

Wellhead Closure Checklist

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

Additional attachments (optional):	Pit Closure	Tank Battery Closure	Flowline Closure	Partially Buried Vault Closure
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Site Name & COGCC Facility Number: S Rivers K16-17	Date: 6/15/21	Remediation Project #:
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Associated Wells: -	Age of Site: -	Number of Photos Attached: 7
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Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.3151955, -104.777536	Estimated Facility Size (acres): -
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General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)
Generally good condition

USCS Soil Type: SM - silty sand	Estimated Depth to Groundwater: 76'
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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

Wellhead(s)

Well API	Age	Condition of surface around wellhead	PID Readings	Condition of subsurface (staining present)	PID Readings	Sample taken? Location/Sample ID#	Photo Number(s)
05-123-31703	-	Good	N/A	Good no staining no odor	0.1 - 8.3	See below	-

Other observations regarding wellheads: **sample taken on all 4 sidewalls, base of excavation, under flowline point A & B, back grounds unable to be sampled. (SS01@ 2.5' - SS04@ 2.5', FS01@ 6', FL01-A@ 4', FL01-B@ 2')**

Summary

Was impacted soil identified? **No** (circled) Yes - less than 10 cubic yards Yes - more than 10 cubic yards

Total number of samples field screened: 7	Total number of samples collected: 7
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Highest PID Reading: 8.3	Total number of samples submitted to lab for analysis: 3
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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
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Date Groundwater was encountered:	Commencement date of removal:
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Sheen on groundwater? Yes No	Volume of groundwater removed prior to sampling:
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Free product observed? Yes No	Volume of groundwater removed post sampling:
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Total number of samples collected:	Total Volume of groundwater removed:
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Total number of samples submitted to lab for analysis:	
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Photographic Log



Equipment ID:SS01 **Equipment Type:** Wellhead

Material: Steel **Volume:** NA **Contents:** Oil/Gas/Water

Notes/Conditions: 5 rivers K16-17, Photo of SS01 @2.5'

Equipment ID:SS02 **Equipment Type:** Wellhead

Material: Steel **Volume:** NA **Contents:** Oil/Gas/Water

Notes/Conditions: 5 rivers K16-17, Photo of SS02 @2.5'

Photographic Log



Equipment ID: SS03		Equipment Type: Wellhead	
Material: Steel	Volume: NA	Contents: Oil/Gas/Water	
Notes/Conditions: 5 rivers K16-17, Photo of SS03@2.5'			

Equipment ID: SS04		Equipment Type: Wellhead	
Material: Steel	Volume: NA	Contents: Oil/Gas/Water	
Notes/Conditions: 5 rivers K16-17, Photo of SS04@2.5'			

Photographic Log



Equipment ID: FS01		Equipment Type: Wellhead			Equipment ID: FL01-B		Equipment Type: Flowline		
Material: Steel		Volume: NA	Contents: Oil/Gas/Water		Material: Steel		Volume: NA	Contents: Oil/Gas/Water	
Notes/Conditions: 5 rivers K16-17, Photo of FS01 @6'					Notes/Conditions: 5 rivers K16-17, Photo of FL01-B @2'				

Photographic Log


Equipment ID: FL01-A		Equipment Type: Flowline		Equipment ID:		Equipment Type:	
Material: Steel		Volume: NA		Contents: Oil/Gas/Water		Material:	
						Volume:	
						Contents:	
Notes/Conditions: 5 rivers K16-17, Photo of FL01-A@4'. Background unable to be obtained.				Notes/Conditions:			

Photographic Log



Equipment ID: BG01		Equipment Type: ^{NA}		Equipment ID: BG02		Equipment Type: ^{NA}	
Material: ^{NA}		Volume: ^{NA}		Material: ^{NA}		Volume: ^{NA}	
Contents: ^{NA}				Contents: ^{NA}			
Notes/Conditions: BG01 @2', Werning 7-2				Notes/Conditions: BG02 @6' Werning 7-2			

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - Five Rivers K16-17

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
SS01@2.5'	06/15/21	2.6	No Staining	No Odor	Lab	40.3152796	-104.7773512	1.6
SS02@2.5'	06/15/21	0.2	No Staining	No Odor	Grab	40.3152665	-104.7773130	1.5
SS03@2.5'	06/15/21	0.2	No Staining	No Odor	Grab	40.3152438	-104.7773420	1.2
SS04@2.5'	06/15/21	1.0	No Staining	No Odor	Grab	40.3152788	-104.7773626	1.3
FS01@6'	06/15/21	0.1	No Staining	No Odor	Lab	40.3152621	-104.7773408	1.2
FL01-A@4'	06/15/21	0.5	No Staining	No Odor	Lab	40.3152650	-104.7773575	1.2
FL01-B@2'	06/14/21	8.3	No Staining	No Odor	Lab	40.3185936	-104.7760653	1.1
BG01@2'	08/10/21	0.0	No Staining	No Odor	Lab	40.3187544	-104.7762683	1.3
BG02@6'	08/10/21	0.0	No Staining	No Odor	Lab	40.3153203	-104.7777514	1.3

Notes:

PID = Photo-ionization 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. - 5 Rivers K16-17

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
FS01@6'	06/15/21	<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
FL01-A@4'	06/15/21	<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
FL01-B@2'	06/14/21	<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)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FS01@6'	06/15/21	9.74	3.41	0.439	0.102
FL01-A@4'	06/15/21	8.26	1.59	0.418	0.241
FL01-B@2'	06/14/21	9.79	1.90	0.470	0.0274
BG01@2'	08/10/21	7.63	NA	NA	NA
BG02@6'	08/10/21	7.92	NA	NA	NA

Notes:

- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- 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 = Millimhos 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) = Benzanthracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

Benzo(a) = Benzopyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene

NA = Not analyzed



Legend

- Excavation Extent
- ⊕ Soil Sample Location – Field Screen (Collected via Trimble GPS)
- ⊕ Soil Sample Location – Lab Analyzed (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of COGCC Table 915-1 not shown.
- 4) Concentration in exceedance of COGCC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System
 mg/kg – Milligrams per kilogram

0 ft. 15 ft. 30 ft.

Image Source: Google Earth; Google 2020

DATE:	08/10/2021
DESIGNED BY:	JW
DRAWN BY:	CA



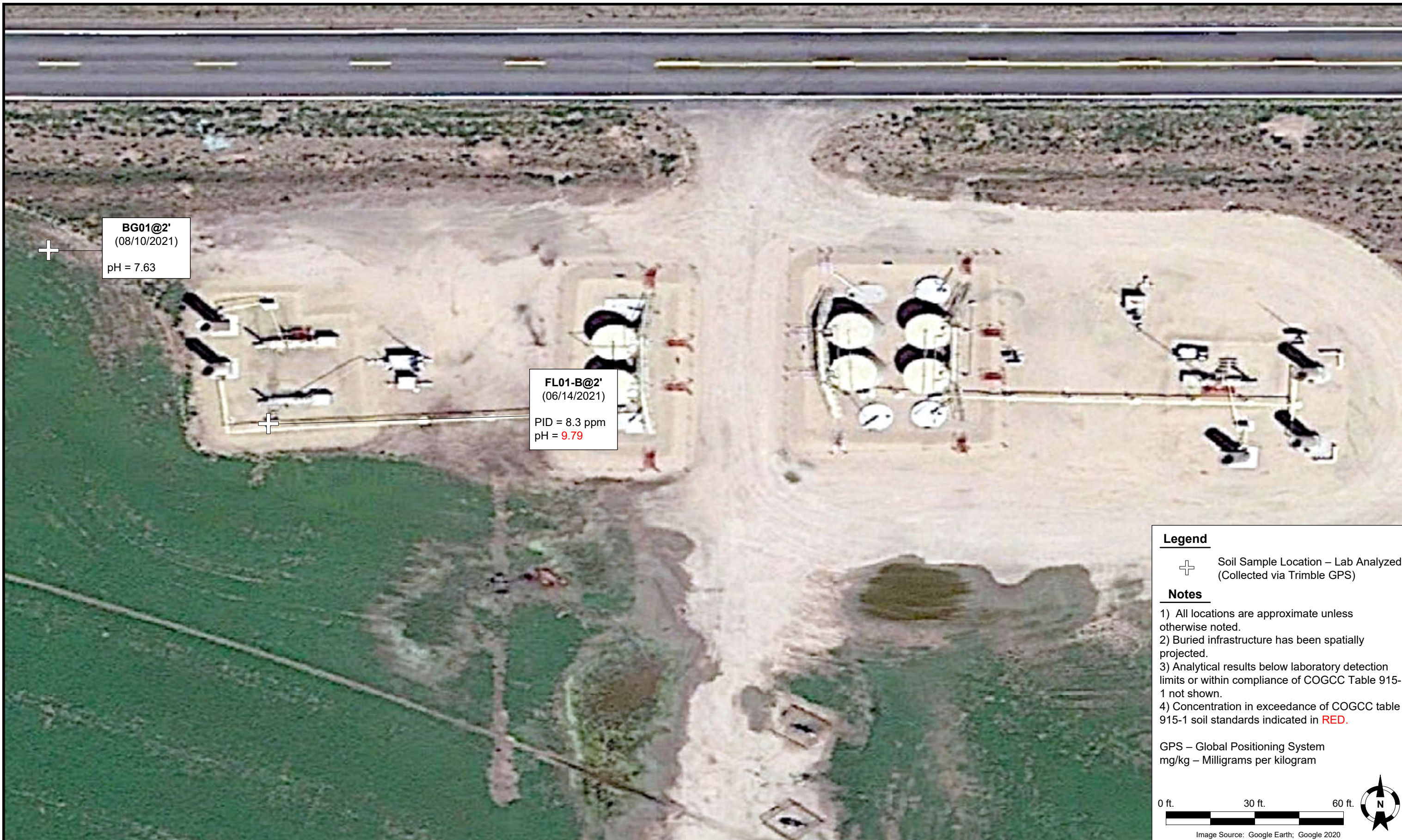
TASMAN
 GEOSCIENCES

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

Noble Energy, Inc. – DJ Basin
 5 Rivers K16-17 Wellhead
 NENE, Section 16, Township 4 North, Range 66 West
 Weld County, Colorado

Wellhead Closure & Soil
 Analytical Results Map
 (06/15/2021 & 08/10/2021)

FIGURE
 1



DATE:	8/10/2021
DESIGNED BY:	JW
DRAWN BY:	CA



TASMAN
GEOSCIENCES

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

Noble Energy, Inc. – DJ Basin
5 Rivers K16-17
NENE, Section 16, Township 4 North, Range 66 West
Weld County, Colorado

Flowline Closure & Soil
Analytical Results Map
(06/14/2021 & 08/10/2021)

FIGURE
2

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 25, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

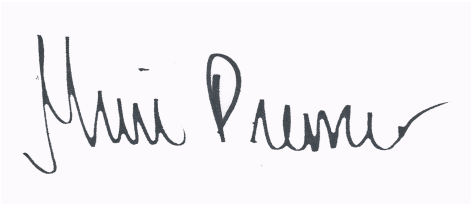
Broomfield, CO 80020

RE: Noble - 5 Rivers K16-17

Work Order #2106304

Enclosed are the results of analyses for samples received by Summit Scientific on 06/15/21 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury
President



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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@6'	2106304-01	Soil	06/15/21 10:40	06/15/21 17:40
FL01-A@4'	2106304-02	Soil	06/15/21 10:45	06/15/21 17:40

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

2106304


S₂

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

Page 1 of 1

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Wade Firestein
Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
City/State/Zip: Broomfield / CO / 80020
Phone: 303-487-1228 Project Name: 5 Rivers K16-17
Sampler Name: Daniel Qua Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		HOLD
1	FS02 @ 6'	6/15/21	1040	2			X			X				X	X	X	X	X	X	pH, EC, SAR by saturated paste
2	FL01-A @ 4'	↓	1045	↓			↓							X	X	X	X	X		
3	SS01 @ 2.5'	↓	1020	↓			↓												X	
4																				
5																				
6																				
7																				
8																				
9																				
10																				

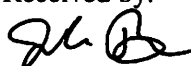
Relinquished by:  Date/Time: 6/15/21 1740

Received by: Tasman's Lock Box Date/Time: 6/15/21 1740

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

Notes:

Relinquished by: Tasman's Lock Box Date/Time: 6/15/21 1740

Received by:  Date/Time: 6/15/21 1740

Sample Integrity:
 Temperature Upon Receipt: 27
 Samples Intact: Yes No

2106304

Sample Receipt Checklist

S2 Work Order _____

Client: Noble / Tasman Client Project ID: 5 Rivers K16-17

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

 H.D.
 P.U.
 FedEx
 UPS
 USPS
 Other
Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Temp (°C)	27
-----------	----

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"/>	On ice
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

John B.
Signature of Custodian

6/15/21
Date/Time



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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/25/21 13:14

FS01@6'
2106304-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BEF0438	06/21/21	06/22/21	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: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		121 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BEF0439	06/21/21	06/21/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		105 %	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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

FS01@6'
2106304-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0497	06/23/21	06/24/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		55.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		67.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.102	0.0100	mg/L	1	BEF0480	06/23/21	06/24/21	EPA 6020B	

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

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/25/21 13:14

FS01@6'
2106304-01 (Soil)

Summit Scientific

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

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	18.9	0.0559	mg/L dry	1	BEF0462	06/22/21	06/24/21	EPA 6020B	
Magnesium	2.02	0.0559	"	"	"	"	"	"	
Sodium	58.4	0.0559	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.41	0.00100	units	1	BEF0519	06/24/21	06/24/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.5		%	1	BEF0483	06/23/21	06/23/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.439	0.0100	mmhos/cm	1	BEF0490	06/23/21	06/23/21	EPA 120.1	

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

Date Sampled: **06/15/21 10:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	9.74		pH Units	1	BEF0489	06/23/21	06/23/21	EPA 9045D	

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

FL01-A@4'
2106304-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEF0438	06/21/21	06/22/21	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: **06/15/21 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEF0439	06/21/21	06/22/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

FL01-A@4'
2106304-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEF0497	06/23/21	06/24/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		60.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		72.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.241	0.0100	mg/L	1	BEF0480	06/23/21	06/24/21	EPA 6020B	

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

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/25/21 13:14

FL01-A@4'
2106304-02 (Soil)

Summit Scientific

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

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	6.74	0.0556	mg/L dry	1	BEF0462	06/22/21	06/24/21	EPA 6020B	
Magnesium	2.31	0.0556	"	"	"	"	"	"	
Sodium	18.7	0.0556	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.59	0.00100	units	1	BEF0519	06/24/21	06/24/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.9		%	1	BEF0483	06/23/21	06/23/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.418	0.0100	mmhos/cm	1	BEF0490	06/23/21	06/23/21	EPA 120.1	

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

Date Sampled: **06/15/21 10:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.26		pH Units	1	BEF0489	06/23/21	06/23/21	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/25/21 13:14

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEF0438 - EPA 5030 Soil MS

Blank (BEF0438-BLK1)

Prepared: 06/21/21 Analyzed: 06/22/21

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0228		"	0.0400		57.0	23-173			
<i>Surrogate: Toluene-d8</i>	0.0507		"	0.0400		127	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0414		"	0.0400		104	21-167			

LCS (BEF0438-BS1)

Prepared: 06/21/21 Analyzed: 06/22/21

Benzene	0.0943	0.0020	mg/kg	0.100		94.3	70-130			
Toluene	0.0895	0.0050	"	0.100		89.5	70-130			
Ethylbenzene	0.0950	0.0050	"	0.100		95.0	70-130			
m,p-Xylene	0.194	0.010	"	0.200		96.9	70-130			
o-Xylene	0.0954	0.0050	"	0.100		95.4	70-130			
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100		102	70-130			
1,3,5-Trimethylbenzene	0.102	0.0050	"	0.100		102	70-130			
Naphthalene	0.0871	0.0038	"	0.100		87.1	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0262		"	0.0400		65.6	23-173			
<i>Surrogate: Toluene-d8</i>	0.0448		"	0.0400		112	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0407		"	0.0400		102	21-167			

Matrix Spike (BEF0438-MS1)

Source: 2106271-01

Prepared: 06/21/21 Analyzed: 06/22/21

Benzene	0.0987	0.0020	mg/kg	0.100	ND	98.7	70-130			
Toluene	0.0862	0.0050	"	0.100	ND	86.2	70-130			
Ethylbenzene	0.0919	0.0050	"	0.100	ND	91.9	70-130			
m,p-Xylene	0.184	0.010	"	0.200	ND	92.1	70-130			
o-Xylene	0.0921	0.0050	"	0.100	ND	92.1	70-130			
1,2,4-Trimethylbenzene	0.0989	0.0050	"	0.100	ND	98.9	70-130			
1,3,5-Trimethylbenzene	0.0944	0.0050	"	0.100	ND	94.4	70-130			
Naphthalene	0.0977	0.0038	"	0.100	ND	97.7	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0282		"	0.0400		70.5	23-173			
<i>Surrogate: Toluene-d8</i>	0.0403		"	0.0400		101	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0389		"	0.0400		97.2	21-167			

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Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/25/21 13:14

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEF0438 - EPA 5030 Soil MS

Matrix Spike Dup (BEF0438-MSD1)	Source: 2106271-01			Prepared: 06/21/21 Analyzed: 06/22/21						
Benzene	0.0957	0.0020	mg/kg	0.100	ND	95.7	70-130	3.09	30	
Toluene	0.0809	0.0050	"	0.100	ND	80.9	70-130	6.28	30	
Ethylbenzene	0.0916	0.0050	"	0.100	ND	91.6	70-130	0.327	30	
m,p-Xylene	0.184	0.010	"	0.200	ND	92.1	70-130	0.0489	30	
o-Xylene	0.0923	0.0050	"	0.100	ND	92.3	70-130	0.260	30	
1,2,4-Trimethylbenzene	0.0985	0.0050	"	0.100	ND	98.5	70-130	0.486	30	
1,3,5-Trimethylbenzene	0.0977	0.0050	"	0.100	ND	97.7	70-130	3.37	30	
Naphthalene	0.0919	0.0038	"	0.100	ND	91.9	70-130	6.08	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0300</i>		<i>"</i>	<i>0.0400</i>		<i>75.1</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>98.0</i>	<i>21-167</i>			

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Broomfield CO, 80020

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/25/21 13:14

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEF0439 - EPA 3550A

Blank (BEF0439-BLK1)

Prepared: 06/21/21 Analyzed: 06/22/21

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

LCS (BEF0439-BS1)

Prepared: 06/21/21 Analyzed: 06/22/21

C10-C28 (DRO)	486	50	mg/kg	500	97.2	70-130				
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Matrix Spike (BEF0439-MS1)

Source: 2106271-01

Prepared: 06/21/21 Analyzed: 06/22/21

C10-C28 (DRO)	495	50	mg/kg	500	14.1	96.2	70-130			
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Matrix Spike Dup (BEF0439-MSD1)

Source: 2106271-01

Prepared: 06/21/21 Analyzed: 06/22/21

C10-C28 (DRO)	478	50	mg/kg	500	14.1	92.7	70-130	3.58	20	
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Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/25/21 13:14

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEF0497 - EPA 5030 Soil MS

Blank (BEF0497-BLK1)

Prepared: 06/23/21 Analyzed: 06/24/21

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	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0245</i>		<i>"</i>	<i>0.0333</i>		<i>73.4</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0266</i>		<i>"</i>	<i>0.0333</i>		<i>79.9</i>		<i>40-150</i>		

LCS (BEF0497-BS1)

Prepared: 06/23/21 Analyzed: 06/24/21

Acenaphthene	0.0309	0.00500	mg/kg	0.0333		92.7		31-137		
Anthracene	0.0315	0.00500	"	0.0333		94.6		30-120		
Benzo (a) anthracene	0.0310	0.00500	"	0.0333		93.1		30-120		
Benzo (a) pyrene	0.0313	0.00500	"	0.0333		93.8		30-120		
Benzo (b) fluoranthene	0.0288	0.00500	"	0.0333		86.5		30-120		
Benzo (k) fluoranthene	0.0303	0.00500	"	0.0333		90.9		30-120		
Chrysene	0.0309	0.00500	"	0.0333		92.7		30-120		
Dibenz (a,h) anthracene	0.0307	0.00500	"	0.0333		92.1		30-120		
Fluoranthene	0.0279	0.00500	"	0.0333		83.8		30-120		
Fluorene	0.0316	0.00500	"	0.0333		94.7		30-120		
Indeno (1,2,3-cd) pyrene	0.0311	0.00500	"	0.0333		93.4		30-120		
Naphthalene	0.0283	0.00500	"	0.0333		84.8		30-120		
Pyrene	0.0277	0.00500	"	0.0333		83.0		35-142		
1-Methylnaphthalene	0.0290	0.00500	"	0.0333		87.0		35-142		
2-Methylnaphthalene	0.0320	0.00500	"	0.0333		96.1		35-142		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0234</i>		<i>"</i>	<i>0.0333</i>		<i>70.2</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0316</i>		<i>"</i>	<i>0.0333</i>		<i>94.9</i>		<i>40-150</i>		

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Broomfield CO, 80020

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEF0497 - EPA 5030 Soil MS

Matrix Spike (BEF0497-MS1)	Source: 2106333-01			Prepared: 06/23/21 Analyzed: 06/24/21						
Acenaphthene	0.0337	0.00500	mg/kg	0.0333	ND	101	31-137			
Anthracene	0.0333	0.00500	"	0.0333	ND	100	30-120			
Benzo (a) anthracene	0.0336	0.00500	"	0.0333	ND	101	30-120			
Benzo (a) pyrene	0.0341	0.00500	"	0.0333	ND	102	30-120			
Benzo (b) fluoranthene	0.0308	0.00500	"	0.0333	ND	92.5	30-120			
Benzo (k) fluoranthene	0.0325	0.00500	"	0.0333	ND	97.5	30-120			
Chrysene	0.0337	0.00500	"	0.0333	ND	101	30-120			
Dibenz (a,h) anthracene	0.0333	0.00500	"	0.0333	ND	100	30-120			
Fluoranthene	0.0307	0.00500	"	0.0333	ND	92.1	30-120			
Fluorene	0.0343	0.00500	"	0.0333	ND	103	30-120			
Indeno (1,2,3-cd) pyrene	0.0341	0.00500	"	0.0333	ND	102	30-120			
Naphthalene	0.0304	0.00500	"	0.0333	ND	91.3	30-120			
Pyrene	0.0292	0.00500	"	0.0333	ND	87.5	35-142			
1-Methylnaphthalene	0.0306	0.00500	"	0.0333	ND	91.8	15-130			
2-Methylnaphthalene	0.0345	0.00500	"	0.0333	ND	103	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0246</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>73.7</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0335</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>100</i>	<i>40-150</i>				

Matrix Spike Dup (BEF0497-MSD1)	Source: 2106333-01			Prepared: 06/23/21 Analyzed: 06/24/21						
Acenaphthene	0.0327	0.00500	mg/kg	0.0333	ND	98.2	31-137	2.81	30	
Anthracene	0.0330	0.00500	"	0.0333	ND	98.9	30-120	1.19	30	
Benzo (a) anthracene	0.0313	0.00500	"	0.0333	ND	93.8	30-120	7.30	30	
Benzo (a) pyrene	0.0321	0.00500	"	0.0333	ND	96.4	30-120	6.06	30	
Benzo (b) fluoranthene	0.0319	0.00500	"	0.0333	ND	95.8	30-120	3.58	30	
Benzo (k) fluoranthene	0.0312	0.00500	"	0.0333	ND	93.7	30-120	3.97	30	
Chrysene	0.0318	0.00500	"	0.0333	ND	95.4	30-120	5.91	30	
Dibenz (a,h) anthracene	0.0317	0.00500	"	0.0333	ND	95.0	30-120	5.15	30	
Fluoranthene	0.0293	0.00500	"	0.0333	ND	87.9	30-120	4.70	30	
Fluorene	0.0334	0.00500	"	0.0333	ND	100	30-120	2.73	30	
Indeno (1,2,3-cd) pyrene	0.0320	0.00500	"	0.0333	ND	96.0	30-120	6.40	30	
Naphthalene	0.0300	0.00500	"	0.0333	ND	89.9	30-120	1.55	30	
Pyrene	0.0278	0.00500	"	0.0333	ND	83.3	35-142	4.95	30	
1-Methylnaphthalene	0.0294	0.00500	"	0.0333	ND	88.1	15-130	4.21	50	
2-Methylnaphthalene	0.0326	0.00500	"	0.0333	ND	97.8	15-130	5.60	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0233</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>69.9</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0320</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>95.9</i>	<i>40-150</i>				

Summit Scientific

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

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

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

Batch BEF0480 - EPA 3050B

Blank (BEF0480-BLK1)

Prepared: 06/23/21 Analyzed: 06/24/21

Boron ND 0.0100 mg/L

LCS (BEF0480-BS1)

Prepared: 06/23/21 Analyzed: 06/24/21

Boron 5.05 0.0100 mg/L 5.00 101 80-120

Duplicate (BEF0480-DUP1)

Source: 2106277-02

Prepared: 06/23/21 Analyzed: 06/24/21

Boron 0.0743 0.0100 mg/L 0.0717 3.55 20

Matrix Spike (BEF0480-MS1)

Source: 2106277-02

Prepared: 06/23/21 Analyzed: 06/24/21

Boron 5.14 0.0100 mg/L 5.00 0.0717 101 75-125

Matrix Spike Dup (BEF0480-MSD1)

Source: 2106277-02

Prepared: 06/23/21 Analyzed: 06/24/21

Boron 4.93 0.0100 mg/L 5.00 0.0717 97.1 75-125 4.28 25

Summit Scientific

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

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

Summit Scientific

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

Batch BEF0462 - General Preparation

Blank (BEF0462-BLK1)

Prepared: 06/22/21 Analyzed: 06/23/21

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

LCS (BEF0462-BS1)

Prepared: 06/22/21 Analyzed: 06/23/21

Calcium	4.93	0.0500	mg/L wet	5.00	98.6	70-130				
Magnesium	5.67	0.0500	"	5.00	113	70-130				
Sodium	4.97	0.0500	"	5.00	99.3	70-130				

Summit Scientific

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

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

Summit Scientific

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

Batch BEF0483 - General Preparation

Duplicate (BEF0483-DUP1)

Source: 2106225-01

Prepared & Analyzed: 06/23/21

% Solids	95.2		%		95.1			0.142	20	
----------	------	--	---	--	------	--	--	-------	----	--

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/25/21 13:14

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

Summit Scientific

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

Batch BEF0490 - General Preparation

Blank (BEF0490-BLK1)

Prepared & Analyzed: 06/23/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEF0490-BS1)

Prepared & Analyzed: 06/23/21

Specific Conductance (EC) 0.142 0.0100 mmhos/cm 0.150 94.7 90-110

Duplicate (BEF0490-DUP1)

Source: 2106225-01

Prepared & Analyzed: 06/23/21

Specific Conductance (EC) 3.17 0.0100 mmhos/cm 3.17 0.00 20

Summit Scientific

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
06/25/21 13:14

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

Summit Scientific

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

Batch BEF0489 - General Preparation

LCS (BEF0489-BS1)

Prepared & Analyzed: 06/23/21

pH 9.20 pH Units 9.21 99.9 95-105

Duplicate (BEF0489-DUP1)

Source: 2106275-02

Prepared & Analyzed: 06/23/21

pH 8.02 pH Units 8.02 0.00 20

Summit Scientific

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/25/21 13:14

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 12, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

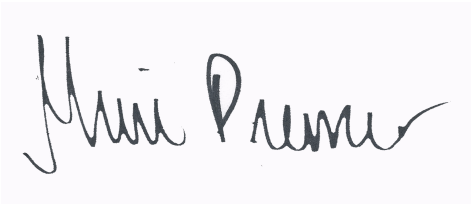
Broomfield, CO 80020

RE: Noble - 5 Rivers K16-17

Work Order #2106271

Enclosed are the results of analyses for samples received by Summit Scientific on 06/14/21 17:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury
President



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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/12/21 16:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-B@2'	2106271-01	Soil	06/14/21 15:20	06/14/21 17:50

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


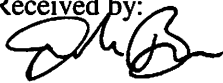
S₂

2106271

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

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Wade Firestein
 Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
 City/State/Zip: Broomfield / CO/ 80020
 Phone: 303-487-1228 Project Name: S Rivers K16-17
 Sampler Name: Daniel Qua Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		HOLD
1	FLO1 - BOD 2'	6/14/21	1520	2			X			X				X	X	X	X	X		PH, SAR, EC by saturated paste
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: 	Date/Time: 6/14/21 1750	Received by: Tasman's Lock Box	Date/Time: 6/14/21 1750	Turn Around Time (Check) ___ Same Day 72 hours ___ 24 hours <input checked="" type="checkbox"/> Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: 15 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 6/14/21 1750	Received by: 	Date/Time: 6/14/21 1750		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

2106271

Sample Receipt Checklist

S2 Work Order _____

Client: Noble / Tasman Client Project ID: 5 Rivers K16-17

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>15</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

[Signature]
Signature of Custodian

6/14/21
Date/Time



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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/12/21 16:16

FL01-B@2'
2106271-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEF0438	06/21/21	06/22/21	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: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEF0439	06/21/21	06/22/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.6 %	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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/12/21 16:16

FL01-B@2'
2106271-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEG0100	07/07/21	07/09/21	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: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		56.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		71.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0274	0.0100	mg/L	1	BEF0463	06/22/21	06/23/21	EPA 6020B	

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

Date Sampled: **06/14/21 15:20**

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
07/12/21 16:16

FL01-B@2'
2106271-01 (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	29.0	0.0541	mg/L dry	1	BEF0405	06/18/21	06/22/21	EPA 6020B	
Magnesium	2.59	0.0541	"	"	"	"	"	"	
Sodium	39.7	0.0541	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.90	0.00100	units	1	BEF0488	06/23/21	06/23/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.4		%	1	BEF0443	06/21/21	06/22/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.470	0.0100	mmhos/cm	1	BEF0427	06/21/21	06/21/21	EPA 120.1	

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

Date Sampled: **06/14/21 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.79		pH Units	1	BEF0426	06/21/21	06/21/21	EPA 9045D	

Summit Scientific

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

Project: Noble - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/12/21 16:16

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEF0438 - EPA 5030 Soil MS

Blank (BEF0438-BLK1)

Prepared: 06/21/21 Analyzed: 06/22/21

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0228		"	0.0400		57.0	23-173			
<i>Surrogate: Toluene-d8</i>	0.0507		"	0.0400		127	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0414		"	0.0400		104	21-167			

LCS (BEF0438-BS1)

Prepared: 06/21/21 Analyzed: 06/22/21

Benzene	0.0943	0.0020	mg/kg	0.100		94.3	70-130			
Toluene	0.0895	0.0050	"	0.100		89.5	70-130			
Ethylbenzene	0.0950	0.0050	"	0.100		95.0	70-130			
m,p-Xylene	0.194	0.010	"	0.200		96.9	70-130			
o-Xylene	0.0954	0.0050	"	0.100		95.4	70-130			
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100		102	70-130			
1,3,5-Trimethylbenzene	0.102	0.0050	"	0.100		102	70-130			
Naphthalene	0.0871	0.0038	"	0.100		87.1	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0262		"	0.0400		65.6	23-173			
<i>Surrogate: Toluene-d8</i>	0.0448		"	0.0400		112	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0407		"	0.0400		102	21-167			

Matrix Spike (BEF0438-MS1)

Source: 2106271-01

Prepared: 06/21/21 Analyzed: 06/22/21

Benzene	0.0987	0.0020	mg/kg	0.100	ND	98.7	70-130			
Toluene	0.0862	0.0050	"	0.100	ND	86.2	70-130			
Ethylbenzene	0.0919	0.0050	"	0.100	ND	91.9	70-130			
m,p-Xylene	0.184	0.010	"	0.200	ND	92.1	70-130			
o-Xylene	0.0921	0.0050	"	0.100	ND	92.1	70-130			
1,2,4-Trimethylbenzene	0.0989	0.0050	"	0.100	ND	98.9	70-130			
1,3,5-Trimethylbenzene	0.0944	0.0050	"	0.100	ND	94.4	70-130			
Naphthalene	0.0977	0.0038	"	0.100	ND	97.7	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0282		"	0.0400		70.5	23-173			
<i>Surrogate: Toluene-d8</i>	0.0403		"	0.0400		101	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0389		"	0.0400		97.2	21-167			

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
07/12/21 16:16

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEF0438 - EPA 5030 Soil MS

Matrix Spike Dup (BEF0438-MSD1)	Source: 2106271-01			Prepared: 06/21/21 Analyzed: 06/22/21						
Benzene	0.0957	0.0020	mg/kg	0.100	ND	95.7	70-130	3.09	30	
Toluene	0.0809	0.0050	"	0.100	ND	80.9	70-130	6.28	30	
Ethylbenzene	0.0916	0.0050	"	0.100	ND	91.6	70-130	0.327	30	
m,p-Xylene	0.184	0.010	"	0.200	ND	92.1	70-130	0.0489	30	
o-Xylene	0.0923	0.0050	"	0.100	ND	92.3	70-130	0.260	30	
1,2,4-Trimethylbenzene	0.0985	0.0050	"	0.100	ND	98.5	70-130	0.486	30	
1,3,5-Trimethylbenzene	0.0977	0.0050	"	0.100	ND	97.7	70-130	3.37	30	
Naphthalene	0.0919	0.0038	"	0.100	ND	91.9	70-130	6.08	30	
Surrogate: 1,2-Dichloroethane-d4	0.0300		"	0.0400		75.1	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.0	21-167			

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
07/12/21 16:16

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEF0439 - EPA 3550A

Blank (BEF0439-BLK1)

Prepared: 06/21/21 Analyzed: 06/22/21

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

LCS (BEF0439-BS1)

Prepared: 06/21/21 Analyzed: 06/22/21

C10-C28 (DRO)	486	50	mg/kg	500	97.2	70-130				
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Matrix Spike (BEF0439-MS1)

Source: 2106271-01

Prepared: 06/21/21 Analyzed: 06/22/21

C10-C28 (DRO)	495	50	mg/kg	500	14.1	96.2	70-130			
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Matrix Spike Dup (BEF0439-MSD1)

Source: 2106271-01

Prepared: 06/21/21 Analyzed: 06/22/21

C10-C28 (DRO)	478	50	mg/kg	500	14.1	92.7	70-130	3.58	20	
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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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/12/21 16:16

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEG0100 - EPA 5030 Soil MS

Blank (BEG0100-BLK1)

Prepared & Analyzed: 07/07/21

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0154</i>		"	<i>0.0333</i>		<i>46.1</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0177</i>		"	<i>0.0333</i>		<i>53.2</i>	<i>40-150</i>			

LCS (BEG0100-BS1)

Prepared & Analyzed: 07/07/21

Acenaphthene	0.0300	0.00500	mg/kg	0.0333		89.9	31-137			
Anthracene	0.0294	0.00500	"	0.0333		88.2	30-120			
Benzo (a) anthracene	0.0283	0.00500	"	0.0333		85.0	30-120			
Benzo (a) pyrene	0.0292	0.00500	"	0.0333		87.6	30-120			
Benzo (b) fluoranthene	0.0241	0.00500	"	0.0333		72.2	30-120			
Benzo (k) fluoranthene	0.0245	0.00500	"	0.0333		73.6	30-120			
Chrysene	0.0290	0.00500	"	0.0333		86.9	30-120			
Dibenz (a,h) anthracene	0.0176	0.00500	"	0.0333		52.7	30-120			
Fluoranthene	0.0315	0.00500	"	0.0333		94.5	30-120			
Fluorene	0.0310	0.00500	"	0.0333		93.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0155	0.00500	"	0.0333		46.6	30-120			
Pyrene	0.0317	0.00500	"	0.0333		95.2	35-142			
1-Methylnaphthalene	0.0308	0.00500	"	0.0333		92.3	35-142			
2-Methylnaphthalene	0.0312	0.00500	"	0.0333		93.5	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0308</i>		"	<i>0.0333</i>		<i>92.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0309</i>		"	<i>0.0333</i>		<i>92.8</i>	<i>40-150</i>			

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
07/12/21 16:16

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEG0100 - EPA 5030 Soil MS

Matrix Spike (BEG0100-MS1)	Source: 2106227-08			Prepared & Analyzed: 07/07/21						
Acenaphthene	0.0224	0.00500	mg/kg	0.0333	ND	67.2	31-137			
Anthracene	0.0230	0.00500	"	0.0333	ND	69.1	30-120			
Benzo (a) anthracene	0.0226	0.00500	"	0.0333	ND	67.8	30-120			
Benzo (a) pyrene	0.0220	0.00500	"	0.0333	ND	66.0	30-120			
Benzo (b) fluoranthene	0.0274	0.00500	"	0.0333	ND	82.3	30-120			
Benzo (k) fluoranthene	0.0299	0.00500	"	0.0333	ND	89.8	30-120			
Chrysene	0.0248	0.00500	"	0.0333	ND	74.3	30-120			
Dibenz (a,h) anthracene	0.0133	0.00500	"	0.0333	ND	40.0	30-120			
Fluoranthene	0.0223	0.00500	"	0.0333	ND	66.8	30-120			
Fluorene	0.0232	0.00500	"	0.0333	ND	69.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0124	0.00500	"	0.0333	ND	37.1	30-120			
Pyrene	0.0280	0.00500	"	0.0333	ND	84.1	35-142			
1-Methylnaphthalene	0.0229	0.00500	"	0.0333	ND	68.7	15-130			
2-Methylnaphthalene	0.0235	0.00500	"	0.0333	ND	70.6	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0443</i>		<i>"</i>	<i>0.0333</i>		<i>133</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0392</i>		<i>"</i>	<i>0.0333</i>		<i>117</i>	<i>40-150</i>			

Matrix Spike Dup (BEG0100-MSD1)	Source: 2106227-08			Prepared & Analyzed: 07/07/21						
Acenaphthene	0.0252	0.00500	mg/kg	0.0333	ND	75.7	31-137	11.9	30	
Anthracene	0.0278	0.00500	"	0.0333	ND	83.3	30-120	18.7	30	
Benzo (a) anthracene	0.0273	0.00500	"	0.0333	ND	81.8	30-120	18.7	30	
Benzo (a) pyrene	0.0253	0.00500	"	0.0333	ND	75.9	30-120	14.1	30	
Benzo (b) fluoranthene	0.0323	0.00500	"	0.0333	ND	96.9	30-120	16.4	30	
Benzo (k) fluoranthene	0.0344	0.00500	"	0.0333	ND	103	30-120	14.0	30	
Chrysene	0.0297	0.00500	"	0.0333	ND	89.0	30-120	17.9	30	
Dibenz (a,h) anthracene	0.0154	0.00500	"	0.0333	ND	46.2	30-120	14.4	30	
Fluoranthene	0.0236	0.00500	"	0.0333	ND	70.9	30-120	5.93	30	
Fluorene	0.0264	0.00500	"	0.0333	ND	79.2	30-120	13.1	30	
Indeno (1,2,3-cd) pyrene	0.0136	0.00500	"	0.0333	ND	40.7	30-120	9.40	30	
Pyrene	0.0340	0.00500	"	0.0333	ND	102	35-142	19.2	30	
1-Methylnaphthalene	0.0259	0.00500	"	0.0333	ND	77.6	15-130	12.2	50	
2-Methylnaphthalene	0.0268	0.00500	"	0.0333	ND	80.5	15-130	13.1	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0475</i>		<i>"</i>	<i>0.0333</i>		<i>143</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0410</i>		<i>"</i>	<i>0.0333</i>		<i>123</i>	<i>40-150</i>			

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/12/21 16:16

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

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

Batch BEF0463 - EPA 3050B

Blank (BEF0463-BLK1)

Prepared: 06/22/21 Analyzed: 06/23/21

Boron ND 0.0100 mg/L

LCS (BEF0463-BS1)

Prepared: 06/22/21 Analyzed: 06/23/21

Boron 5.04 0.0100 mg/L 5.00 101 80-120

Duplicate (BEF0463-DUP1)

Source: 2106263-01

Prepared: 06/22/21 Analyzed: 06/23/21

Boron 0.529 0.0100 mg/L 0.535 0.969 20

Matrix Spike (BEF0463-MS1)

Source: 2106263-01

Prepared: 06/22/21 Analyzed: 06/23/21

Boron 5.31 0.0100 mg/L 5.00 0.535 95.6 75-125

Matrix Spike Dup (BEF0463-MSD1)

Source: 2106263-01

Prepared: 06/22/21 Analyzed: 06/23/21

Boron 5.58 0.0100 mg/L 5.00 0.535 101 75-125 4.90 25

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/12/21 16:16

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

Summit Scientific

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

Batch BEF0405 - General Preparation

Blank (BEF0405-BLK1)

Prepared: 06/18/21 Analyzed: 06/21/21

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

LCS (BEF0405-BS1)

Prepared: 06/18/21 Analyzed: 06/21/21

Calcium	5.43	0.0500	mg/L wet	5.00		109	70-130			
Magnesium	5.64	0.0500	"	5.00		113	70-130			
Sodium	5.25	0.0500	"	5.00		105	70-130			

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 - 5 Rivers K16-17

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 07/12/21 16:16

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

Summit Scientific

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

Batch BEF0443 - General Preparation

Duplicate (BEF0443-DUP1)	Source: 2106268-01		Prepared: 06/21/21 Analyzed: 06/22/21		
% Solids	98.2	%	98.1	0.0887	20

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/12/21 16:16

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

Summit Scientific

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

Batch BEF0427 - General Preparation

Blank (BEF0427-BLK1)

Prepared & Analyzed: 06/21/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEF0427-BS1)

Prepared & Analyzed: 06/21/21

Specific Conductance (EC) 0.142 0.0100 mmhos/cm 0.150 94.9 90-110

Duplicate (BEF0427-DUP1)

Source: 2106261-02

Prepared & Analyzed: 06/21/21

Specific Conductance (EC) 1.74 0.0100 mmhos/cm 1.74 0.00 20

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Brun

Reported:
07/12/21 16:16

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

Summit Scientific

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

Batch BEF0426 - General Preparation

LCS (BEF0426-BS1)

Prepared & Analyzed: 06/21/21

pH 9.24 pH Units 9.21 100 95-105

Duplicate (BEF0426-DUP1)

Source: 2106261-02

Prepared & Analyzed: 06/21/21

pH 8.12 pH Units 8.11 0.123 20

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 - 5 Rivers K16-17

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
07/12/21 16:16

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

August 16, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

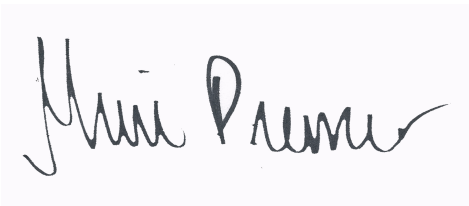
Broomfield, CO 80020

RE: Noble - 5 Rivers K16-17

Work Order #2108150

Enclosed are the results of analyses for samples received by Summit Scientific on 08/10/21 17:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury
President



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

Project: Noble - 5 Rivers K16-17

Project Number: RC #425771766 Task: 247037

Project Manager: Brandon Bruns

Reported:
08/16/21 16:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BG01@2'	2108150-01	Soil	08/10/21 10:30	08/10/21 17:50
BG02@6'	2108150-02	Soil	08/10/21 11:00	08/10/21 17:50

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.

2108150

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Jacob Evans
 Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
 City/State/Zip: Broomfield / CO/ 80020
 Phone: 303-487-1228 Project Name: 5 Rivers K16-17
 Sampler Name: Daniel Qua Project Number: RC#: 425771766 Task: 247037

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	\$260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS		HOLD	pH
1	BG0122'	8/10/21	1030	1			X			X										X	pH by saturated paste
2	BG0226'	8/10/21	1100	1			X			X										X	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <i>DK</i>	Date/Time: 8/10/21 1500	Received by: Tasman's Lock Box	Date/Time: 8/10/21 1500	Turn Around Time (Check) <input type="checkbox"/> Same Day 72 hours <input checked="" type="checkbox"/> 24 hours Standard <input type="checkbox"/> 48 hours Sample Integrity: Temperature Upon Receipt: 6 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 8/10/21 1750	Received by: <i>Will Helin</i>	Date/Time: 8/10/21 1750		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2108150

Client: Noble/TASMAN Client Project ID: 5 Rivers K16-17

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

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

Temp (°C) 6

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.	✓			on ice
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽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⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽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, H2SO4, NaOH, HNO3, ect			✓	
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.

NG
Custodian Printed Name or Initials

Will Gali
Signature of Custodian

8/10/21
Date/Time



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

Project: Noble - 5 Rivers K16-17

Project Number: RC #425771766 Task: 247037
 Project Manager: Brandon Bruns

Reported:
 08/16/21 16:00

BG01@2'
2108150-01 (Soil)

Summit Scientific

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

Date Sampled: **08/10/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.63		pH Units	1	BEH0167	08/12/21	08/12/21	EPA 9045D	

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 - 5 Rivers K16-17

Project Number: RC #425771766 Task: 247037
 Project Manager: Brandon Bruns

Reported:
 08/16/21 16:00

BG02@6'
2108150-02 (Soil)

Summit Scientific

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

Date Sampled: **08/10/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.92		pH Units	1	BEH0167	08/12/21	08/12/21	EPA 9045D	

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 - 5 Rivers K16-17

Project Number: RC #425771766 Task: 247037
Project Manager: Brandon Bruns

Reported:
08/16/21 16:00

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

Summit Scientific

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

Batch BEH0167 - General Preparation

LCS (BEH0167-BS1)

Prepared & Analyzed: 08/12/21

pH	9.18	pH Units	9.21	99.7	95-105
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Duplicate (BEH0167-DUP1)

Source: 2108010-05

Prepared & Analyzed: 08/12/21

pH	7.98	pH Units	7.97	0.125	20
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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 - 5 Rivers K16-17

Project Number: RC #425771766 Task: 247037
Project Manager: Brandon Brunns

Reported:
08/16/21 16:00

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