

**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - SLW RANCH B12-65-1HN**

Soil Sample ID	Date	PID Reading (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude	Longitude	PDOP
SS01@2"	02/06/23	7.2	No Staining	HC Odor	Lab	40.4113460	-104.5022810	3.6
SS02@2"	02/06/23	5.1	No Staining	HC Odor	Lab	40.4113670	-104.5022920	2.2
FS01@8"	02/07/23	11.9	No Staining	Slight HC Odor	Lab	40.4113520	-104.5022810	1.2
SS03@6"	02/09/23	2.9	No Staining	No Odor	Lab	40.41135934	-104.5022893	1.0
SS04@6"	02/09/23	0.0	No Staining	No Odor	Lab	40.41136143	-104.5022712	0.9
SS05@6"	02/09/23	4.3	No Staining	No Odor	Lab	40.41134611	-104.5022674	1.0
SS06@6"	02/09/23	2.3	No Staining	No Odor	Lab	40.41134479	-104.5022877	1.0

Notes:

PID = Photo-ionization detector

ppm = parts per million

PDOP = Position dilution of precision

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. - SLW RANCH B12-65-1HN

Soil Sample ID	Date	<sup>1</sup> 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 <sup>2</sup>		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 <sup>2,3</sup>		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	
SS01@2"	02/06/23	0.074	0.24	0.044	0.44	0.20	0.077	0.028	12	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00847	<0.00500	<0.00500	0.0103	<0.00500	<0.00500	0.0398	0.0973	
SS02@2"	02/06/23	0.057	0.11	0.011	0.12	0.036	0.013	0.0094	1.3	<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	0.00574	0.0146	
FS01@8"	02/07/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	170	<50	<0.00500	<0.00500	<0.00500	<0.00500	0.00573	<0.00500	0.0216	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0159	0.00949
SS03@6"	02/09/23	<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	<0.00500
SS04@6"	02/09/23	<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	<0.00500
SS05@6"	02/09/23	<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	<0.00500
SS06@6"	02/09/23	<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	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL <sup>2</sup>		6 - 8.3	<6	<4mmhos/cm	2
SS01@2"	02/06/23	7.82	8.01	2.54	1.66
SS02@2"	02/06/23	8.35	44.3	3.58	1.72
FS01@8"	02/07/23	8.21	39.6	2.95	0.733
SS03@6"	02/09/23	8.04	16.0	2.82	0.935
SS04@6"	02/09/23	8.02	10.9	1.59	0.771
SS05@6"	02/09/23	8.90	4.71	1.16	0.779
SS06@6"	02/09/23	7.90	8.84	1.58	1.14

Soil Sample ID	Date	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL <sup>2</sup>		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
SS01@2"	02/06/23	1.94	106	0.173	<0.30	4.42	3.65	2.96	<0.260	0.0242	16.6
SS02@2"	02/06/23	4.87	75.8	0.302	<0.30	4.88	7.61	3.11	<0.260	0.0163	11.1
FS01@8"	02/07/23	2.15	57.5	0.0616	<0.30	5.74	2.84	4.03	0.426	0.0114	15.3
SS03@6"	02/09/23	1.80	44.0	0.0474	<0.30	5.21	2.38	3.59	0.396	0.0118	13.3
SS04@6"	02/09/23	1.55	39.7	0.0441	<0.30	4.89	2.23	3.28	0.363	0.0120	13.2
SS05@6"	02/09/23	1.97	42.8	0.0592	<0.30	5.58	2.85	3.96	0.449	0.0136	16.2
SS06@6"	02/09/23	1.86	47.7	0.0612	<0.30	5.58	2.85	3.94	0.296	0.0165	15.9

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) = Benzoanthracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

Benzo(a) = Benzopyrene

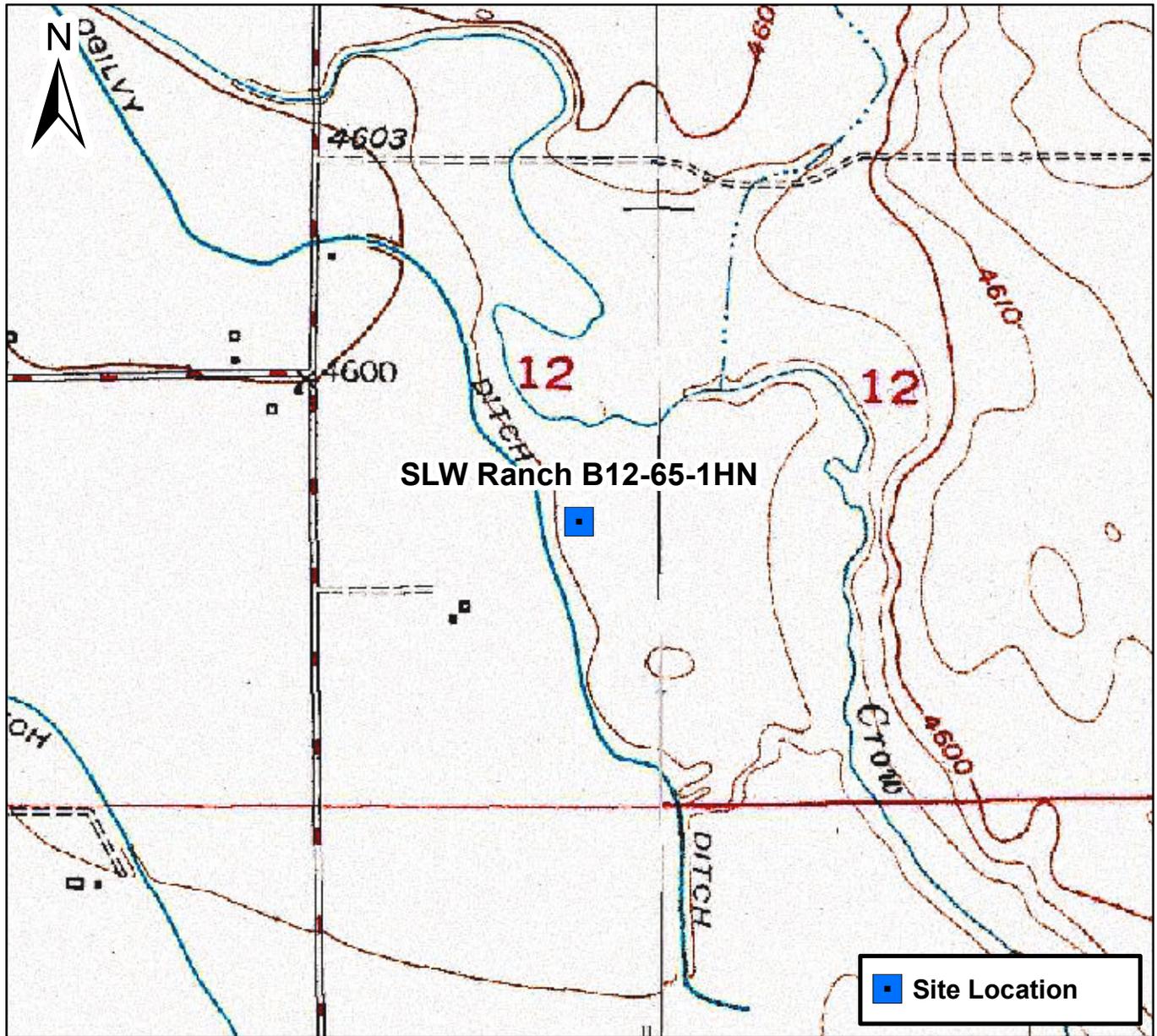
A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene

RP = Results Pending



0 1,000 2,000 Feet

### Figure 1

Site Location Map  
 SLW Ranch B12-65-1HN  
 NESW S12 T5N R64W  
 Weld County, Colorado





**SS03@6"**  
(02/09/2023)

PID = 2.9 ppm  
 SAR = **16.0**  
 Arsenic = **1.80** mg/kg  
 Selenium = **0.396** mg/kg

**SS02@2"**  
(02/06/2023)

PID = 5.1 ppm  
 Benzene = **0.057** mg/kg  
 1,2,4-TMB = **0.036** mg/kg  
 1,3,5-TMB = **0.013** mg/kg  
 Naphthalene = **0.0094** mg/kg  
 pH = **8.35**  
 SAR = **44.3**  
 Arsenic = **4.87** mg/kg

**SS04@6"**  
(02/09/2023)

PID = 0.0 ppm  
 SAR = **10.9**  
 Arsenic = **1.55** mg/kg  
 Selenium = **0.363** mg/kg

**FS01@8"**  
(02/07/2023)

PID = 11.9 ppm  
 1-Methylnaphthalene = **0.0159** mg/kg  
 SAR = **39.6**  
 Arsenic = **2.15** mg/kg  
 Selenium = **0.426** mg/kg

**SS05@6"**  
(02/09/2023)

PID = 4.3 ppm  
 pH = 8.90  
 Arsenic = **1.97** mg/kg  
 Selenium = **0.449** mg/kg

**SS06@6"**  
(02/09/2023)

PID = 2.3 ppm  
 SAR = **8.84**  
 Arsenic = **1.86** mg/kg  
 Selenium = **0.296** mg/kg

**SS01@2"**  
(02/06/2023)

PID = 7.2 ppm  
 Benzene = **0.074** mg/kg  
 1,2,4-TMB = **0.20** mg/kg  
 1,3,5-TMB = **0.077** mg/kg  
 Naphthalene = **0.028** mg/kg  
 1-Methylnaphthalene = **0.0398** mg/kg  
 2-Methylnaphthalene = **0.0973** mg/kg  
 SAR = **8.01**  
 Arsenic = **1.94** mg/kg  
 Barium = **106** mg/kg

**Legend**

- Release Area Extent (Collected via Trimble GPS)
- - - Excavation Extent
- +

**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  
 ppm – Parts per million  
 TMB - Trimethylbenzene

0 ft. 10 ft. 20 ft.

Image Source: Google Earth; Google 2020

DATE:	02/09/2023
DESIGNED BY:	JW
DRAWN BY:	AE



**TASMAN**  
GEOSCIENCES

Tasman Geosciences, Inc.  
 6855 W 119<sup>th</sup> Avenue  
 Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
**SLW Ranch B12-65-1HN**  
 NESW, Section 12, Township 5 North, Range 64 West  
 Weld County, Colorado

Soil Analytical Results Map  
 (02/06/2023, 02/07/2023  
 & 02/09/2023)

FIGURE  
2

Photographic Log



<b>Equipment ID:</b> SS01@2'		<b>Equipment Type:</b> Separator	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>			

<b>Equipment ID:</b>		<b>Equipment Type:</b> Separator	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>			

**Photographic Log**


<b>Equipment ID:</b> FS01@8*		<b>Equipment Type:</b>		<b>Equipment ID:</b>		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>			

Photographic Log



<b>Equipment ID:</b> SS03		<b>Equipment Type:</b>			<b>Equipment ID:</b> SS04		<b>Equipment Type:</b>		
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>			<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		
<b>Notes/Conditions:</b>					<b>Notes/Conditions:</b>				

**Photographic Log**


<b>Equipment ID:</b> SS05		<b>Equipment Type:</b>		<b>Equipment ID:</b> SS06		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>			

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

February 07, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - SLW Ranch B12-65-1HN

Work Order #2302085

Enclosed are the results of analyses for samples received by Summit Scientific on 02/06/23 17:56. 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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/07/23 06:32

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@2"	2302085-01	Soil	02/06/23 11:05	02/06/23 17:56
SS02@2"	2302085-02	Soil	02/06/23 11:10	02/06/23 17:56

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.*

2302085

# Summit Scientific

S<sub>2</sub>

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

Page | of |

Client: Noble / Tasman Project Manager: Jacob Whritenour  
Address: 6855 W. 119th Ave E-Mail: Jwhritenaur@tasman-geo.com  
City/State/Zip: Broomfield/ CO/ 80020  
Phone: 503-915-3046 Project Name: SLW Ranch B12-65-1HN  
Sampler Name: Martin Medeiros 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	VOC-915	TPH-915	PAH-915	Metals-915	Boron-HWS	PH, EC, SAR			
1	SS02@2"	2/6/23	11:05	2			X			X				+	+	+	+	+	+	PH, EC, SAR by Saturated paste	
2	SS02@2"	2/6/23	11:10	2			X			X				+	+	+	+	+	+		
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <u>Martin Medeiros</u> <u>Martin Medeiros</u>	Date/Time: <u>2/6/23</u> <u>14:30</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time:	Turn Around Time (Check)	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>2/6/23</u> <u>17:56</u>	Received by: <u>[Signature]</u>	Date/Time: <u>17:56</u>	Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
				48 hours <input type="checkbox"/>	
				Sample Integrity:	
				Temperature Upon Receipt: <u>6.9</u>	
				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2302085

Client: Noble Frisman

Client Project ID: SLW Ranch B12-GS-1HN

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

Airbill #:

Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C)

6.9

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same day
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<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)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> 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 type="checkbox"/>	

Additional Comments (if any):

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

Custodian Printed Name

Date/Time

2-6-23



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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/07/23 06:32

**SS01@2"**  
**2302085-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/06/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>0.074</b>	0.0020		mg/kg	1	BGB0144	02/06/23	02/06/23	EPA 8260B	
<b>Toluene</b>	<b>0.24</b>	0.0050		"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.044</b>	0.0050		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.44</b>	0.010		"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.20</b>	0.0050		"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>0.077</b>	0.0050		"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.028</b>	0.0038		"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>12</b>	0.50		"	"	"	"	"	"	

Date Sampled: **02/06/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0436	109 %		50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0434	108 %		50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0521	130 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGB0145	02/06/23	02/06/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **02/06/23 11:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: o-Terphenyl</i>	12.7	101 %		30-150		"	"	"	"	

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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/07/23 06:32

**SS02@2"**  
**2302085-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/06/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.057	0.0020	mg/kg	1	BGB0144	02/06/23	02/06/23	EPA 8260B	
Toluene	0.11	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.011	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.12	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.036	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.013	0.0050	"	"	"	"	"	"	
Naphthalene	0.0094	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.3	0.50	"	"	"	"	"	"	

Date Sampled: **02/06/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0412	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0442	111 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0466	117 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGB0145	02/06/23	02/06/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **02/06/23 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.1	81.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/07/23 06:32

### 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 BGB0144 - EPA 5030 Soil MS

##### Blank (BGB0144-BLK1)

Prepared & Analyzed: 02/06/23

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	0.0411		"	0.0400		103	50-150				
Surrogate: Toluene-d8	0.0449		"	0.0400		112	50-150				
Surrogate: 4-Bromofluorobenzene	0.0478		"	0.0400		119	50-150				

##### LCS (BGB0144-BS1)

Prepared & Analyzed: 02/06/23

Benzene	0.0882	0.0020	mg/kg	0.100		88.2	70-130				
Toluene	0.114	0.0050	"	0.100		114	70-130				
Ethylbenzene	0.103	0.0050	"	0.100		103	70-130				
m,p-Xylene	0.219	0.010	"	0.200		109	70-130				
o-Xylene	0.0946	0.0050	"	0.100		94.6	70-130				
1,2,4-Trimethylbenzene	0.116	0.0050	"	0.100		116	70-130				
1,3,5-Trimethylbenzene	0.115	0.0050	"	0.100		115	70-130				
Naphthalene	0.117	0.0038	"	0.100		117	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0400		104	50-150				
Surrogate: Toluene-d8	0.0449		"	0.0400		112	50-150				
Surrogate: 4-Bromofluorobenzene	0.0448		"	0.0400		112	50-150				

##### Matrix Spike (BGB0144-MS1)

Source: 2302074-01

Prepared & Analyzed: 02/06/23

Benzene	0.0855	0.0020	mg/kg	0.100	ND	85.5	70-130				
Toluene	0.113	0.0050	"	0.100	ND	113	70-130				
Ethylbenzene	0.0986	0.0050	"	0.100	ND	98.6	70-130				
m,p-Xylene	0.216	0.010	"	0.200	ND	108	70-130				
o-Xylene	0.0942	0.0050	"	0.100	ND	94.2	70-130				
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130				
1,3,5-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130				
Naphthalene	0.105	0.0038	"	0.100	ND	105	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0433		"	0.0400		108	50-150				
Surrogate: Toluene-d8	0.0454		"	0.0400		114	50-150				
Surrogate: 4-Bromofluorobenzene	0.0448		"	0.0400		112	50-150				

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/07/23 06:32

**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 BGB0144 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGB0144-MSD1)</b>	<b>Source: 2302074-01</b>			<b>Prepared &amp; Analyzed: 02/06/23</b>						
Benzene	0.0845	0.0020	mg/kg	0.100	ND	84.5	70-130	1.24	30	
Toluene	0.114	0.0050	"	0.100	ND	114	70-130	0.953	30	
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130	4.20	30	
m,p-Xylene	0.221	0.010	"	0.200	ND	110	70-130	2.24	30	
o-Xylene	0.0947	0.0050	"	0.100	ND	94.7	70-130	0.540	30	
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130	0.102	30	
1,3,5-Trimethylbenzene	0.116	0.0050	"	0.100	ND	116	70-130	1.89	30	
Naphthalene	0.0976	0.0038	"	0.100	ND	97.6	70-130	7.17	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0421</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0455</i>		<i>"</i>	<i>0.0400</i>		<i>114</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0451</i>		<i>"</i>	<i>0.0400</i>		<i>113</i>	<i>50-150</i>			

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/07/23 06:32

**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 BGB0145 - EPA 3550A**

**Blank (BGB0145-BLK1)**

Prepared: 02/06/23 Analyzed: 02/07/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.8		"	12.5		111		30-150			

**LCS (BGB0145-BS1)**

Prepared: 02/06/23 Analyzed: 02/07/23

C10-C28 (DRO)	512	50	mg/kg	500		102		70-130			
Surrogate: <i>o</i> -Terphenyl	12.4		"	12.5		99.0		30-150			

**Matrix Spike (BGB0145-MS1)**

Source: 2302074-01

Prepared: 02/06/23 Analyzed: 02/07/23

C10-C28 (DRO)	486	50	mg/kg	500	20.5	93.1		70-130			
Surrogate: <i>o</i> -Terphenyl	11.8		"	12.5		94.5		30-150			

**Matrix Spike Dup (BGB0145-MSD1)**

Source: 2302074-01

Prepared: 02/06/23 Analyzed: 02/07/23

C10-C28 (DRO)	474	50	mg/kg	500	20.5	90.7		70-130	2.46	20	
Surrogate: <i>o</i> -Terphenyl	12.2		"	12.5		98.0		30-150			

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/07/23 06:32

### 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

February 08, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - SLW Ranch B12-65-1HN

Work Order #2302112

Enclosed are the results of analyses for samples received by Summit Scientific on 02/07/23 17:57. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

DRAFT REPORT

DATA SUBJECT TO CHANGE



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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/08/23 06:53

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@8"	2302112-01	Soil	02/07/23 13:13	02/07/23 17:57

---

DRAFT REPORT

*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
2302112	

		<b>Send Data To:</b>	<b>Send Invoice To:</b>
Client: Noble/Tasman	Project Manager: Jake Whritenour		Company: <i>Chevron</i>
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: <i>SLW Ranch B12-65-1HN</i>
City/State/Zip: Broomfield/CO/ 80020			AFE#:
Phone: 602-881-5716	Project Name: <i>SLW Ranch B12-65-1HN</i>		PO/Billing Codes:
Sampler Name: Dennis Gray	Project Number:		Contact: <i>Dan Peterson</i>

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD	
1	F501 @ 8"	2-7-23	1313	3			X			X		X	X	X	X	X	X	X		SAR, EC, pH by saturated paste
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				

Relinquished by: <i>Dennis Gray</i>	Date/Time: <i>2-7-23 1530</i>	Received by: <b>Tasman Lock Box</b>	Date/Time: <i>2-7-23 1530</i>	TAT Business Days	Field DO	Notes:
				Same Day <input checked="" type="checkbox"/>	Field EC	
Relinquished by: <i>Tasman Lock Box 1787</i>	Date/Time: <i>2723 1787</i>	Received by: <i>[Signature]</i>	Date/Time: <i>2723 1787</i>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: <i>8.3</i>	Corrected Temperature: <i>0</i>	IR gun #: <i>1</i>	HNO3 lot #:			

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2302112

Client: Noble/Tosman Client Project ID: SLW Ranch

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

[ ] [ ] [ ] [ ] [ ]

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

Temp (°C) 8.3

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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
If custody seals are present, are they intact? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same day
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<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"/>	
Is the COC properly relinquished by the client w/ date and time recorded? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? (1) Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

Custodian Printed Name

Date/Time

2-7-23



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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/08/23 06:53

**FS01@8"**  
**2302112-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/07/23 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGB0182	02/07/23	02/08/23	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: **02/07/23 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0384	95.9 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0433	108 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/07/23 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>170</b>	50	mg/kg	1	BGB0183	02/07/23	02/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **02/07/23 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	16.7	133 %	30-150		"	"	"	"	

DRAFT REPORT

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/08/23 06:53

### 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 BGB0182 - EPA 5030 Soil MS

##### Blank (BGB0182-BLK1)

Prepared: 02/07/23 Analyzed: 02/08/23

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0447		"	0.0400		112	50-150				
<i>Surrogate: Toluene-d8</i>	0.0470		"	0.0400		118	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0494		"	0.0400		123	50-150				

##### LCS (BGB0182-BS1)

Prepared: 02/07/23 Analyzed: 02/08/23

Benzene	0.0869	0.0020	mg/kg	0.100		86.9	70-130				
Toluene	0.0869	0.0050	"	0.100		86.9	70-130				
Ethylbenzene	0.108	0.0050	"	0.100		108	70-130				
m,p-Xylene	0.221	0.010	"	0.200		110	70-130				
o-Xylene	0.103	0.0050	"	0.100		103	70-130				
1,2,4-Trimethylbenzene	0.0972	0.0050	"	0.100		97.2	70-130				
1,3,5-Trimethylbenzene	0.103	0.0050	"	0.100		103	70-130				
Naphthalene	0.0911	0.0038	"	0.100		91.1	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0246		"	0.0400		61.4	50-150				
<i>Surrogate: Toluene-d8</i>	0.0354		"	0.0400		88.5	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0374		"	0.0400		93.5	50-150				

##### Matrix Spike (BGB0182-MS1)

Source: 2302104-01

Prepared: 02/07/23 Analyzed: 02/08/23

Benzene	0.0809	0.0020	mg/kg	0.100	ND	80.9	70-130				
Toluene	0.0727	0.0050	"	0.100	ND	72.7	70-130				
Ethylbenzene	0.0992	0.0050	"	0.100	ND	99.2	70-130				
m,p-Xylene	0.199	0.010	"	0.200	ND	99.4	70-130				
o-Xylene	0.0929	0.0050	"	0.100	ND	92.9	70-130				
1,2,4-Trimethylbenzene	0.0862	0.0050	"	0.100	ND	86.2	70-130				
1,3,5-Trimethylbenzene	0.0889	0.0050	"	0.100	ND	88.9	70-130				
Naphthalene	0.0933	0.0038	"	0.100	ND	93.3	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0238		"	0.0400		59.4	50-150				
<i>Surrogate: Toluene-d8</i>	0.0324		"	0.0400		81.1	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0366		"	0.0400		91.5	50-150				

DRAFT REPORT

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/08/23 06:53

**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 BGB0182 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGB0182-MSD1)</b>	<b>Source: 2302104-01</b>			Prepared: 02/07/23 Analyzed: 02/08/23						
Benzene	0.0796	0.0020	mg/kg	0.100	ND	79.6	70-130	1.53	30	
Toluene	0.0718	0.0050	"	0.100	ND	71.8	70-130	1.16	30	
Ethylbenzene	0.0979	0.0050	"	0.100	ND	97.9	70-130	1.31	30	
m,p-Xylene	0.195	0.010	"	0.200	ND	97.4	70-130	2.07	30	
o-Xylene	0.0916	0.0050	"	0.100	ND	91.6	70-130	1.40	30	
1,2,4-Trimethylbenzene	0.0849	0.0050	"	0.100	ND	84.9	70-130	1.51	30	
1,3,5-Trimethylbenzene	0.0883	0.0050	"	0.100	ND	88.3	70-130	0.643	30	
Naphthalene	0.0923	0.0038	"	0.100	ND	92.3	70-130	1.03	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0239</i>		<i>"</i>	<i>0.0400</i>		<i>59.8</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0326</i>		<i>"</i>	<i>0.0400</i>		<i>81.4</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0362</i>		<i>"</i>	<i>0.0400</i>		<i>90.4</i>	<i>50-150</i>			

DRAFT REPORT

*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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/08/23 06:53

### 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

---

DRAFT REPORT

*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, Colorado 80401

303.277.9310

February 13, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfeld, CO 80020

RE: Noble - SLW Ranch B12-65-1HN

Work Order # 2302194

Enclosed are the results of analyses for samples received by Summit Scientific on 02/09/23 18:00. 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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS03@6"	2302194-01	Soil	02/09/23 12:05	02/09/23 18:00
SS04@6"	2302194-02	Soil	02/09/23 12:10	02/09/23 18:00
SS05@6"	2302194-03	Soil	02/09/23 12:15	02/09/23 18:00
SS06@6"	2302194-04	Soil	02/09/23 12:20	02/09/23 18:00

Summit Scientific

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# SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2302194	

Client: PDC / Tasman		Send Data To: Project Manager: <i>CJ Mark Longhurst Jake Writeenour</i>		Send Invoice To: Company: <i>CJ PDC Energy Noble Energy</i>	
Address: 6855 W 119th Ave		E-Mail: <i>CJ mark.longhurst@PDCE.com</i>		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80220		E-Mail: <i>JWriteenour@Tasman-Geo.com</i>		AFE#:	
Phone: 303-487-1228		Project Name: <i>SLW Ranch B12-55-1HN</i>		PO/Billing Codes:	
Sampler Name: Chase Jonjak		Project Number:		Contact: <i>CJ Mark Longhurst Dan Peterson</i>	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	Metals-915	
1	SS03@5"	2/9/23	1205	3			X			X			X	X	X	X	X	X	
2	SS04@5"	I	1210	I			I			I			I	I	I	I	I	I	
3	SS05@5"	I	1215	I			I			I			I	I	I	I	I	I	
4	SS06@5"	I	1220	I			I			I			I	I	I	I	I	I	
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Relinquished by: <i>Chase J</i>	Date/Time: <i>2/9/23 1446</i>	Received by: <i>Tasman Lockbox</i>	Date/Time: <i>2/9/23 1446</i>	TAT Business Days	Field DO	Notes:
				Same Day	X Field EC	
Relinquished by: <i>Tasman Lockbox</i>	Date/Time: <i>2/9/23 1800</i>	Received by: <i>[Signature]</i>	Date/Time: <i>2/9/23 1800</i>	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: <i>8.3</i>	Corrected Temperature: <i>0</i>	IR gun #:		HNO3 lot #:		

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2302194

Client: Doc Trisman Client Project ID: SLW Ranch

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

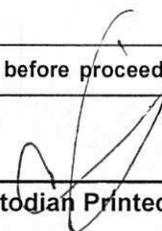
Matrix (Check all that apply) Air  Soil/Solid  Water  Other

Temp (°C)  Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	same day
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> 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):

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

  
Custodian Printed Name

2-9-23  
Date/Time



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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS03@6"**  
**2302194-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGB0281	02/09/23	02/10/23	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: **02/09/23 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		76.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		109 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGB0282	02/09/23	02/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		114 %		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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS03@6"**  
**2302194-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGB0296	02/10/23	02/11/23	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: **02/09/23 12:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		54.7 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		74.6 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.935</b>	0.0100		mg/L	1	BGB0312	02/10/23	02/13/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting Limit	MDL	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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS03@6"**  
**2302194-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.80	0.213	0.180	mg/kg dry	1	BGB0306	02/10/23	02/12/23	EPA 6020B	
Barium	44.0	0.427	0.337	"	"	"	"	"	"	
Cadmium	0.0474	0.213	0.00768	"	"	"	"	"	"	
Copper	5.21	0.427	0.0223	"	"	"	"	"	"	
Lead	2.38	0.213	0.0586	"	"	"	"	"	"	
Nickel	3.59	0.427	0.0651	"	"	"	"	"	"	
Selenium	0.396	0.260	0.175	"	"	"	"	"	"	
Silver	0.0118	0.0213	0.00285	"	"	"	"	"	"	
Zinc	13.3	0.427	0.284	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGB0315	02/10/23	02/10/23	EPA 7196A	

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

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	41.4	0.0534		mg/L dry	1	BGB0285	02/09/23	02/12/23	EPA 6020B	
Magnesium	11.1	0.0534		"	"	"	"	"	"	
Sodium	449	0.0534		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	16.0	0.00100		units	1	BGB0360	02/13/23	02/13/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS03@6"**  
**2302194-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	93.7			%	1	BGB0334	02/12/23	02/12/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	2.82	0.0100		mmhos/cm	1	BGB0317	02/10/23	02/10/23	EPA 120.1	

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

Date Sampled: **02/09/23 12:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.04			pH Units	1	BGB0316	02/10/23	02/10/23	EPA 9045D	

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS04@6"**  
**2302194-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGB0281	02/09/23	02/10/23	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: **02/09/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		80.1 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		110 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGB0282	02/09/23	02/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		115 %		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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS04@6"**  
**2302194-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGB0296	02/10/23	02/11/23	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: **02/09/23 12:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		43.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		76.2 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.771</b>	0.0100		mg/L	1	BGB0312	02/10/23	02/13/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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 - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS04@6"**  
**2302194-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	
Arsenic	1.55	0.214	0.180	mg/kg dry	1	BGB0306	02/10/23	02/12/23	EPA 6020B
Barium	39.7	0.428	0.338	"	"	"	"	"	"
Cadmium	0.0441	0.214	0.00770	"	"	"	"	"	"
Copper	4.89	0.428	0.0224	"	"	"	"	"	"
Lead	2.23	0.214	0.0588	"	"	"	"	"	"
Nickel	3.28	0.428	0.0653	"	"	"	"	"	"
Selenium	0.363	0.260	0.175	"	"	"	"	"	"
Silver	0.0120	0.0214	0.00286	"	"	"	"	"	"
Zinc	13.2	0.428	0.285	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGB0315	02/10/23	02/10/23	EPA 7196A	

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

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.3	0.0535		mg/L dry	1	BGB0285	02/09/23	02/12/23	EPA 6020B	
Magnesium	7.07	0.0535		"	"	"	"	"	"	
Sodium	248	0.0535		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	10.9	0.00100		units	1	BGB0360	02/13/23	02/13/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS04@6"**  
**2302194-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	93.5			%	1	BGB0334	02/12/23	02/12/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.59	0.0100		mmhos/cm	1	BGB0317	02/10/23	02/10/23	EPA 120.1	

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

Date Sampled: **02/09/23 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.02			pH Units	1	BGB0316	02/10/23	02/10/23	EPA 9045D	

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS05@6"**  
**2302194-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGB0281	02/09/23	02/10/23	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: **02/09/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		105 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGB0282	02/09/23	02/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: o-Terphenyl		110 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS05@6"**  
**2302194-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGB0296	02/10/23	02/11/23	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: **02/09/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		52.9 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		72.4 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.779</b>	0.0100		mg/L	1	BGB0312	02/10/23	02/13/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **02/09/23 12:15**

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS05@6"**  
**2302194-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.97	0.215	0.181	mg/kg dry	1	BGB0306	02/10/23	02/12/23	EPA 6020B	
Barium	42.8	0.431	0.340	"	"	"	"	"	"	
Cadmium	0.0592	0.215	0.00775	"	"	"	"	"	"	
Copper	5.58	0.431	0.0225	"	"	"	"	"	"	
Lead	2.85	0.215	0.0592	"	"	"	"	"	"	
Nickel	3.96	0.431	0.0657	"	"	"	"	"	"	
Selenium	0.449	0.260	0.175	"	"	"	"	"	"	
Silver	0.0136	0.0215	0.00288	"	"	"	"	"	"	
Zinc	16.2	0.431	0.286	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGB0315	02/10/23	02/10/23	EPA 7196A	

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

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	260	0.0539		mg/L dry	1	BGB0285	02/09/23	02/12/23	EPA 6020B	
Magnesium	22.5	0.0539		"	"	"	"	"	"	
Sodium	295	0.0539		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.71	0.00100		units	1	BGB0360	02/13/23	02/13/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS05@6"**  
**2302194-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	92.8			%	1	BGB0334	02/12/23	02/12/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.16	0.0100		mmhos/cm	1	BGB0317	02/10/23	02/10/23	EPA 120.1	

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

Date Sampled: **02/09/23 12:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	8.90			pH Units	1	BGB0316	02/10/23	02/10/23	EPA 9045D	

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS06@6"**  
**2302194-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Benzene	ND	0.0020		mg/kg	1	BGB0281	02/09/23	02/10/23	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: **02/09/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Surrogate: 1,2-Dichloroethane-d4		78.2 %		50-150		"	"	"	"	
Surrogate: Toluene-d8		109 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		117 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
C10-C28 (DRO)	ND	50		mg/kg	1	BGB0282	02/09/23	02/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **02/09/23 12:20**

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

**PAH by EPA Method 8270D SIM**

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS06@6"**  
**2302194-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500		mg/kg	1	BGB0296	02/10/23	02/11/23	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: **02/09/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		59.8 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		68.4 %		40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.14</b>	0.0100		mg/L	1	BGB0312	02/10/23	02/13/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **02/09/23 12:20**

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS06@6"**  
**2302194-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.86	0.216	0.182	mg/kg dry	1	BGB0306	02/10/23	02/13/23	EPA 6020B	
Barium	47.7	0.433	0.342	"	"	"	"	"	"	
Cadmium	0.0612	0.216	0.00779	"	"	"	"	"	"	
Copper	5.58	0.433	0.0226	"	"	"	"	"	"	
Lead	2.85	0.216	0.0594	"	"	"	"	"	"	
Nickel	3.94	0.433	0.0660	"	"	"	"	"	"	
Selenium	0.296	0.260	0.175	"	"	"	"	"	"	
Silver	0.0165	0.0216	0.00289	"	"	"	"	"	"	
Zinc	15.9	0.433	0.288	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGB0315	02/10/23	02/10/23	EPA 7196A	

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

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	39.7	0.0541		mg/L dry	1	BGB0285	02/09/23	02/12/23	EPA 6020B	
Magnesium	6.78	0.0541		"	"	"	"	"	"	
Sodium	229	0.0541		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	8.84	0.00100		units	1	BGB0360	02/13/23	02/13/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**SS06@6"**  
**2302194-04 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
% Solids	92.5			%	1	BGB0334	02/12/23	02/12/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
Specific Conductance (EC)	1.58	0.0100		mmhos/cm	1	BGB0317	02/10/23	02/10/23	EPA 120.1	

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

Date Sampled: **02/09/23 12:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	MDL							
pH	7.90			pH Units	1	BGB0316	02/10/23	02/10/23	EPA 9045D	

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

Reported:  
02/13/23 16:30

### 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 BGB0281 - EPA 5030 Soil MS

##### Blank (BGB0281-BLK1)

Prepared: 02/09/23 Analyzed: 02/10/23

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	0.0369		"	0.0400		92.2	50-150				
Surrogate: Toluene-d8	0.0404		"	0.0400		101	50-150				
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0400		91.5	50-150				

##### LCS (BGB0281-BS1)

Prepared: 02/09/23 Analyzed: 02/10/23

Benzene	0.0835	0.0020	mg/kg	0.100		83.5	70-130				
Toluene	0.0800	0.0050	"	0.100		80.0	70-130				
Ethylbenzene	0.102	0.0050	"	0.100		102	70-130				
m,p-Xylene	0.207	0.010	"	0.200		103	70-130				
o-Xylene	0.0969	0.0050	"	0.100		96.9	70-130				
1,2,4-Trimethylbenzene	0.0941	0.0050	"	0.100		94.1	70-130				
1,3,5-Trimethylbenzene	0.0970	0.0050	"	0.100		97.0	70-130				
Naphthalene	0.0821	0.0038	"	0.100		82.1	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0236		"	0.0400		58.9	50-150				
Surrogate: Toluene-d8	0.0326		"	0.0400		81.4	50-150				
Surrogate: 4-Bromofluorobenzene	0.0241		"	0.0400		60.2	50-150				

##### Matrix Spike (BGB0281-MS1)

Source: 2302168-01

Prepared: 02/09/23 Analyzed: 02/10/23

Benzene	0.0746	0.0020	mg/kg	0.100	ND	74.6	70-130				
Toluene	0.100	0.0050	"	0.100	ND	100	70-130				
Ethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130				
m,p-Xylene	0.208	0.010	"	0.200	ND	104	70-130				
o-Xylene	0.0960	0.0050	"	0.100	ND	96.0	70-130				
1,2,4-Trimethylbenzene	0.0948	0.0050	"	0.100	ND	94.8	70-130				
1,3,5-Trimethylbenzene	0.0983	0.0050	"	0.100	ND	98.3	70-130				
Naphthalene	0.0893	0.0038	"	0.100	ND	89.3	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0360		"	0.0400		90.1	50-150				
Surrogate: Toluene-d8	0.0418		"	0.0400		105	50-150				
Surrogate: 4-Bromofluorobenzene	0.0440		"	0.0400		110	50-150				

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**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 BGB0281 - EPA 5030 Soil MS**

Matrix Spike Dup (BGB0281-MSD1)	Source: 2302168-01			Prepared: 02/09/23 Analyzed: 02/10/23						
Benzene	0.0791	0.0020	mg/kg	0.100	ND	79.1	70-130	5.94	30	
Toluene	0.0952	0.0050	"	0.100	ND	95.2	70-130	5.04	30	
Ethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130	1.90	30	
m,p-Xylene	0.212	0.010	"	0.200	ND	106	70-130	1.87	30	
o-Xylene	0.0955	0.0050	"	0.100	ND	95.5	70-130	0.501	30	
1,2,4-Trimethylbenzene	0.0914	0.0050	"	0.100	ND	91.4	70-130	3.61	30	
1,3,5-Trimethylbenzene	0.0947	0.0050	"	0.100	ND	94.7	70-130	3.73	30	
Naphthalene	0.0857	0.0038	"	0.100	ND	85.7	70-130	4.11	30	
Surrogate: 1,2-Dichloroethane-d4	0.0402		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0400		95.8	50-150			

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**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 BGB0282 - EPA 3550A**

**Blank (BGB0282-BLK1)**

Prepared: 02/09/23 Analyzed: 02/10/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	15.9		"	12.5		127		30-150			

**LCS (BGB0282-BS1)**

Prepared: 02/09/23 Analyzed: 02/10/23

C10-C28 (DRO)	503	50	mg/kg	500		101		70-130			
Surrogate: <i>o</i> -Terphenyl	15.8		"	12.5		126		30-150			

**Matrix Spike (BGB0282-MS1)**

Source: 2302167-01

Prepared: 02/09/23 Analyzed: 02/10/23

C10-C28 (DRO)	533	50	mg/kg	500	43.0	98.0		70-130			
Surrogate: <i>o</i> -Terphenyl	15.9		"	12.5		127		30-150			

**Matrix Spike Dup (BGB0282-MSD1)**

Source: 2302167-01

Prepared: 02/09/23 Analyzed: 02/10/23

C10-C28 (DRO)	540	50	mg/kg	500	43.0	99.4		70-130	1.36	20	
Surrogate: <i>o</i> -Terphenyl	16.0		"	12.5		128		30-150			

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Tasman Geosciences  
6855 W. 119th Ave.  
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Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

Reported:  
02/13/23 16:30

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGB0296 - EPA 5030 Soil MS

Blank (BGB0296-BLK1)

Prepared & Analyzed: 02/10/23

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	0.0237		"	0.0333		71.0		40-150		
Surrogate: Fluoranthene-d10	0.0304		"	0.0333		91.2		40-150		

LCS (BGB0296-BS1)

Prepared & Analyzed: 02/10/23

Acenaphthene	0.0314	0.00500	mg/kg	0.0333		94.2		31-137		
Anthracene	0.0329	0.00500	"	0.0333		98.6		30-120		
Benzo (a) anthracene	0.0299	0.00500	"	0.0333		89.7		30-120		
Benzo (a) pyrene	0.0268	0.00500	"	0.0333		80.4		30-120		
Benzo (b) fluoranthene	0.0278	0.00500	"	0.0333		83.3		30-120		
Benzo (k) fluoranthene	0.0272	0.00500	"	0.0333		81.5		30-120		
Chrysene	0.0302	0.00500	"	0.0333		90.7		30-120		
Dibenz (a,h) anthracene	0.0223	0.00500	"	0.0333		66.9		30-120		
Fluoranthene	0.0320	0.00500	"	0.0333		96.1		30-120		
Fluorene	0.0317	0.00500	"	0.0333		95.0		30-120		
Indeno (1,2,3-cd) pyrene	0.0240	0.00500	"	0.0333		72.0		30-120		
Pyrene	0.0323	0.00500	"	0.0333		96.8		35-142		
1-Methylnaphthalene	0.0311	0.00500	"	0.0333		93.4		35-142		
2-Methylnaphthalene	0.0304	0.00500	"	0.0333		91.3		35-142		
Surrogate: 2-Methylnaphthalene-d10	0.0293		"	0.0333		88.0		40-150		
Surrogate: Fluoranthene-d10	0.0314		"	0.0333		94.2		40-150		

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

Reported:  
02/13/23 16:30

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 BGB0296 - EPA 5030 Soil MS

Matrix Spike (BGB0296-MS1)	Source: 2302163-01			Prepared & Analyzed: 02/10/23						
Acenaphthene	0.0193	0.00500	mg/kg	0.0333	ND	57.9	31-137			
Anthracene	0.0192	0.00500	"	0.0333	ND	57.6	30-120			
Benzo (a) anthracene	0.0187	0.00500	"	0.0333	ND	56.1	30-120			
Benzo (a) pyrene	0.0164	0.00500	"	0.0333	ND	49.3	30-120			
Benzo (b) fluoranthene	0.0164	0.00500	"	0.0333	ND	49.1	30-120			
Benzo (k) fluoranthene	0.0161	0.00500	"	0.0333	ND	48.4	30-120			
Chrysene	0.0177	0.00500	"	0.0333	ND	53.0	30-120			
Dibenz (a,h) anthracene	0.0156	0.00500	"	0.0333	ND	46.9	30-120			
Fluoranthene	0.0190	0.00500	"	0.0333	ND	57.0	30-120			
Fluorene	0.0191	0.00500	"	0.0333	ND	57.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0144	0.00500	"	0.0333	ND	43.2	30-120			
Pyrene	0.0193	0.00500	"	0.0333	ND	57.9	35-142			
1-Methylnaphthalene	0.0204	0.00500	"	0.0333	ND	61.3	15-130			
2-Methylnaphthalene	0.0210	0.00500	"	0.0333	ND	62.9	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0179		"	0.0333		53.8	40-150			
Surrogate: Fluoranthene-d10	0.0201		"	0.0333		60.2	40-150			

Matrix Spike Dup (BGB0296-MSD1)	Source: 2302163-01			Prepared & Analyzed: 02/10/23						
Acenaphthene	0.0197	0.00500	mg/kg	0.0333	ND	59.2	31-137	2.33	30	
Anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120	5.73	30	
Benzo (a) anthracene	0.0182	0.00500	"	0.0333	ND	54.7	30-120	2.53	30	
Benzo (a) pyrene	0.0156	0.00500	"	0.0333	ND	46.8	30-120	5.13	30	
Benzo (b) fluoranthene	0.0154	0.00500	"	0.0333	ND	46.3	30-120	5.81	30	
Benzo (k) fluoranthene	0.0153	0.00500	"	0.0333	ND	46.0	30-120	5.06	30	
Chrysene	0.0174	0.00500	"	0.0333	ND	52.1	30-120	1.72	30	
Dibenz (a,h) anthracene	0.0158	0.00500	"	0.0333	ND	47.4	30-120	1.17	30	
Fluoranthene	0.0195	0.00500	"	0.0333	ND	58.6	30-120	2.74	30	
Fluorene	0.0195	0.00500	"	0.0333	ND	58.6	30-120	2.16	30	
Indeno (1,2,3-cd) pyrene	0.0141	0.00500	"	0.0333	ND	42.2	30-120	2.49	30	
Pyrene	0.0190	0.00500	"	0.0333	ND	57.1	35-142	1.44	30	
1-Methylnaphthalene	0.0208	0.00500	"	0.0333	ND	62.5	15-130	1.83	50	
2-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.7	15-130	13.8	50	
Surrogate: 2-Methylnaphthalene-d10	0.0171		"	0.0333		51.4	40-150			
Surrogate: Fluoranthene-d10	0.0188		"	0.0333		56.5	40-150			

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

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

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

**Batch BGB0312 - EPA 3050B**

**Blank (BGB0312-BLK1)**

Prepared: 02/10/23 Analyzed: 02/12/23

Boron ND 0.0100 mg/L

**LCS (BGB0312-BS1)**

Prepared: 02/10/23 Analyzed: 02/12/23

Boron 5.75 0.0100 mg/L 5.00 115 80-120

**Duplicate (BGB0312-DUP1)**

**Source: 2302124-01**

Prepared: 02/10/23 Analyzed: 02/12/23

Boron 0.146 0.0100 mg/L 0.183 22.1 20 QR-03

**Matrix Spike (BGB0312-MS1)**

**Source: 2302124-01**

Prepared: 02/10/23 Analyzed: 02/12/23

Boron 6.22 0.0100 mg/L 5.00 0.183 121 75-125

**Matrix Spike Dup (BGB0312-MSD1)**

**Source: 2302124-01**

Prepared: 02/10/23 Analyzed: 02/12/23

Boron 6.59 0.0100 mg/L 5.00 0.183 128 75-125 5.79 25 QM-07

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BGB0306 - EPA 3050B**

**Blank (BGB0306-BLK1)**

Prepared: 02/10/23 Analyzed: 02/12/23

Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Selenium	ND	0.260	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							

**LCS (BGB0306-BS1)**

Prepared: 02/10/23 Analyzed: 02/12/23

Arsenic	45.2	0.200	mg/kg wet	40.0		113	80-120			
Barium	47.3	0.400	"	40.0		118	80-120			
Cadmium	2.38	0.200	"	2.00		119	80-120			
Copper	47.3	0.400	"	40.0		118	80-120			
Lead	22.8	0.200	"	20.0		114	80-120			
Nickel	46.9	0.400	"	40.0		117	80-120			
Selenium	4.55	0.260	"	4.00		114	80-120			
Silver	2.21	0.0200	"	2.00		110	80-120			
Zinc	45.0	0.400	"	40.0		112	80-120			

**Duplicate (BGB0306-DUP1)**

Source: 2301163-02

Prepared: 02/10/23 Analyzed: 02/12/23

Arsenic	1.44	0.200	mg/kg wet	1.40		2.25	20			
Barium	30.6	0.400	"	22.5		30.4	20			QR-03
Cadmium	0.0808	0.200	"	0.0473		52.3	20			QR-01
Copper	2.59	0.400	"	2.22		15.8	20			
Lead	3.09	0.200	"	2.52		20.3	20			QR-03
Nickel	3.41	0.400	"	2.51		30.3	20			QR-03
Selenium	0.422	0.260	"	0.267		45.1	20			QR-03
Silver	0.0165	0.0200	"	0.0122		29.7	20			QR-01
Zinc	15.7	0.400	"	11.5		30.8	20			QR-03

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BGB0306 - EPA 3050B**

**Matrix Spike (BGB0306-MS1)**

Source: 2301163-02

Prepared: 02/10/23 Analyzed: 02/12/23

Arsenic	44.7	0.200	mg/kg wet	40.0	1.40	108	75-125			
Barium	62.4	0.400	"	40.0	22.5	99.8	75-125			
Cadmium	2.09	0.200	"	2.00	0.0473	102	75-125			
Copper	42.7	0.400	"	40.0	2.22	101	75-125			
Lead	21.3	0.200	"	20.0	2.52	93.9	75-125			
Nickel	43.4	0.400	"	40.0	2.51	102	75-125			
Selenium	4.02	0.260	"	4.00	0.267	93.7	75-125			
Silver	1.97	0.0200	"	2.00	0.0122	97.9	75-125			
Zinc	55.8	0.400	"	40.0	11.5	111	75-125			

**Matrix Spike Dup (BGB0306-MSD1)**

Source: 2301163-02

Prepared: 02/10/23 Analyzed: 02/12/23

Arsenic	46.6	0.200	mg/kg wet	40.0	1.40	113	75-125	4.25	25
Barium	66.3	0.400	"	40.0	22.5	109	75-125	6.01	25
Cadmium	2.22	0.200	"	2.00	0.0473	108	75-125	5.89	25
Copper	44.8	0.400	"	40.0	2.22	106	75-125	4.80	25
Lead	22.6	0.200	"	20.0	2.52	101	75-125	6.08	25
Nickel	45.1	0.400	"	40.0	2.51	107	75-125	3.99	25
Selenium	4.59	0.260	"	4.00	0.267	108	75-125	13.3	25
Silver	2.06	0.0200	"	2.00	0.0122	102	75-125	4.41	25
Zinc	58.7	0.400	"	40.0	11.5	118	75-125	5.09	25

Summit Scientific

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BGB0315 - 3060A Mod**

**Blank (BGB0315-BLK1)**

Prepared & Analyzed: 02/10/23

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BGB0315-BS1)**

Prepared & Analyzed: 02/10/23

Chromium, Hexavalent      25.8      0.30 mg/kg wet      25.0      103      80-120

**Duplicate (BGB0315-DUP1)**

**Source: 2302190-01**

Prepared & Analyzed: 02/10/23

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BGB0315-MS1)**

**Source: 2302190-01**

Prepared & Analyzed: 02/10/23

Chromium, Hexavalent      31.1      0.30 mg/kg dry      29.8      ND      104      75-125

**Matrix Spike Dup (BGB0315-MSD1)**

**Source: 2302190-01**

Prepared & Analyzed: 02/10/23

Chromium, Hexavalent      31.2      0.30 mg/kg dry      29.8      ND      105      75-125      0.383      20

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

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

**Summit Scientific**

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

**Batch BGB0285 - General Preparation**

**Blank (BGB0285-BLK1)**

Prepared: 02/09/23 Analyzed: 02/12/23

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

**LCS (BGB0285-BS1)**

Prepared: 02/09/23 Analyzed: 02/12/23

Calcium	5.10	0.0500	mg/L wet	5.00		102	70-130		
Magnesium	5.19	0.0500	"	5.00		104	70-130		
Sodium	5.47	0.0500	"	5.00		109	70-130		

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
 Project Manager: Jacob Whritenour

**Reported:**  
 02/13/23 16:30

**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 BGB0334 - General Preparation**

<b>Duplicate (BGB0334-DUP1)</b>		<b>Source: 2302188-01</b>			<b>Prepared &amp; Analyzed: 02/12/23</b>			
% Solids	88.7		%		89.5		0.965	20

Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

**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 BGB0317 - General Preparation**

**Blank (BGB0317-BLK1)**

Prepared & Analyzed: 02/10/23

Specific Conductance (EC)      ND      0.0100    mmhos/cm

**LCS (BGB0317-BS1)**

Prepared & Analyzed: 02/10/23

Specific Conductance (EC)      0.151      0.0100    mmhos/cm      0.150      101      95-105

**Duplicate (BGB0317-DUP1)**

**Source: 2302184-01**

Prepared & Analyzed: 02/10/23

Specific Conductance (EC)      1.22      0.0100    mmhos/cm      1.24      1.71      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 - SLW Ranch B12-65-1HN

Project Number: [none]  
 Project Manager: Jacob Whritenour

**Reported:**  
 02/13/23 16:30

**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 BGB0316 - General Preparation**

**LCS (BGB0316-BS1)**

Prepared & Analyzed: 02/10/23

pH	9.00	pH Units	9.18	98.0	95-105
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**Duplicate (BGB0316-DUP1)**

Source: 2302184-01

Prepared & Analyzed: 02/10/23

pH	7.70	pH Units	7.60	1.31	20
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Summit Scientific

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

Project: Noble - SLW Ranch B12-65-1HN

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
02/13/23 16:30

### Notes and Definitions

- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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