Flowline Closure Checklist

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

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure

Site Name & COGCC Facility Number: HSR-Massey 5-31	*Date:* 06/12/2023 & 06/14/2023	*Remediation Project #:* 27643
Associated Wells:	*Age of Site:*	*Number of Photos Attached:* 5

Starting point: *(GPS coordinates and descriptions)*
40.270238, -104.712360

End point: *(GPS coordinates and descriptions)*
40.270755, -104.713625

USCS Soil Type: Well Graded Sand - SW | *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

Flowlines

Flowline type	Oil/Water/Gas							
Depth	5'							
Age								
Length	409'							
Construction Material	Steel							
Were flowlines pulled?	Yes							
Visual Integrity of lines	Good							
Visual impacts if trenched	NA							
PID Readings if trenched	0.2-1.4							
Sample taken? Location/Sample ID#	Yes, see below							
Photo Number(s)	1 - 2							

Other observations regarding on loction flowlines:
Samples were taken at the wellhead and the separator (FL01-A@5' & FL01-B@4'), as well as along the flowline path at the direction change (FL01-E@5')

Summary

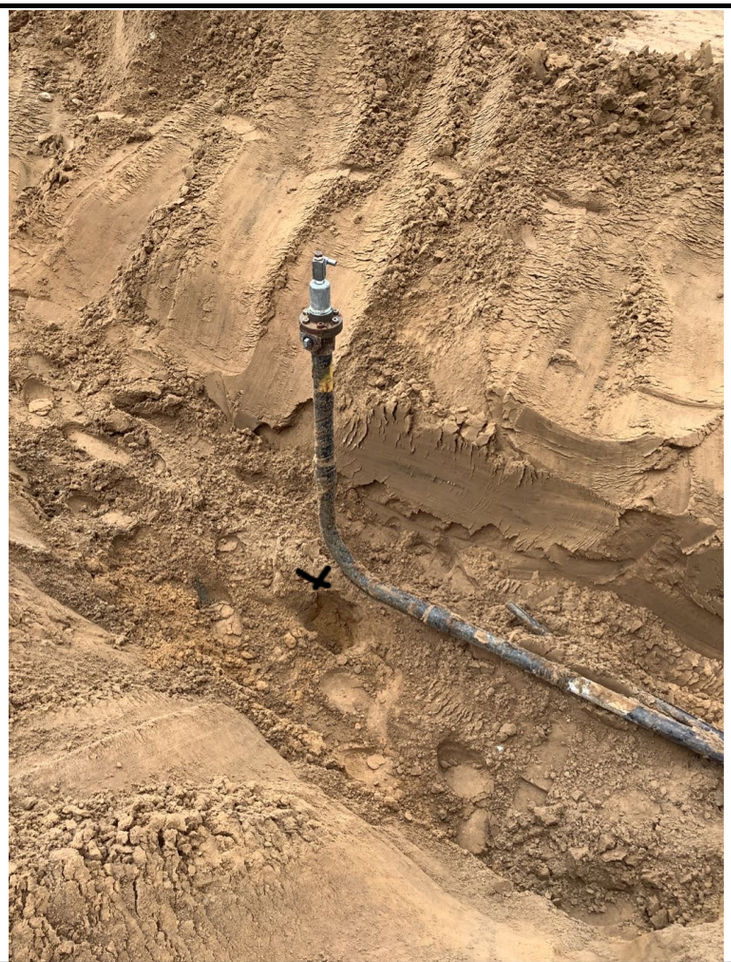
Was impacted soil identified?
No Yes - less than 10 cubic yards Yes - more than 10 cubic yards

Total number of samples field screened: 5	*Total number of samples collected:* 5
Highest PID Reading: 1.4	*Total number of samples submitted to lab for analysis:* 3
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:*
Sheen 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: FL01-A@5'	**Equipment Type:** Flowline	
Material: Steel	**Volume:**	**Contents:** Oil/Gas/Water
Notes/Conditions: Facing north		

Equipment ID: FL01-B@4'	**Equipment Type:**	
Material:	**Volume:**	**Contents:**
Notes/Conditions:		

TASMAN GEOSCIENCES

Photographic Log

Equipment ID: FL01-C@4'	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:		

Equipment ID: FL01-D@5'	Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water
Notes/Conditions:		

Need another photo log page? ☒

Photographic Log

Equipment ID: FL01-E@5'	**Equipment Type:** Flowline		**Equipment ID:**	**Equipment Type:**	
Material: Steel	**Volume:**	**Contents:** Oil/Gas/Water	**Material:**	**Volume:**	**Contents:**
Notes/Conditions: Slight direction change to Seperator			**Notes/Conditions:**		

Need another photo log page?

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. HSR-MASSEY 5-31

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude[1]	Longitude	PDOP
FL01-A@5'	06/12/23	1.1	No Staining	No Odor	Lab	40.27075250	-104.7136309	1.0
FL01-B@4'	06/12/23	1.4	No Staining	No Odor	Lab	40.27024048	-104.7123768	0.9
FL01-C@4'	06/14/23	0.5	No Staining	No Odor	Grab	40.27071083	-104.7135145	1.6
FL01-D@5'	06/14/23	0.3	No Staining	No Odor	Grab	40.27056439	-104.7131007	0.8
FL01-E@5'	06/14/23	0.2	No Staining	No Odor	Lab	40.27036603	-104.7125357	2.0

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. HSR-MASSEY 5-31

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[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[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**
FL01-A@5'	06/12/23	<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
FL01-B@4'	06/12/23	<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
FL01-E@5'	06/14/23	<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

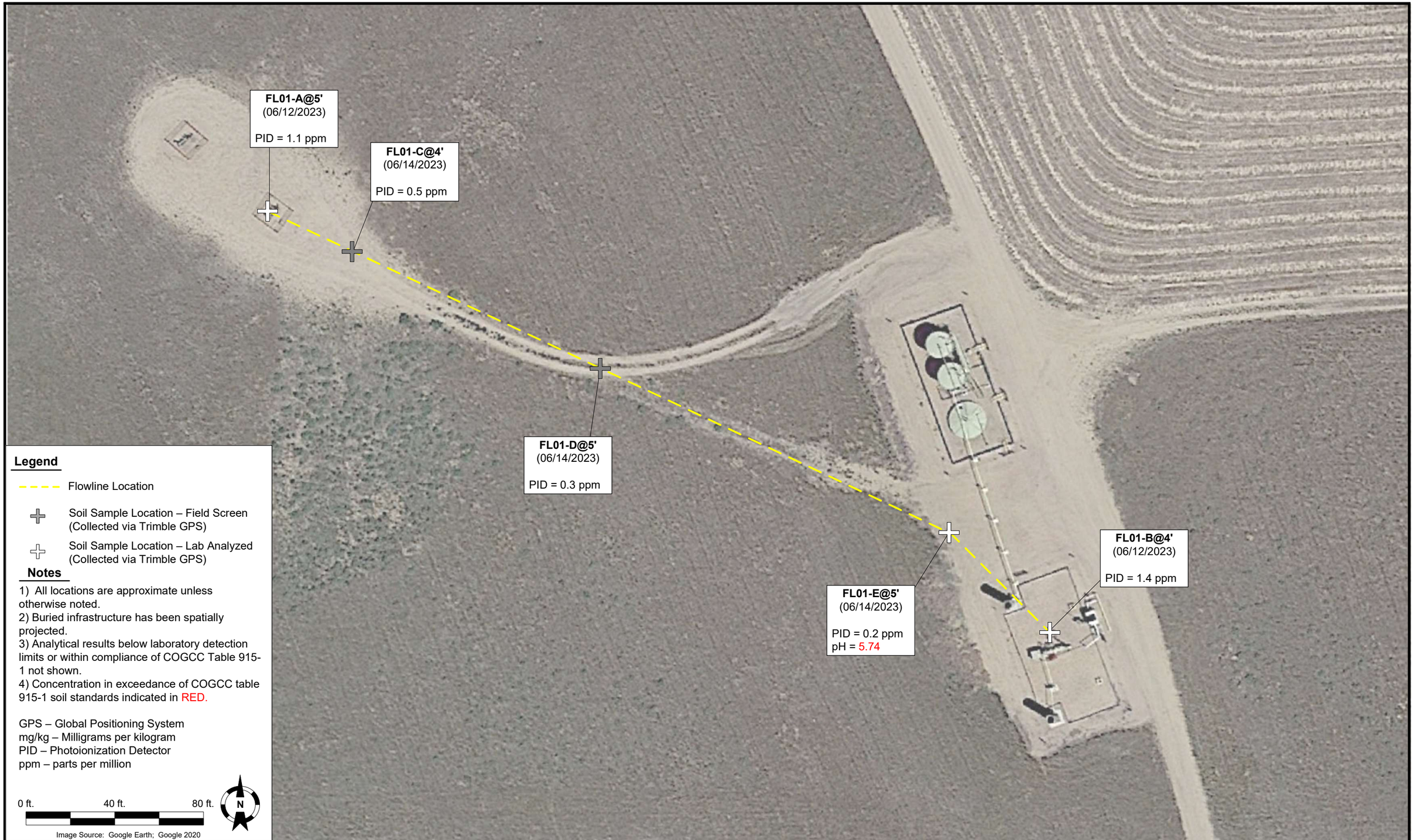
Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL[2]		**6 - 8.3**	**<6**	**<4mmhos/cm**	**2**
FL01-A@5'	06/12/23	7.12	0.123	0.203	0.0557
FL01-B@4'	06/12/23	7.78	0.107	0.304	0.0700
FL01-E@5'	06/14/23	**5.74**	0.0471	0.224	0.150

Notes:
1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation 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 COGCC 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



DATE:	09/18/2023
DESIGNED BY:	JW
DRAWN BY:	HM

TASMAN GEOSCIENCES

Tasman Geosciences, Inc.
6855 W 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
HSR-Massey 5-31
SWNW, Section 31, Township 4 North, Range 65 West
Weld County, Colorado

Flowline Closure & Soil Analytical Results Map (06/12/2023 & 06/14/2023)

FIGURE 1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 18, 2023

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

RE: Noble - HSR Massey 5-31
Work Order #2306215

Enclosed are the results of analyses for samples received by Summit Scientific on 06/12/23 15:39. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mikayla Axtell For Paul Shrewsbury
President

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@5'	2306215-01	Soil	06/12/23 13:14	06/12/23 15:39
FL01-B@4'	2306215-02	Soil	06/12/23 13:37	06/12/23 15:39

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.

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2306215	

	Send Data To:	Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company:Noble
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location:
City/State/Zip: Broomfield/CO/ 80020		AFE#: NWRLWG-A3106-HABN
Phone: 937-554-5108	Project Name: HSR-Massey 5-31	PO/Billing Codes:
Sampler Name: Molly Parks	Project Number: 27643	Contact: Wade F.

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		SAR, EC, pH by saturated paste
1	F101-A @ 5'	6-12-23	1314	2			X			X				X	X	X	X	X			
2	F101-13 @ 4'	6-12-23	1337	2			X			X				X	X	X	X	X			
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time:	Received by: Tasman Lock Box	Date/Time:
MP	6-12-23 / 1539		6-12-23 / 1539
Relinquished by:	Date/Time:	Received by:	Date/Time:
Tasman Lock Box	6/12/23 1736		
Relinquished by:	Date/Time:	Received by:	Date/Time:

TAT Business Days	
Same Day	
1 Day	
2 Days	
3 Days	
Standard	X

Field DO	
Field EC	
Field ORP	
Field pH	
Field Temp.	
Field Turb.	

Notes:

Temperature Upon Receipt: 12.3 | Corrected Temperature: 12.3 | IR gun #: 1 | HNO3 lot #:

S2

Sample Receipt Checklist S2 Work Order# 2306215

Client: NobleTasman Client Project ID: HSR-Massey 5-31

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

[ ] - [ ] [ ] [ ]

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

Temp (°C) 12.3 Thermometer # 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.	-			ONICE
If custody seals are present, are they intact? (1)	-			
Are samples due within 48 hours present?		-		
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		-		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	-			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	-			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_4, NaOH, HNO_3, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
(1) If NO, then contact the client before proceeding with analysis and note in case narrative.				

AB — Custodian Printed Name

6/12/23 — Date/Time

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

FL01-A@5'

2306215-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGF0471	06/13/23	06/13/23	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: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0372	*92.9 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0385	*96.3 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0395	*98.8 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGF0480	06/13/23	06/13/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.0	*96.2 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

FL01-A@5'

2306215-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0464	06/13/23	06/13/23	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: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0248	*74.5 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0300	*90.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0557**	0.0100	mg/L	1	BGF0472	06/13/23	06/18/23	EPA 6020B	

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

Date Sampled: **06/12/23 13:14**

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 - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

FL01-A@5'

2306215-01 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**204**	0.0537	mg/L dry	1	BGF0467	06/13/23	06/17/23	EPA 6020B	
Magnesium	**39.7**	0.0537	"	"	"	"	"	"	
Sodium	**7.32**	0.0537	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.123**	0.00100	units	1	BGF0630	06/17/23	06/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.1**		%	1	BGF0469	06/13/23	06/13/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.203**	0.0100	mmhos/cm	1	BGF0496	06/14/23	06/14/23	EPA 120.1	

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

Date Sampled: **06/12/23 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.12**		pH Units	1	BGF0492	06/14/23	06/14/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

FL01-B@4'

2306215-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGF0471	06/13/23	06/13/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0391	*97.7 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0393	*98.3 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0412	*103 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGF0480	06/13/23	06/13/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.0	*95.9 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

FL01-B@4'

2306215-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0464	06/13/23	06/13/23	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: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0200	*60.0 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0260	*77.9 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0700**	0.0100	mg/L	1	BGF0472	06/13/23	06/18/23	EPA 6020B	

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

Date Sampled: **06/12/23 13:37**

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 - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

FL01-B@4'

2306215-02 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**167**	0.0572	mg/L dry	1	BGF0467	06/13/23	06/17/23	EPA 6020B	
Magnesium	**36.3**	0.0572	"	"	"	"	"	"	
Sodium	**5.83**	0.0572	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.107**	0.00100	units	1	BGF0630	06/17/23	06/17/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**87.4**		%	1	BGF0469	06/13/23	06/13/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.304**	0.0100	mmhos/cm	1	BGF0496	06/14/23	06/14/23	EPA 120.1	

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

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.78**		pH Units	1	BGF0492	06/14/23	06/14/23	EPA 9045D	

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

FL01-B@4'

2306215-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg	1	BGF0766	06/21/23	06/22/23	EPA 8260B	

Date Sampled: **06/12/23 13:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0348	*87.1 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0389	*97.3 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	*98.4 %*	*50-150*		"	"	"	"	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0471 - EPA 5030 Soil MS										
Blank (BGF0471-BLK1)				Prepared: 06/06/23 Analyzed: 06/13/23						
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*		*95.4*	*50-150*			
Surrogate: Toluene-d8	*0.0380*		*"*	*0.0400*		*95.0*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0413*		*"*	*0.0400*		*103*	*50-150*			
LCS (BGF0471-BS1)				Prepared: 06/06/23 Analyzed: 06/13/23						
Benzene	0.0688	0.0020	mg/kg	0.0750		91.7	70-130			
Toluene	0.0800	0.0050	"	0.0750		107	70-130			
Ethylbenzene	0.0940	0.0050	"	0.0750		125	70-130			
m,p-Xylene	0.185	0.010	"	0.150		123	70-130			
o-Xylene	0.0819	0.0050	"	0.0750		109	70-130			
1,2,4-Trimethylbenzene	0.0847	0.0050	"	0.0750		113	70-130			
1,3,5-Trimethylbenzene	0.0903	0.0050	"	0.0750		120	70-130			
Naphthalene	0.0654	0.0038	"	0.0750		87.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0333*		*"*	*0.0400*		*83.2*	*50-150*			
Surrogate: Toluene-d8	*0.0385*		*"*	*0.0400*		*96.3*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0391*		*"*	*0.0400*		*97.8*	*50-150*			
Matrix Spike (BGF0471-MS1)	**Source: 2306210-01**			Prepared: 06/06/23 Analyzed: 06/13/23						
Benzene	0.0651	0.0020	mg/kg	0.0750	ND	86.8	70-130			
Toluene	0.0732	0.0050	"	0.0750	ND	97.6	70-130			
Ethylbenzene	0.0876	0.0050	"	0.0750	ND	117	70-130			
m,p-Xylene	0.172	0.010	"	0.150	ND	115	70-130			
o-Xylene	0.0779	0.0050	"	0.0750	ND	104	70-130			
1,2,4-Trimethylbenzene	0.0822	0.0050	"	0.0750	ND	110	70-130			
1,3,5-Trimethylbenzene	0.0846	0.0050	"	0.0750	ND	113	70-130			
Naphthalene	0.0705	0.0038	"	0.0750	ND	94.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0348*		*"*	*0.0400*		*86.9*	*50-150*			
Surrogate: Toluene-d8	*0.0378*		*"*	*0.0400*		*94.5*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0404*		*"*	*0.0400*		*101*	*50-150*			

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0471 - EPA 5030 Soil MS										
Matrix Spike Dup (BGF0471-MSD1)	**Source: 2306210-01**			Prepared: 06/06/23 Analyzed: 06/13/23						
Benzene	0.0662	0.0020	mg/kg	0.0750	ND	88.3	70-130	1.64	30	
Toluene	0.0751	0.0050	"	0.0750	ND	100	70-130	2.51	30	
Ethylbenzene	0.0872	0.0050	"	0.0750	ND	116	70-130	0.446	30	
m,p-Xylene	0.173	0.010	"	0.150	ND	115	70-130	0.191	30	
o-Xylene	0.0770	0.0050	"	0.0750	ND	103	70-130	1.20	30	
1,2,4-Trimethylbenzene	0.0818	0.0050	"	0.0750	ND	109	70-130	0.512	30	
1,3,5-Trimethylbenzene	0.0853	0.0050	"	0.0750	ND	114	70-130	0.777	30	
Naphthalene	0.0730	0.0038	"	0.0750	ND	97.4	70-130	3.55	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0356*		"	*0.0400*		*88.9*	*50-150*			
Surrogate: Toluene-d8	*0.0383*		"	*0.0400*		*95.8*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0400*		"	*0.0400*		*100*	*50-150*			
Batch BGF0766 - EPA 5030 Soil MS										
Blank (BGF0766-BLK1)				Prepared: 06/21/23 Analyzed: 06/22/23						
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	*0.0345*		"	*0.0400*		*86.3*	*50-150*			
Surrogate: Toluene-d8	*0.0397*		"	*0.0400*		*99.3*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0400*		"	*0.0400*		*99.9*	*50-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0766 - EPA 5030 Soil MS										
LCS (BGF0766-BS1)				Prepared: 06/21/23 Analyzed: 06/22/23						
Benzene	0.0983	0.0020	mg/kg	0.100		98.3	70-130			
Toluene	0.0784	0.0050	"	0.100		78.4	70-130			
Ethylbenzene	0.0869	0.0050	"	0.100		86.9	70-130			
m,p-Xylene	0.174	0.010	"	0.200		86.9	70-130			
o-Xylene	0.0787	0.0050	"	0.100		78.7	70-130			
1,2,4-Trimethylbenzene	0.0812	0.0050	"	0.100		81.2	70-130			
1,3,5-Trimethylbenzene	0.0844	0.0050	"	0.100		84.4	70-130			
Naphthalene	0.0710	0.0038	"	0.100		71.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0374*		"	*0.0400*		*93.4*	*50-150*			
Surrogate: Toluene-d8	*0.0396*		"	*0.0400*		*99.0*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0404*		"	*0.0400*		*101*	*50-150*			
Matrix Spike (BGF0766-MS1)		**Source: 2306190-02**		Prepared: 06/21/23 Analyzed: 06/22/23						
Benzene	0.0984	0.0020	mg/kg	0.100	ND	98.4	70-130			
Toluene	0.0793	0.0050	"	0.100	ND	79.3	70-130			
Ethylbenzene	0.0938	0.0050	"	0.100	ND	93.8	70-130			
m,p-Xylene	0.186	0.010	"	0.200	ND	93.0	70-130			
o-Xylene	0.0827	0.0050	"	0.100	ND	82.7	70-130			
1,2,4-Trimethylbenzene	0.0867	0.0050	"	0.100	ND	86.7	70-130			
1,3,5-Trimethylbenzene	0.0911	0.0050	"	0.100	ND	91.1	70-130			
Naphthalene	0.0745	0.0038	"	0.100	ND	74.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0342*		"	*0.0400*		*85.5*	*50-150*			
Surrogate: Toluene-d8	*0.0381*		"	*0.0400*		*95.2*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0397*		"	*0.0400*		*99.3*	*50-150*			
Matrix Spike Dup (BGF0766-MSD1)		**Source: 2306190-02**		Prepared: 06/21/23 Analyzed: 06/22/23						
Benzene	0.0971	0.0020	mg/kg	0.100	ND	97.1	70-130	1.32	30	
Toluene	0.0767	0.0050	"	0.100	ND	76.7	70-130	3.31	30	
Ethylbenzene	0.0865	0.0050	"	0.100	ND	86.5	70-130	8.09	30	
m,p-Xylene	0.171	0.010	"	0.200	ND	85.5	70-130	8.49	30	
o-Xylene	0.0783	0.0050	"	0.100	ND	78.3	70-130	5.48	30	
1,2,4-Trimethylbenzene	0.0802	0.0050	"	0.100	ND	80.2	70-130	7.73	30	
1,3,5-Trimethylbenzene	0.0838	0.0050	"	0.100	ND	83.8	70-130	8.40	30	
Naphthalene	0.0739	0.0038	"	0.100	ND	73.9	70-130	0.768	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0328*		"	*0.0400*		*82.0*	*50-150*			
Surrogate: Toluene-d8	*0.0391*		"	*0.0400*		*97.6*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0391*		"	*0.0400*		*97.8*	*50-150*			

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0480 - EPA 3550A										
Blank (BGF0480-BLK1)				Prepared & Analyzed: 06/13/23						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*11.9*		*"*	*12.5*		*95.5*	*30-150*			
LCS (BGF0480-BS1)				Prepared & Analyzed: 06/13/23						
C10-C28 (DRO)	449	50	mg/kg	500		89.8	70-130			
Surrogate: o-Terphenyl	*11.7*		*"*	*12.5*		*93.3*	*30-150*			
Matrix Spike (BGF0480-MS1)	**Source: 2306210-01**			Prepared & Analyzed: 06/13/23						
C10-C28 (DRO)	421	50	mg/kg	500	18.5	80.5	70-130			
Surrogate: o-Terphenyl	*11.5*		*"*	*12.5*		*91.9*	*30-150*			
Matrix Spike Dup (BGF0480-MSD1)	**Source: 2306210-01**			Prepared & Analyzed: 06/13/23						
C10-C28 (DRO)	465	50	mg/kg	500	18.5	89.3	70-130	9.89	20	
Surrogate: o-Terphenyl	*12.3*		*"*	*12.5*		*98.7*	*30-150*			

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0464 - EPA 5030 Soil MS										
Blank (BGF0464-BLK1)				Prepared & Analyzed: 06/13/23						
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	*0.0279*		*"*	*0.0333*		*83.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0345*		*"*	*0.0333*		*104*	*40-150*			
LCS (BGF0464-BS1)				Prepared & Analyzed: 06/13/23						
Acenaphthene	0.0328	0.00500	mg/kg	0.0333		98.5	31-137			
Anthracene	0.0347	0.00500	"	0.0333		104	30-120			
Benzo (a) anthracene	0.0292	0.00500	"	0.0333		87.5	30-120			
Benzo (a) pyrene	0.0278	0.00500	"	0.0333		83.5	30-120			
Benzo (b) fluoranthene	0.0294	0.00500	"	0.0333		88.3	30-120			
Benzo (k) fluoranthene	0.0315	0.00500	"	0.0333		94.5	30-120			
Chrysene	0.0345	0.00500	"	0.0333		103	30-120			
Dibenz (a,h) anthracene	0.0212	0.00500	"	0.0333		63.7	30-120			
Fluoranthene	0.0325	0.00500	"	0.0333		97.4	30-120			
Fluorene	0.0325	0.00500	"	0.0333		97.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0189	0.00500	"	0.0333		56.7	30-120			
Pyrene	0.0360	0.00500	"	0.0333		108	35-142			
1-Methylnaphthalene	0.0268	0.00500	"	0.0333		80.4	35-142			
2-Methylnaphthalene	0.0287	0.00500	"	0.0333		86.0	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0294*		*"*	*0.0333*		*88.2*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0327*		*"*	*0.0333*		*98.2*	*40-150*			

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0464 - EPA 5030 Soil MS										
Matrix Spike (BGF0464-MS1)	**Source: 2306210-01**			Prepared & Analyzed: 06/13/23						
Acenaphthene	0.0145	0.00500	mg/kg	0.0333	ND	43.4	31-137			
Anthracene	0.0134	0.00500	"	0.0333	ND	40.1	30-120			
Benzo (a) anthracene	0.0136	0.00500	"	0.0333	ND	40.9	30-120			
Benzo (a) pyrene	0.0154	0.00500	"	0.0333	ND	46.2	30-120			
Benzo (b) fluoranthene	0.0140	0.00500	"	0.0333	ND	42.1	30-120			
Benzo (k) fluoranthene	0.0160	0.00500	"	0.0333	ND	47.9	30-120			
Chrysene	0.0151	0.00500	"	0.0333	ND	45.3	30-120			
Dibenz (a,h) anthracene	0.0137	0.00500	"	0.0333	ND	41.2	30-120			
Fluoranthene	0.0134	0.00500	"	0.0333	ND	40.1	30-120			
Fluorene	0.0146	0.00500	"	0.0333	ND	43.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0137	0.00500	"	0.0333	ND	41.0	30-120			
Pyrene	0.0144	0.00500	"	0.0333	ND	43.1	35-142			
1-Methylnaphthalene	0.0147	0.00500	"	0.0333	ND	44.0	15-130			
2-Methylnaphthalene	0.0136	0.00500	"	0.0333	ND	40.7	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0151*		*"*	*0.0333*		*45.3*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0139*		*"*	*0.0333*		*41.6*	*40-150*			
Matrix Spike Dup (BGF0464-MSD1)	**Source: 2306210-01**			Prepared & Analyzed: 06/13/23						
Acenaphthene	0.0158	0.00500	mg/kg	0.0333	ND	47.3	31-137	8.70	30	
Anthracene	0.0151	0.00500	"	0.0333	ND	45.3	30-120	12.1	30	
Benzo (a) anthracene	0.0170	0.00500	"	0.0333	ND	51.1	30-120	22.2	30	
Benzo (a) pyrene	0.0154	0.00500	"	0.0333	ND	46.3	30-120	0.149	30	
Benzo (b) fluoranthene	0.0154	0.00500	"	0.0333	ND	46.2	30-120	9.34	30	
Benzo (k) fluoranthene	0.0150	0.00500	"	0.0333	ND	44.9	30-120	6.63	30	
Chrysene	0.0178	0.00500	"	0.0333	ND	53.3	30-120	16.2	30	
Dibenz (a,h) anthracene	0.0143	0.00500	"	0.0333	ND	42.9	30-120	4.06	30	
Fluoranthene	0.0158	0.00500	"	0.0333	ND	47.5	30-120	16.8	30	
Fluorene	0.0150	0.00500	"	0.0333	ND	44.9	30-120	2.32	30	
Indeno (1,2,3-cd) pyrene	0.0148	0.00500	"	0.0333	ND	44.4	30-120	7.93	30	
Pyrene	0.0193	0.00500	"	0.0333	ND	57.8	35-142	29.1	30	
1-Methylnaphthalene	0.0168	0.00500	"	0.0333	ND	50.3	15-130	13.5	50	
2-Methylnaphthalene	0.0167	0.00500	"	0.0333	ND	50.1	15-130	20.5	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0174*		*"*	*0.0333*		*52.3*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0208*		*"*	*0.0333*		*62.5*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0472 - EPA 3050B										
Blank (BGF0472-BLK1)				Prepared: 06/13/23 Analyzed: 06/18/23						
Boron	ND	0.0100	mg/L							
LCS (BGF0472-BS1)				Prepared: 06/13/23 Analyzed: 06/18/23						
Boron	4.87	0.0100	mg/L	5.00		97.3	80-120			
Duplicate (BGF0472-DUP1)		**Source: 2306213-01**		Prepared: 06/13/23 Analyzed: 06/18/23						
Boron	0.849	0.0100	mg/L		0.814			4.15	20	
Matrix Spike (BGF0472-MS1)		**Source: 2306213-01**		Prepared: 06/13/23 Analyzed: 06/18/23						
Boron	5.18	0.0100	mg/L	5.00	0.814	87.3	75-125			
Matrix Spike Dup (BGF0472-MSD1)		**Source: 2306213-01**		Prepared: 06/13/23 Analyzed: 06/18/23						
Boron	5.36	0.0100	mg/L	5.00	0.814	90.9	75-125	3.40	25	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0467 - General Preparation										
Blank (BGF0467-BLK1)				Prepared: 06/13/23 Analyzed: 06/17/23						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BGF0467-BS1)				Prepared: 06/13/23 Analyzed: 06/17/23						
Calcium	4.99	0.0500	mg/L wet	5.00		99.8	70-130			
Magnesium	4.85	0.0500	"	5.00		96.9	70-130			
Sodium	4.87	0.0500	"	5.00		97.3	70-130			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0469 - General Preparation										
Duplicate (BGF0469-DUP1)		**Source: 2305670-04**		Prepared & Analyzed: 06/13/23						
% Solids	76.8		%		77.6			1.02	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0496 - General Preparation										
Blank (BGF0496-BLK1)				Prepared & Analyzed: 06/14/23						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BGF0496-BS1)				Prepared & Analyzed: 06/14/23						
Specific Conductance (EC)	0.153	0.0100	mmhos/cm	0.150		102	95-105			
Duplicate (BGF0496-DUP1)	**Source: 2305670-04**			Prepared & Analyzed: 06/14/23						
Specific Conductance (EC)	1.08	0.0100	mmhos/cm		1.10			2.02	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0492 - General Preparation										
LCS (BGF0492-BS1)				Prepared & Analyzed: 06/14/23						
pH	9.13		pH Units	9.18		99.5	95-105			
Duplicate (BGF0492-DUP1)		**Source: 2306215-01**		Prepared & Analyzed: 06/14/23						
pH	7.23		pH Units		7.12			1.53	20	

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: 27643 Project Manager: Jacob Whritenour	**Reported:** 07/18/23 09:57

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 07, 2023

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

RE: Noble - HSR Massey 5-31
Work Order #2306278

Enclosed are the results of analyses for samples received by Summit Scientific on 06/14/23 18:03. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott Sheely For Paul Shrewsbury
President

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-E@5'	2306278-01	Soil	06/14/23 00:00	06/14/23 18:03

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.

Summit Scientific

2306278

S_2

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Client: Noble / Tasman Geosciences
Project Manager: Jake Whritenour, Invoice:
Address: 6855 W. 119th Ave.
E-Mail: Jwhritenour@tasman-geo.com
City/State/Zip: Broomfield / CO/ 80020
Phone: 231-292-2576
Project Name: HSR-Massey 5-31 Wade Finstein
Sampler Name: Elyse Hossink
Project Number: UWRWE - A3106 - ABN

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___		VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		pH, EC, SAR by saturated paste
1	FLB1-E@ 5'	6/14/23		2			X			X				X	X	X	X	X			
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
Elyse Hossink	6/14/23 1630	Tasman's Lock Box	6/14/23 1630
Tasman's Lock Box	6/14/23 1803		6/14/23 1803

Turn Around Time (Check)
___ Same Day ___ 72 hours
___ 24 hours ___ Standard
___ 48 hours ___

Sample Integrity:
Temperature Upon Receipt: 10.3
Samples Intact: Yes No

Notes:

S2

Sample Receipt Checklist S2 Work Order# 2306278

Client: Noble/Tasman Client Project ID: HSR-Massey 5-31

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

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

Temp (°C) 10.3 Thermometer # 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.	–			ON ICE
If custody seals are present, are they intact? (1)	–			
Are samples due within 48 hours present?		–		
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		–		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	–			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	–			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_4, NaOH, HNO_3, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

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

AS
Custodian Printed Name

6/14/23
Date/Time

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

FL01-E@5'

2306278-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGF0608	06/16/23	06/16/23	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: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0364	*90.9 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0388	*97.1 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	*98.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGF0610	06/16/23	06/16/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.9	*95.3 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

FL01-E@5'

2306278-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0594	06/16/23	06/17/23	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: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0264	*79.3 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0336	*101 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.150**	0.0100	mg/L	1	BGF0570	06/15/23	06/16/23	EPA 6020B	

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

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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.

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

FL01-E@5'

2306278-01 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**142**	0.0552	mg/L dry	1	BGF0575	06/15/23	06/21/23	EPA 6020B	
Magnesium	**41.6**	0.0552	"	"	"	"	"	"	
Sodium	**2.48**	0.0552	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0471**	0.00100	units	1	BGF0774	06/22/23	06/22/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**90.6**		%	1	BGF0632	06/19/23	06/19/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.224**	0.0100	mmhos/cm	1	BGF0598	06/16/23	06/16/23	EPA 120.1	

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

Date Sampled: **06/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**5.74**		pH Units	1	BGF0597	06/16/23	06/16/23	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0608 - EPA 5030 Soil MS										
Blank (BGF0608-BLK1)				Prepared & Analyzed: 06/16/23						
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	*0.0374*		*"*	*0.0400*		*93.5*	*50-150*			
Surrogate: Toluene-d8	*0.0410*		*"*	*0.0400*		*103*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0400*		*"*	*0.0400*		*100*	*50-150*			
LCS (BGF0608-BS1)				Prepared & Analyzed: 06/16/23						
Benzene	0.0680	0.0020	mg/kg	0.0750		90.7	70-130			
Toluene	0.0804	0.0050	"	0.0750		107	70-130			
Ethylbenzene	0.0949	0.0050	"	0.0750		127	70-130			
m,p-Xylene	0.187	0.010	"	0.150		125	70-130			
o-Xylene	0.0824	0.0050	"	0.0750		110	70-130			
1,2,4-Trimethylbenzene	0.0868	0.0050	"	0.0750		116	70-130			
1,3,5-Trimethylbenzene	0.0910	0.0050	"	0.0750		121	70-130			
Naphthalene	0.0652	0.0038	"	0.0750		87.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0335*		*"*	*0.0400*		*83.8*	*50-150*			
Surrogate: Toluene-d8	*0.0395*		*"*	*0.0400*		*98.8*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0399*		*"*	*0.0400*		*99.8*	*50-150*			
Matrix Spike (BGF0608-MS1)	**Source: 2306277-02**			Prepared & Analyzed: 06/16/23						
Benzene	0.0646	0.0020	mg/kg	0.0750	ND	86.1	70-130			
Toluene	0.0719	0.0050	"	0.0750	ND	95.9	70-130			
Ethylbenzene	0.0862	0.0050	"	0.0750	ND	115	70-130			
m,p-Xylene	0.170	0.010	"	0.150	ND	113	70-130			
o-Xylene	0.0759	0.0050	"	0.0750	ND	101	70-130			
1,2,4-Trimethylbenzene	0.0800	0.0050	"	0.0750	ND	107	70-130			
1,3,5-Trimethylbenzene	0.0832	0.0050	"	0.0750	ND	111	70-130			
Naphthalene	0.0672	0.0038	"	0.0750	ND	89.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0320*		*"*	*0.0400*		*80.0*	*50-150*			
Surrogate: Toluene-d8	*0.0371*		*"*	*0.0400*		*92.8*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0396*		*"*	*0.0400*		*98.9*	*50-150*			

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.

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0608 - EPA 5030 Soil MS										
Matrix Spike Dup (BGF0608-MSD1)		**Source: 2306277-02**		Prepared & Analyzed: 06/16/23						
Benzene	0.0635	0.0020	mg/kg	0.0750	ND	84.7	70-130	1.59	30	
Toluene	0.0712	0.0050	"	0.0750	ND	95.0	70-130	0.964	30	
Ethylbenzene	0.0862	0.0050	"	0.0750	ND	115	70-130	0.0348	30	
m,p-Xylene	0.169	0.010	"	0.150	ND	113	70-130	0.442	30	
o-Xylene	0.0765	0.0050	"	0.0750	ND	102	70-130	0.748	30	
1,2,4-Trimethylbenzene	0.0805	0.0050	"	0.0750	ND	107	70-130	0.673	30	
1,3,5-Trimethylbenzene	0.0834	0.0050	"	0.0750	ND	111	70-130	0.252	30	
Naphthalene	0.0685	0.0038	"	0.0750	ND	91.3	70-130	1.95	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0329*		*"*	*0.0400*		*82.2*	*50-150*			
Surrogate: Toluene-d8	*0.0371*		*"*	*0.0400*		*92.8*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0396*		*"*	*0.0400*		*99.1*	*50-150*			

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

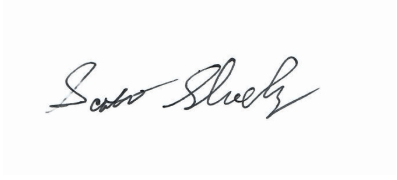
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0610 - EPA 3550A										
Blank (BGF0610-BLK1)				Prepared & Analyzed: 06/16/23						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*12.6*		*"*	*12.5*		*101*	*30-150*			
LCS (BGF0610-BS1)				Prepared & Analyzed: 06/16/23						
C10-C28 (DRO)	537	50	mg/kg	500		107	70-130			
Surrogate: o-Terphenyl	*12.2*		*"*	*12.5*		*97.4*	*30-150*			
Matrix Spike (BGF0610-MS1)	**Source: 2306277-02**			Prepared & Analyzed: 06/16/23						
C10-C28 (DRO)	541	50	mg/kg	500	23.2	104	70-130			
Surrogate: o-Terphenyl	*12.0*		*"*	*12.5*		*95.7*	*30-150*			
Matrix Spike Dup (BGF0610-MSD1)	**Source: 2306277-02**			Prepared & Analyzed: 06/16/23						
C10-C28 (DRO)	570	50	mg/kg	500	23.2	109	70-130	5.20	20	
Surrogate: o-Terphenyl	*12.2*		*"*	*12.5*		*97.7*	*30-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0594 - EPA 5030 Soil MS										
Blank (BGF0594-BLK1)				Prepared: 06/16/23 Analyzed: 06/17/23						
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	*0.0309*		*"*	*0.0333*		*92.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0407*		*"*	*0.0333*		*122*	*40-150*			
LCS (BGF0594-BS1)				Prepared: 06/16/23 Analyzed: 06/17/23						
Acenaphthene	0.0372	0.00500	mg/kg	0.0333		112	31-137			
Anthracene	0.0393	0.00500	"	0.0333		118	30-120			
Benzo (a) anthracene	0.0388	0.00500	"	0.0333		116	30-120			
Benzo (a) pyrene	0.0364	0.00500	"	0.0333		109	30-120			
Benzo (b) fluoranthene	0.0371	0.00500	"	0.0333		111	30-120			
Benzo (k) fluoranthene	0.0351	0.00500	"	0.0333		105	30-120			
Chrysene	0.0380	0.00500	"	0.0333		114	30-120			
Dibenz (a,h) anthracene	0.0212	0.00500	"	0.0333		63.5	30-120			
Fluoranthene	0.0372	0.00500	"	0.0333		112	30-120			
Fluorene	0.0366	0.00500	"	0.0333		110	30-120			
Indeno (1,2,3-cd) pyrene	0.0233	0.00500	"	0.0333		69.9	30-120			
Pyrene	0.0376	0.00500	"	0.0333		113	35-142			
1-Methylnaphthalene	0.0372	0.00500	"	0.0333		112	35-142			
2-Methylnaphthalene	0.0390	0.00500	"	0.0333		117	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0370*		*"*	*0.0333*		*111*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0383*		*"*	*0.0333*		*115*	*40-150*			



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0594 - EPA 5030 Soil MS										
Matrix Spike (BGF0594-MS1)	**Source: 2306278-01**			Prepared: 06/16/23 Analyzed: 06/17/23						
Acenaphthene	0.0252	0.00500	mg/kg	0.0333	ND	75.7	31-137			
Anthracene	0.0259	0.00500	"	0.0333	ND	77.8	30-120			
Benzo (a) anthracene	0.0286	0.00500	"	0.0333	ND	85.9	30-120			
Benzo (a) pyrene	0.0248	0.00500	"	0.0333	ND	74.3	30-120			
Benzo (b) fluoranthene	0.0267	0.00500	"	0.0333	ND	80.0	30-120			
Benzo (k) fluoranthene	0.0242	0.00500	"	0.0333	ND	72.7	30-120			
Chrysene	0.0276	0.00500	"	0.0333	ND	82.9	30-120			
Dibenz (a,h) anthracene	0.0145	0.00500	"	0.0333	ND	43.6	30-120			
Fluoranthene	0.0256	0.00500	"	0.0333	ND	76.7	30-120			
Fluorene	0.0252	0.00500	"	0.0333	ND	75.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0174	0.00500	"	0.0333	ND	52.1	30-120			
Pyrene	0.0290	0.00500	"	0.0333	ND	87.0	35-142			
1-Methylnaphthalene	0.0282	0.00500	"	0.0333	ND	84.6	15-130			
2-Methylnaphthalene	0.0266	0.00500	"	0.0333	ND	79.9	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0276*		*"*	*0.0333*		*82.7*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0261*		*"*	*0.0333*		*78.3*	*40-150*			
Matrix Spike Dup (BGF0594-MSD1)	**Source: 2306278-01**			Prepared: 06/16/23 Analyzed: 06/17/23						
Acenaphthene	0.0275	0.00500	mg/kg	0.0333	ND	82.4	31-137	8.48	30	
Anthracene	0.0287	0.00500	"	0.0333	ND	86.0	30-120	9.95	30	
Benzo (a) anthracene	0.0306	0.00500	"	0.0333	ND	91.9	30-120	6.76	30	
Benzo (a) pyrene	0.0275	0.00500	"	0.0333	ND	82.5	30-120	10.4	30	
Benzo (b) fluoranthene	0.0288	0.00500	"	0.0333	ND	86.5	30-120	7.84	30	
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333	ND	81.3	30-120	11.2	30	
Chrysene	0.0302	0.00500	"	0.0333	ND	90.6	30-120	8.85	30	
Dibenz (a,h) anthracene	0.0156	0.00500	"	0.0333	ND	46.9	30-120	7.20	30	
Fluoranthene	0.0276	0.00500	"	0.0333	ND	82.8	30-120	7.70	30	
Fluorene	0.0279	0.00500	"	0.0333	ND	83.7	30-120	10.2	30	
Indeno (1,2,3-cd) pyrene	0.0141	0.00500	"	0.0333	ND	42.4	30-120	20.6	30	
Pyrene	0.0307	0.00500	"	0.0333	ND	92.1	35-142	5.70	30	
1-Methylnaphthalene	0.0298	0.00500	"	0.0333	ND	89.3	15-130	5.37	50	
2-Methylnaphthalene	0.0282	0.00500	"	0.0333	ND	84.7	15-130	5.87	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0297*		*"*	*0.0333*		*89.1*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0292*		*"*	*0.0333*		*87.7*	*40-150*			

Summit Scientific

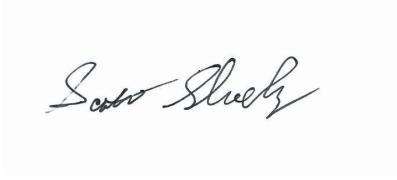
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0570 - EPA 3050B										
Blank (BGF0570-BLK1)				Prepared: 06/15/23 Analyzed: 06/16/23						
Boron	ND	0.0100	mg/L							
LCS (BGF0570-BS1)				Prepared: 06/15/23 Analyzed: 06/16/23						
Boron	4.52	0.0100	mg/L	5.00		90.5	80-120			
Duplicate (BGF0570-DUP1)		**Source: 2306244-01**		Prepared: 06/15/23 Analyzed: 06/16/23						
Boron	0.222	0.0100	mg/L		0.237			6.63	20	
Matrix Spike (BGF0570-MS1)		**Source: 2306244-01**		Prepared: 06/15/23 Analyzed: 06/20/23						
Boron	4.57	0.0100	mg/L	5.00	0.237	86.7	75-125			
Matrix Spike Dup (BGF0570-MSD1)		**Source: 2306244-01**		Prepared: 06/15/23 Analyzed: 06/20/23						
Boron	4.94	0.0100	mg/L	5.00	0.237	94.0	75-125	7.66	25	



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0575 - General Preparation										
Blank (BGF0575-BLK1)				Prepared: 06/15/23 Analyzed: 06/21/23						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BGF0575-BS1)				Prepared: 06/15/23 Analyzed: 06/21/23						
Calcium	4.69	0.0500	mg/L wet	5.00		93.7	70-130			
Magnesium	5.23	0.0500	"	5.00		105	70-130			
Sodium	5.05	0.0500	"	5.00		101	70-130			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0632 - General Preparation										
Duplicate (BGF0632-DUP1)		**Source: 2305548-02**		Prepared & Analyzed: 06/19/23						
% Solids	93.0		%		93.1			0.162	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0598 - General Preparation										
Blank (BGF0598-BLK1)				Prepared & Analyzed: 06/16/23						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BGF0598-BS1)				Prepared & Analyzed: 06/16/23						
Specific Conductance (EC)	0.156	0.0100	mmhos/cm	0.150		104	95-105			
Duplicate (BGF0598-DUP1)		**Source: 2306242-01**		Prepared & Analyzed: 06/16/23						
Specific Conductance (EC)	0.494	0.0100	mmhos/cm		0.511			3.38	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0597 - General Preparation										
LCS (BGF0597-BS1)				Prepared & Analyzed: 06/16/23						
pH	9.09		pH Units	9.18		99.0	95-105			
Duplicate (BGF0597-DUP1)		**Source: 2306242-01**		Prepared & Analyzed: 06/16/23						
pH	7.47		pH Units		7.39			1.08	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - HSR Massey 5-31 Project Number: UWRWE-A3106-ABN 27643 Project Manager: Jacob Whritenour	**Reported:** 07/07/23 10:43

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