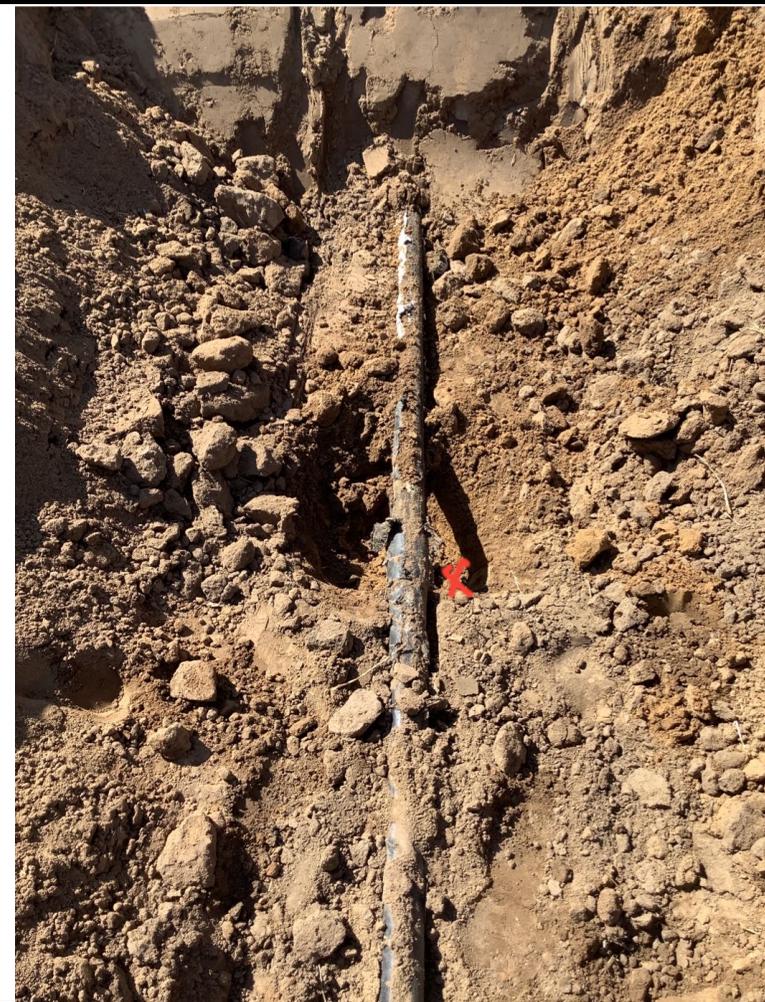


## Flowline Closure Checklist

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

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: Sandau 34-12F		Date: 09/06/23			Remediation Project #: 22548			
Associated Wells:		Age of Site:			Number of Photos Attached: 4			
Starting point: (GPS coordinates and descriptions) 40.266819/ -104.770936								
End point: (GPS coordinates and descriptions) 40.267180 /-104.772727								
USCS Soil Type: SW				Estimated Depth to Groundwater: > 4'				
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								
<b>Flowlines</b>								
Flowline type	Oil / Gas / Water							
Depth	4'							
Age								
Length	490'							
Construction Material	steel							
Were flowlines pulled?	yes							
Visual Integrity of lines	good							
Visual impacts if trenched	none observed							
PID Readings if trenched	0.0 - 0.1							
Sample taken? Location/Sample ID#	yes, see below							
Photo Number(s)	1 - 4							
Other observations regarding on location flowlines: Samples were taken at the wellhead (FL01-A@4'), as well as along the flowline path (FL01-C@4' - FL01-E@4'). Common trench with Sandau 34-11F was observed at sampling points FL01-D@4' and FL01-E@4'.								
<b>Summary</b>								
Was impacted soil identified?		Yes - less than 10 cubic yards		Yes - more than 10 cubic yards				
<b>No</b>								
Total number of samples field screened: 4				Total number of samples collected: 1				
Highest PID Reading: 0.1				Total number of samples submitted to lab for analysis: 1				
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? <b>No</b> Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater:				Was remedial groundwater removal conducted? Yes No				
Date Groundwater was encountered:				Commencement date of removal:				
Sheen on groundwater?		Yes No		Volume of groundwater removed prior to sampling:				
Free product observed?		Yes No		Volume of groundwater removed post sampling:				
Total number of samples collected:				Total Volume of groundwater removed:				
Total number of samples submitted to lab for analysis:								

**Photographic Log**



<b>Equipment ID:</b> FL01-A@4'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-C@4'		<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water		<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b> Facing West				<b>Notes/Conditions:</b> Facing West			

Photographic Log



<b>Equipment ID:</b> FL01-D@4'		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b> FL01-E@4'		<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water		<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b> Facing West				<b>Notes/Conditions:</b> Facing West			

**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - SANDAU 34-12F**

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude <sup>1</sup>	Longitude	PDOP
FL01-A@4'	09/06/23	0.1	No Staining	No Odor	Lab	40.2667800	-104.7709740	NC
FL01-C@4'	09/06/23	0.0	No Staining	No Odor	Grab	40.2668274	-104.7712061	0.9
FL01-D@4'	09/06/23	0.0	No Staining	No Odor	Grab	40.2668837	-104.7715132	0.8
FL01-E@4'	09/06/23	0.0	No Staining	No Odor	Grab	40.2669672	-104.7718749	0.8

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

NC = Not Collected

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. - SANDAU 34-12F

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	500	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	500	500	0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-A@4'	09/06/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.010	<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 <sup>2</sup>		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@4'	09/06/23	7.79	1.73	0.430	0.186

Sample ID	Date Sampled	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>(1,2)</sup>		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL <sup>(1,2,3)</sup>		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-A@4'	09/06/23	0.437	40.9	<0.200	<0.30	0.923	3.19	0.766	<0.260	<0.0200	5.07

Notes:

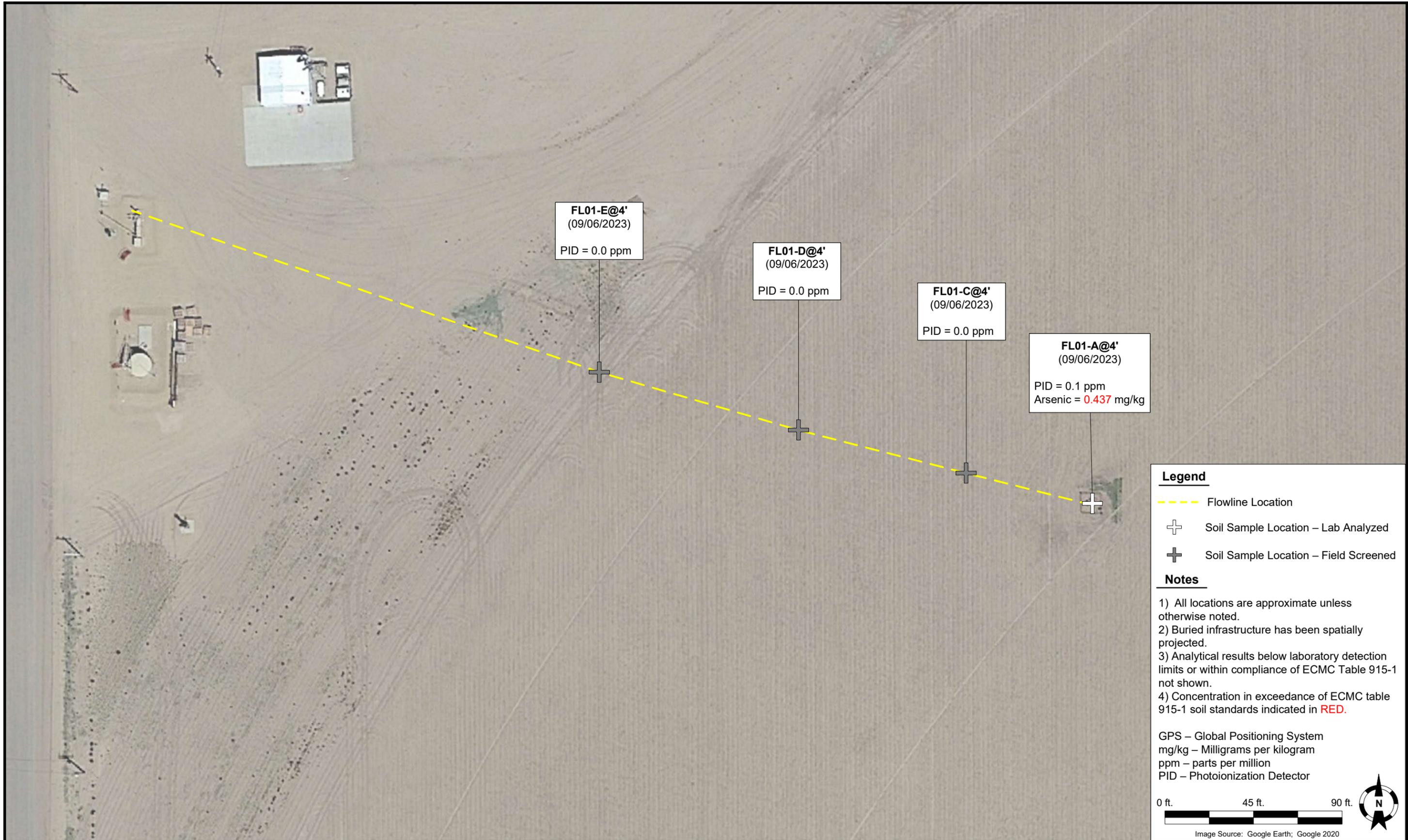
- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater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

Definitions:

ECMC = Energy and Carbon Management Commission  
 TPH-GRO = Total petroleum hydrocarbons - gasoline range organics  
 TPH-DRO = Total petroleum hydrocarbons - diesel range organics  
 TPH-ORO = Total petroleum hydrocarbons - oil range organics  
 mg/kg = Milligrams per kilogram  
 SAR = Sodium Adsorption Ratio  
 EC = Electrical Conductivity  
 mmhos/cm = Millimhos per centimeter  
 mg/L = Milligrams per liter  
 < = Analytical result is less than the indicated laboratory reporting limit

1,2,4 - TMB = 1,2,4 Trimethylbenzene  
 1,3,5 - TMB = 1,3,5 Trimethylbenzene  
 Benz(a) = Benz(a)anthracene  
 Benzo(b) = Benzo(b)fluoranthene  
 Benzo(k) = Benzo(k)fluoranthene  
 Benzo(a) = Benzo(a)pyrene  
 A,H = Dibenzo(a,h)anthracene  
 1,2,3-CD = Indeno(1,2,3-cs)pyrene  
 1-M = 1-methylnaphthalene  
 2-M = 2-methylnaphthalene

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



**Legend**

- Flowline Location
- + Soil Sample Location – Lab Analyzed
- + Soil Sample Location – Field Screened

**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 ECMC Table 915-1 not shown.
- 4) Concentration in exceedance of ECMC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System  
 mg/kg – Milligrams per kilogram  
 ppm – parts per million  
 PID – Photoionization Detector

0 ft.                      45 ft.                      90 ft.

Image Source: Google Earth; Google 2020

DATE:	10/25/2023
DESIGNED BY:	JW
DRAWN BY:	EH



**TASMAN**  
 GEOSCIENCES

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

**Noble Energy, Inc. – DJ Basin**  
**Sandau 34-12F**  
 NWSW, Section 34, Township 4 North, Range 66 West  
 Weld County, Colorado

Flowline Closure & Soil  
 Analytical Results Map  
 (09/06/2023)

FIGURE  
 1

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 26, 2023

Jacob Whritenour  
Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield, CO 80020  
RE: Noble - Sandau 34-12F  
Work Order #2309076

Enclosed are the results of analyses for samples received by Summit Scientific on 09/06/23 17:36. 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 - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@4'	2309076-01	Soil	09/06/23 15:02	09/06/23 17:36

Summit Scientific

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

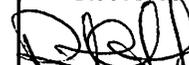
# SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2309070	

<b>Send Data To:</b>		<b>Send Invoice To:</b>
Client: Noble / Tasman	Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Sandau 34-12F
City/State/Zip: Broomfield, CO 80020		AFE#: UWRWE-A2406-ABN
Phone: 303-903-5168	Project Name: Sandau 34-12F	PO/Billing Codes:
Sampler Name: Dalton Hagen	Project Number:	Contact: Jeff White

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	pH, EC, SAR	Boron - HWS	Metals - 915		HOLD	
1	FL01-A@4	9/6/23	1502	3			X			X				X	X	X	X	X	X		pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: 	Date/Time: 9/6/23 1645	Received by: Tasman Lockbox	Date/Time: 9/6/23 1645	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 9/6/23 1730	Received by: 	Date/Time: 9/6/23 1730	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb. <input checked="" type="checkbox"/>	
Temperature Upon Receipt: 9.1	Corrected Temperature: 9	IR gun #: 1	HNO3 lot #:			

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2309076

Client: Nobel Torman Client Project ID: Sandau 34-12 F

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

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

Temp (°C) 9.1 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"/>	<u>on ICE</u>
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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <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 checked="" type="checkbox"/>	<input 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 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.

AS  
Custodian Printed Name

9/6/23  
Date/Time

3000



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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**FL01-A@4'**  
**2309076-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGI0166	09/07/23	09/08/23	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: **09/06/23 15:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0371	92.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0383	95.7 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0388	96.9 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGI0167	09/07/23	09/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.2	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 - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**FL01-A@4'**  
**2309076-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGI0332	09/13/23	09/13/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0207	62.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0227	68.1 %	40-150		"	"	"	"	

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

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.186</b>	0.0100	mg/L	1	BGI0146	09/07/23	09/08/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	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 - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**FL01-A@4'**  
**2309076-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.437	0.200	mg/kg dry	1	BGI0177	09/07/23	09/09/23	EPA 6020B	
Barium	40.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	0.923	0.400	"	"	"	"	"	"	
Lead	3.19	0.200	"	"	"	"	"	"	
Nickel	0.766	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.07	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0171	09/07/23	09/07/23	EPA 7196A	

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

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	20.7	0.0583	mg/L dry	1	BGI0156	09/07/23	09/09/23	EPA 6020B	
Magnesium	5.11	0.0583	"	"	"	"	"	"	
Sodium	33.9	0.0583	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.73	0.00100	units	1	BGI0227	09/11/23	09/11/23	Calculation	

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

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 - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**FL01-A@4'**  
**2309076-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.8		%	1	BGI0145	09/07/23	09/07/23	Calculation	

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

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.430	0.0100	mmhos/cm	1	BGI0184	09/08/23	09/08/23	EPA 120.1	

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

Date Sampled: **09/06/23 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.79		pH Units	1	BGI0185	09/08/23	09/08/23	EPA 9045D	

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

### 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 BGI0166 - EPA 5030 Soil MS

##### Blank (BGI0166-BLK1)

Prepared: 09/07/23 Analyzed: 09/08/23

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0369		"	0.0400		92.2	50-150			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.7	50-150			

##### LCS (BGI0166-BS1)

Prepared: 09/07/23 Analyzed: 09/08/23

Benzene	0.100	0.0020	mg/kg	0.100		100	70-130			
Toluene	0.0979	0.0050	"	0.100		97.9	70-130			
Ethylbenzene	0.0985	0.0050	"	0.100		98.5	70-130			
m,p-Xylene	0.196	0.010	"	0.200		97.8	70-130			
o-Xylene	0.0975	0.0050	"	0.100		97.5	70-130			
1,2,4-Trimethylbenzene	0.0904	0.0050	"	0.100		90.4	70-130			
1,3,5-Trimethylbenzene	0.0941	0.0050	"	0.100		94.1	70-130			
Naphthalene	0.0752	0.0038	"	0.100		75.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0350		"	0.0400		87.6	50-150			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	50-150			

##### Matrix Spike (BGI0166-MS1)

Source: 2308661-02

Prepared: 09/07/23 Analyzed: 09/08/23

Benzene	0.0226	0.0020	mg/kg	0.100	ND	22.6	70-130			QM-05
Toluene	0.0147	0.0050	"	0.100	ND	14.7	70-130			QM-05
Ethylbenzene	0.0167	0.0050	"	0.100	ND	16.7	70-130			QM-05
m,p-Xylene	0.0479	0.010	"	0.200	0.00786	20.0	70-130			QM-05
o-Xylene	0.0283	0.0050	"	0.100	ND	28.3	70-130			QM-05
1,2,4-Trimethylbenzene	0.0170	0.0050	"	0.100	0.00522	11.8	70-130			QM-05
1,3,5-Trimethylbenzene	0.0131	0.0050	"	0.100	0.00369	9.39	70-130			QM-05
Naphthalene	0.0334	0.0038	"	0.100	ND	33.4	70-130			QM-05
Surrogate: 1,2-Dichloroethane-d4	0.0536		"	0.0400		134	50-150			
Surrogate: Toluene-d8	0.0367		"	0.0400		91.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0333		"	0.0400		83.2	50-150			

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0166 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BGI0166-MSD1)</b>	<b>Source: 2308661-02</b>			<b>Prepared: 09/07/23 Analyzed: 09/08/23</b>						
Benzene	0.0262	0.0020	mg/kg	0.100	ND	26.2	70-130	15.0	30	QM-05
Toluene	0.0157	0.0050	"	0.100	ND	15.7	70-130	6.52	30	QM-05
Ethylbenzene	0.0174	0.0050	"	0.100	ND	17.4	70-130	4.40	30	QM-05
m,p-Xylene	0.0515	0.010	"	0.200	0.00786	21.8	70-130	7.30	30	QM-05
o-Xylene	0.0295	0.0050	"	0.100	ND	29.5	70-130	4.36	30	QM-05
1,2,4-Trimethylbenzene	0.0162	0.0050	"	0.100	0.00522	11.0	70-130	4.70	30	QM-05
1,3,5-Trimethylbenzene	0.0142	0.0050	"	0.100	0.00369	10.5	70-130	7.93	30	QM-05
Naphthalene	0.0217	0.0038	"	0.100	ND	21.7	70-130	42.4	30	QM-05
Surrogate: 1,2-Dichloroethane-d4	0.0470		"	0.0400		118	50-150			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.4	50-150			
Surrogate: 4-Bromofluorobenzene	0.0331		"	0.0400		82.8	50-150			

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0167 - EPA 3550A**

**Blank (BGI0167-BLK1)**

Prepared & Analyzed: 09/07/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.4		"	12.5	107		30-150				

**LCS (BGI0167-BS1)**

Prepared & Analyzed: 09/07/23

C10-C28 (DRO)	452	50	mg/kg	500	90.4		70-130				
Surrogate: <i>o</i> -Terphenyl	12.3		"	12.5	98.5		30-150				

**Matrix Spike (BGI0167-MS1)**

Source: 2308661-02

Prepared & Analyzed: 09/07/23

C10-C28 (DRO)	994	50	mg/kg	500	1300	NR	70-130				QM-05
Surrogate: <i>o</i> -Terphenyl	9.65		"	12.5		77.2	30-150				

**Matrix Spike Dup (BGI0167-MSD1)**

Source: 2308661-02

Prepared & Analyzed: 09/07/23

C10-C28 (DRO)	1610	50	mg/kg	500	1300	61.5	70-130	47.4	20		QM-05
Surrogate: <i>o</i> -Terphenyl	9.78		"	12.5		78.2	30-150				

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Tasman Geosciences  
6855 W. 119th Ave.  
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Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0332 - EPA 5030 Soil MS**

**Blank (BGI0332-BLK1)**

Prepared & Analyzed: 09/13/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0275		"	0.0333		82.6	40-150			
Surrogate: Fluoranthene-d10	0.0284		"	0.0333		85.1	40-150			

**LCS (BGI0332-BS1)**

Prepared & Analyzed: 09/13/23

Acenaphthene	0.0281	0.00500	mg/kg	0.0333		84.2	31-137			
Anthracene	0.0275	0.00500	"	0.0333		82.5	30-120			
Benzo (a) anthracene	0.0268	0.00500	"	0.0333		80.3	30-120			
Benzo (a) pyrene	0.0257	0.00500	"	0.0333		77.2	30-120			
Benzo (b) fluoranthene	0.0254	0.00500	"	0.0333		76.3	30-120			
Benzo (k) fluoranthene	0.0264	0.00500	"	0.0333		79.3	30-120			
Chrysene	0.0277	0.00500	"	0.0333		83.1	30-120			
Dibenz (a,h) anthracene	0.0343	0.00500	"	0.0333		103	30-120			
Fluoranthene	0.0269	0.00500	"	0.0333		80.6	30-120			
Fluorene	0.0283	0.00500	"	0.0333		84.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0355	0.00500	"	0.0333		107	30-120			
Pyrene	0.0301	0.00500	"	0.0333		90.3	35-142			
1-Methylnaphthalene	0.0266	0.00500	"	0.0333		79.8	35-142			
2-Methylnaphthalene	0.0284	0.00500	"	0.0333		85.2	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0258		"	0.0333		77.3	40-150			
Surrogate: Fluoranthene-d10	0.0274		"	0.0333		82.3	40-150			

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0332 - EPA 5030 Soil MS**

<b>Matrix Spike (BGI0332-MS1)</b>	<b>Source: 2309123-01</b>			<b>Prepared &amp; Analyzed: 09/13/23</b>								
Acenaphthene	0.0251	0.00500	mg/kg	0.0333	0.0104	44.2	31-137					
Anthracene	0.0193	0.00500	"	0.0333	ND	57.8	30-120					
Benzo (a) anthracene	0.0285	0.00500	"	0.0333	0.0132	45.9	30-120					
Benzo (a) pyrene	0.0226	0.00500	"	0.0333	0.00799	43.8	30-120					
Benzo (b) fluoranthene	0.0191	0.00500	"	0.0333	ND	57.3	30-120					
Benzo (k) fluoranthene	0.0163	0.00500	"	0.0333	ND	48.8	30-120					
Chrysene	0.0339	0.00500	"	0.0333	0.0176	48.7	30-120					
Dibenz (a,h) anthracene	0.0191	0.00500	"	0.0333	ND	57.3	30-120					
Fluoranthene	0.0439	0.00500	"	0.0333	0.0313	37.8	30-120					
Fluorene	0.0395	0.00500	"	0.0333	0.0276	35.8	30-120					
Indeno (1,2,3-cd) pyrene	0.0182	0.00500	"	0.0333	ND	54.7	30-120					
Pyrene	0.0479	0.00500	"	0.0333	0.0369	32.9	35-142					QM-02
1-Methylnaphthalene	0.322	0.00500	"	0.0333	0.320	6.56	15-130					QM-02
2-Methylnaphthalene	0.320	0.00500	"	0.0333	0.318	4.11	15-130					QM-02
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0186</i>		"	<i>0.0333</i>		<i>55.7</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0179</i>		"	<i>0.0333</i>		<i>53.7</i>	<i>40-150</i>					

<b>Matrix Spike Dup (BGI0332-MSD1)</b>	<b>Source: 2309123-01</b>			<b>Prepared &amp; Analyzed: 09/13/23</b>								
Acenaphthene	0.0234	0.00500	mg/kg	0.0333	0.0104	39.0	31-137	7.12	30			
Anthracene	0.0176	0.00500	"	0.0333	ND	52.9	30-120	8.81	30			
Benzo (a) anthracene	0.0255	0.00500	"	0.0333	0.0132	36.8	30-120	11.2	30			
Benzo (a) pyrene	0.0206	0.00500	"	0.0333	0.00799	37.9	30-120	9.20	30			
Benzo (b) fluoranthene	0.0179	0.00500	"	0.0333	ND	53.8	30-120	6.30	30			
Benzo (k) fluoranthene	0.0149	0.00500	"	0.0333	ND	44.7	30-120	8.79	30			
Chrysene	0.0312	0.00500	"	0.0333	0.0176	40.8	30-120	8.07	30			
Dibenz (a,h) anthracene	0.0167	0.00500	"	0.0333	ND	50.2	30-120	13.1	30			
Fluoranthene	0.0417	0.00500	"	0.0333	0.0313	31.4	30-120	5.02	30			
Fluorene	0.0345	0.00500	"	0.0333	0.0276	20.7	30-120	13.6	30			QM-02
Indeno (1,2,3-cd) pyrene	0.0152	0.00500	"	0.0333	ND	45.5	30-120	18.4	30			
Pyrene	0.0464	0.00500	"	0.0333	0.0369	28.4	35-142	3.21	30			QM-02
1-Methylnaphthalene	0.273	0.00500	"	0.0333	0.320	NR	15-130	16.4	50			QM-02
2-Methylnaphthalene	0.274	0.00500	"	0.0333	0.318	NR	15-130	15.5	50			QM-02
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0174</i>		"	<i>0.0333</i>		<i>52.1</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0164</i>		"	<i>0.0333</i>		<i>49.2</i>	<i>40-150</i>					

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0146 - EPA 3050B**

**Blank (BGI0146-BLK1)**

Prepared: 09/07/23 Analyzed: 09/08/23

Boron ND 0.0100 mg/L

**LCS (BGI0146-BS1)**

Prepared: 09/07/23 Analyzed: 09/08/23

Boron 4.73 0.0100 mg/L 5.00 94.6 80-120

**Duplicate (BGI0146-DUP1)**

Source: 2309024-01

Prepared: 09/07/23 Analyzed: 09/08/23

Boron 0.184 0.0100 mg/L 0.248 29.6 20 QR-04

**Matrix Spike (BGI0146-MS1)**

Source: 2309024-01

Prepared: 09/07/23 Analyzed: 09/08/23

Boron 4.90 0.0100 mg/L 5.00 0.248 93.0 75-125

**Matrix Spike Dup (BGI0146-MSD1)**

Source: 2309024-01

Prepared: 09/07/23 Analyzed: 09/08/23

Boron 5.00 0.0100 mg/L 5.00 0.248 94.9 75-125 1.99 25

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

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

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

**Batch BGI0177 - EPA 3050B**

**Blank (BGI0177-BLK1)**

Prepared: 09/07/23 Analyzed: 09/09/23

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	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

**LCS (BGI0177-BS1)**

Prepared: 09/07/23 Analyzed: 09/09/23

Arsenic	39.3	0.200	mg/kg wet	40.0	98.2	80-120
Barium	38.5	0.400	"	40.0	96.2	80-120
Cadmium	1.93	0.200	"	2.00	96.5	80-120
Copper	36.5	0.400	"	40.0	91.2	80-120
Lead	19.5	0.200	"	20.0	97.7	80-120
Nickel	39.6	0.400	"	40.0	99.0	80-120
Silver	1.96	0.0200	"	2.00	97.9	80-120
Zinc	40.1	0.400	"	40.0	100	80-120

**LCS (BGI0177-BS2)**

Prepared: 09/07/23 Analyzed: 09/09/23

Arsenic	41.8	0.200	mg/kg wet	40.0	104	80-120
Barium	39.9	0.400	"	40.0	99.9	80-120
Cadmium	2.02	0.200	"	2.00	101	80-120
Copper	38.6	0.400	"	40.0	96.5	80-120
Lead	20.4	0.200	"	20.0	102	80-120
Nickel	41.8	0.400	"	40.0	104	80-120
Silver	2.03	0.0200	"	2.00	102	80-120
Zinc	42.2	0.400	"	40.0	106	80-120

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0177 - EPA 3050B**

**LCS (BGI0177-BS3)**

Prepared: 09/07/23 Analyzed: 09/09/23

Arsenic	39.5	0.200	mg/kg wet	40.0		98.8	80-120			
Barium	39.2	0.400	"	40.0		98.1	80-120			
Cadmium	1.98	0.200	"	2.00		98.8	80-120			
Copper	36.5	0.400	"	40.0		91.1	80-120			
Lead	19.9	0.200	"	20.0		99.6	80-120			
Nickel	40.0	0.400	"	40.0		100	80-120			
Silver	1.99	0.0200	"	2.00		99.4	80-120			
Zinc	40.2	0.400	"	40.0		100	80-120			

**LCS (BGI0177-BS4)**

Prepared: 09/07/23 Analyzed: 09/09/23

Arsenic	40.5	0.200	mg/kg wet	40.0		101	80-120			
Barium	39.6	0.400	"	40.0		99.1	80-120			
Cadmium	2.04	0.200	"	2.00		102	80-120			
Copper	37.1	0.400	"	40.0		92.9	80-120			
Lead	20.3	0.200	"	20.0		101	80-120			
Nickel	40.6	0.400	"	40.0		101	80-120			
Silver	2.01	0.0200	"	2.00		101	80-120			
Zinc	40.8	0.400	"	40.0		102	80-120			

**Duplicate (BGI0177-DUP1)**

Source: 2309076-01

Prepared: 09/07/23 Analyzed: 09/09/23

Arsenic	0.419	0.200	mg/kg dry		0.437		4.14	20		
Barium	38.4	0.400	"		40.9		6.19	20		
Cadmium	0.0373	0.200	"		0.0340		9.15	20		
Copper	0.826	0.400	"		0.923		11.1	20		
Lead	8.92	0.200	"		3.19		94.7	20		QR-04
Nickel	0.639	0.400	"		0.766		18.0	20		
Silver	0.0168	0.0200	"		0.0182		8.00	20		
Zinc	4.44	0.400	"		5.07		13.1	20		
Selenium	ND	0.260	"		ND			200		

Summit Scientific

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0177 - EPA 3050B**

**Matrix Spike (BGI0177-MS1)**

Source: 2309076-01

Prepared: 09/07/23 Analyzed: 09/09/23

Arsenic	20.8	0.200	mg/kg dry	46.6	0.437	43.7	75-125				QM-07
Barium	80.0	0.400	"	46.6	40.9	83.9	75-125				
Cadmium	2.28	0.200	"	2.33	0.0340	96.2	75-125				
Copper	20.0	0.400	"	46.6	0.923	40.8	75-125				QM-07
Lead	24.7	0.200	"	23.3	3.19	92.1	75-125				
Nickel	21.4	0.400	"	46.6	0.766	44.3	75-125				QM-07
Silver	2.28	0.0200	"	2.33	0.0182	96.8	75-125				
Zinc	25.1	0.400	"	46.6	5.07	43.0	75-125				QM-07

**Matrix Spike Dup (BGI0177-MSD1)**

Source: 2309076-01

Prepared: 09/07/23 Analyzed: 09/09/23

Arsenic	21.3	0.200	mg/kg dry	46.6	0.437	44.6	75-125	2.16	25		QM-07
Barium	78.7	0.400	"	46.6	40.9	81.2	75-125	1.59	25		
Cadmium	2.29	0.200	"	2.33	0.0340	96.7	75-125	0.511	25		
Copper	20.2	0.400	"	46.6	0.923	41.3	75-125	1.20	25		QM-07
Lead	24.5	0.200	"	23.3	3.19	91.5	75-125	0.560	25		
Nickel	21.5	0.400	"	46.6	0.766	44.5	75-125	0.578	25		QM-07
Silver	2.27	0.0200	"	2.33	0.0182	96.5	75-125	0.328	25		
Zinc	25.3	0.400	"	46.6	5.07	43.3	75-125	0.628	25		QM-07

Summit Scientific

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

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

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

**Batch BGI0171 - 3060A Mod**

**Blank (BGI0171-BLK1)**

Prepared & Analyzed: 09/07/23

Chromium, Hexavalent      ND      0.30    mg/kg wet

**LCS (BGI0171-BS1)**

Prepared & Analyzed: 09/07/23

Chromium, Hexavalent      24.0      0.30    mg/kg wet      25.0      96.2      80-120

**Duplicate (BGI0171-DUP1)**

**Source: 2308661-02**

Prepared & Analyzed: 09/07/23

Chromium, Hexavalent      ND      0.30    mg/kg dry      ND      20

**Matrix Spike (BGI0171-MS1)**

**Source: 2308661-02**

Prepared & Analyzed: 09/07/23

Chromium, Hexavalent      27.2      0.30    mg/kg dry      29.5      ND      92.2      75-125

**Matrix Spike Dup (BGI0171-MSD1)**

**Source: 2308661-02**

Prepared & Analyzed: 09/07/23

Chromium, Hexavalent      27.0      0.30    mg/kg dry      29.5      ND      91.6      75-125      0.653      20

Summit Scientific

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0156 - General Preparation**

**Blank (BGI0156-BLK1)**

Prepared: 09/07/23 Analyzed: 09/09/23

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

**LCS (BGI0156-BS1)**

Prepared: 09/07/23 Analyzed: 09/09/23

Calcium	4.79	0.0500	mg/L wet	5.00	95.9	70-130				
Magnesium	4.69	0.0500	"	5.00	93.8	70-130				
Sodium	4.73	0.0500	"	5.00	94.6	70-130				

Summit Scientific

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
 Project Manager: Jacob Whritenour

**Reported:**  
 09/26/23 12:53

**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 BGI0145 - General Preparation**

**Duplicate (BGI0145-DUP1)**

**Source: 2309057-01**

**Prepared & Analyzed: 09/07/23**

% Solids	83.3		%		83.8			0.673	20	
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Summit Scientific

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0184 - General Preparation**

**Blank (BGI0184-BLK1)**

Prepared & Analyzed: 09/08/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGI0184-BS1)**

Prepared & Analyzed: 09/08/23

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BGI0184-DUP1)**

Source: 2308661-02

Prepared & Analyzed: 09/08/23

Specific Conductance (EC) 0.274 0.0100 mmhos/cm 0.274 0.00 20

Summit Scientific

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

**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 BGI0185 - General Preparation**

**LCS (BGI0185-BS1)**

Prepared & Analyzed: 09/08/23

pH 9.09 pH Units 9.18 99.0 95-105

**Duplicate (BGI0185-DUP1)**

Source: 2308661-02

Prepared & Analyzed: 09/08/23

pH 7.85 pH Units 7.83 0.255 20

Summit Scientific

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

Project: Noble - Sandau 34-12F

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/26/23 12:53

### Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- 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.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
- QM-02 The RPD and/or percent recovery for this QC sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
- 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