.00500	"	0.0333	85.4	30-120
Pyrene	0.0323	0.00500	"	0.0333	97.0	35-142
1-Methylnaphthalene	0.0283	0.00500	"	0.0333	84.8	35-142
2-Methylnaphthalene	0.0316	0.00500	"	0.0333	94.7	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0179		"	0.0333	53.6	40-150
Surrogate: Fluoranthene-d10	0.0141		"	0.0333	42.2	40-150

Summit Scientific

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEF0058 - EPA 5030 Soil MS

Matrix Spike (BEF0058-MS1)

Source: 2105335-01

Prepared: 06/02/21 Analyzed: 06/06/21

Acenaphthene	0.0319	0.00500	mg/kg	0.0333	ND	95.7	31-137				
Anthracene	0.0318	0.00500	"	0.0333	ND	95.3	30-120				
Benzo (a) anthracene	0.0324	0.00500	"	0.0333	ND	97.1	30-120				
Benzo (a) pyrene	0.0317	0.00500	"	0.0333	ND	95.1	30-120				
Benzo (b) fluoranthene	0.0313	0.00500	"	0.0333	ND	93.9	30-120				
Benzo (k) fluoranthene	0.0311	0.00500	"	0.0333	ND	93.3	30-120				
Chrysene	0.0320	0.00500	"	0.0333	ND	95.9	30-120				
Dibenz (a,h) anthracene	0.0305	0.00500	"	0.0333	ND	91.6	30-120				
Fluoranthene	0.0203	0.00500	"	0.0333	ND	61.0	30-120				
Fluorene	0.0317	0.00500	"	0.0333	ND	95.2	30-120				
Indeno (1,2,3-cd) pyrene	0.0306	0.00500	"	0.0333	ND	91.8	30-120				
Pyrene	0.0333	0.00500	"	0.0333	ND	100	35-142				
1-Methylnaphthalene	0.0306	0.00500	"	0.0333	ND	91.8	15-130				
2-Methylnaphthalene	0.0338	0.00500	"	0.0333	ND	102	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0164		"	0.0333		49.1	40-150				
Surrogate: Fluoranthene-d10	0.0159		"	0.0333		47.8	40-150				

Matrix Spike Dup (BEF0058-MSD1)

Source: 2105335-01

Prepared: 06/02/21 Analyzed: 06/06/21

Acenaphthene	0.0316	0.00500	mg/kg	0.0333	ND	94.7	31-137	0.981	30		
Anthracene	0.0320	0.00500	"	0.0333	ND	96.0	30-120	0.799	30		
Benzo (a) anthracene	0.0329	0.00500	"	0.0333	ND	98.6	30-120	1.56	30		
Benzo (a) pyrene	0.0316	0.00500	"	0.0333	ND	94.7	30-120	0.336	30		
Benzo (b) fluoranthene	0.0318	0.00500	"	0.0333	ND	95.3	30-120	1.41	30		
Benzo (k) fluoranthene	0.0316	0.00500	"	0.0333	ND	94.8	30-120	1.62	30		
Chrysene	0.0326	0.00500	"	0.0333	ND	97.7	30-120	1.85	30		
Dibenz (a,h) anthracene	0.0300	0.00500	"	0.0333	ND	89.9	30-120	1.93	30		
Fluoranthene	0.0274	0.00500	"	0.0333	ND	82.3	30-120	29.7	30		
Fluorene	0.0318	0.00500	"	0.0333	ND	95.4	30-120	0.213	30		
Indeno (1,2,3-cd) pyrene	0.0301	0.00500	"	0.0333	ND	90.4	30-120	1.61	30		
Pyrene	0.0348	0.00500	"	0.0333	ND	104	35-142	4.36	30		
1-Methylnaphthalene	0.0325	0.00500	"	0.0333	ND	97.4	15-130	5.89	50		
2-Methylnaphthalene	0.0322	0.00500	"	0.0333	ND	96.6	15-130	4.95	50		
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.2	40-150				
Surrogate: Fluoranthene-d10	0.0158		"	0.0333		47.4	40-150				

Summit Scientific

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

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 BEE0394 - EPA 3050B

Blank (BEE0394-BLK1)

Prepared: 05/21/21 Analyzed: 05/24/21

Boron ND 0.0100 mg/L

LCS (BEE0394-BS1)

Prepared: 05/21/21 Analyzed: 05/24/21

Boron 5.40 0.0100 mg/L 5.00 108 80-120

Duplicate (BEE0394-DUP1)

Source: 2105300-11

Prepared: 05/21/21 Analyzed: 05/24/21

Boron 1.27 0.0100 mg/L 1.10 14.6 20

Matrix Spike (BEE0394-MS1)

Source: 2105300-11

Prepared: 05/21/21 Analyzed: 05/24/21

Boron 7.19 0.0100 mg/L 5.00 1.10 122 75-125

Matrix Spike Dup (BEE0394-MSD1)

Source: 2105300-11

Prepared: 05/21/21 Analyzed: 05/24/21

Boron 7.13 0.0100 mg/L 5.00 1.10 121 75-125 0.943 25

Batch BEF0196 - EPA 3050B

Blank (BEF0196-BLK1)

Prepared: 06/09/21 Analyzed: 06/11/21

Boron ND 0.0100 mg/L

LCS (BEF0196-BS1)

Prepared: 06/09/21 Analyzed: 06/11/21

Boron 5.33 0.0100 mg/L 5.00 107 80-120

Duplicate (BEF0196-DUP1)

Source: 2105335-09

Prepared: 06/09/21 Analyzed: 06/11/21

Boron 0.563 0.0100 mg/L 0.631 11.3 20

Matrix Spike (BEF0196-MS1)

Source: 2105335-09

Prepared: 06/09/21 Analyzed: 06/11/21

Boron 5.32 0.0100 mg/L 5.00 0.631 93.8 75-125

Summit Scientific

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

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

Summit Scientific

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

Batch BEF0196 - EPA 3050B

Matrix Spike Dup (BEF0196-MSD1)

Source: 2105335-09

Prepared: 06/09/21 Analyzed: 06/11/21

Boron	5.30	0.0100	mg/L	5.00	0.631	93.3	75-125	0.457	25
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Summit Scientific

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/15/21 12:46

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 BEE0436 - General Preparation

Blank (BEE0436-BLK1)

Prepared: 05/24/21 Analyzed: 05/26/21

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

LCS (BEE0436-BS1)

Prepared: 05/24/21 Analyzed: 05/26/21

Calcium	4.95	0.0500	mg/L wet	5.00	99.1	70-130
Magnesium	5.25	0.0500	"	5.00	105	70-130
Sodium	4.92	0.0500	"	5.00	98.3	70-130

Batch BEF0245 - General Preparation

Blank (BEF0245-BLK1)

Prepared: 06/10/21 Analyzed: 06/13/21

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

LCS (BEF0245-BS1)

Prepared: 06/10/21 Analyzed: 06/13/21

Calcium	5.16	0.0500	mg/L wet	5.00	103	70-130
Magnesium	5.35	0.0500	"	5.00	107	70-130
Sodium	4.97	0.0500	"	5.00	99.4	70-130

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Tasman Geosciences
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Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

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 BEE0518 - General Preparation

Duplicate (BEE0518-DUP1)		Source: 2105335-01			Prepared & Analyzed: 05/27/21					
% Solids	77.4		%		76.5			1.26	20	

Batch BEF0273 - General Preparation

Duplicate (BEF0273-DUP1)		Source: 2105335-09			Prepared: 06/11/21 Analyzed: 06/14/21					
% Solids	87.0		%		84.9			2.38	20	

Summit Scientific

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Tasman Geosciences
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Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

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

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

Batch BEE0452 - General Preparation

Blank (BEE0452-BLK1)

Prepared & Analyzed: 05/25/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEE0452-BS1)

Prepared & Analyzed: 05/25/21

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 90-110

Duplicate (BEE0452-DUP1)

Source: 2105335-01

Prepared & Analyzed: 05/25/21

Specific Conductance (EC) 1.41 0.0100 mmhos/cm 1.42 0.635 20

Batch BEF0270 - General Preparation

Blank (BEF0270-BLK1)

Prepared & Analyzed: 06/11/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEF0270-BS1)

Prepared & Analyzed: 06/11/21

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 90-110

Duplicate (BEF0270-DUP1)

Source: 2105335-09

Prepared & Analyzed: 06/11/21

Specific Conductance (EC) 0.926 0.0100 mmhos/cm 0.928 0.205 20

Summit Scientific

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

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

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

Batch BEE0451 - General Preparation

LCS (BEE0451-BS1)

Prepared & Analyzed: 05/25/21

pH	9.17		pH Units	9.21		99.6	95-105
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Duplicate (BEE0451-DUP1)

Source: 2105335-01

Prepared & Analyzed: 05/25/21

pH	8.16		pH Units		8.16		0.00	20
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Batch BEF0269 - General Preparation

LCS (BEF0269-BS1)

Prepared & Analyzed: 06/11/21

pH	9.21		pH Units	9.21		100	95-105
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Duplicate (BEF0269-DUP1)

Source: 2104483-01

Prepared & Analyzed: 06/11/21

pH	7.76		pH Units		7.78		0.257	20
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Summit Scientific

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

Project: Noble - Herbster F35-27

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/15/21 12:46

Notes and Definitions

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