

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: Vern Marshall 1		Date: 09/05/1997			Remediation Project #: 29144			
Associated Wells:		Age of Site:			Number of Photos Attached: 2			
Starting point: (GPS coordinates and descriptions) 40.266257, -104.692392								
End point: (GPS coordinates and descriptions) 40.267302, -104.694078								
USCS Soil Type: SW					Estimated Depth to Groundwater: >4ft.			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Flowlines								
Flowline type	Oil/Gas/Water							
Depth	4ft.							
Age								
Length	629ft.							
Construction Material	Steel							
Were flowlines pulled?	No							
Visual Integrity of lines	Good							
Visual impacts if trenched	N/A							
PID Readings if trenched	Yes							
Sample taken? Location/Sample ID#	Yes							
Photo Number(s)	2							
Other observations regarding on location flowlines: Flowline was ABIP between Soil Sample locations FL01-A and FL01-B due to multiple line crossings.								
Summary								
Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards								
Total number of samples field screened: 2					Total number of samples collected: 2			
Highest PID Reading: 0.0					Total number of samples submitted to lab for analysis: 2			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent:					Estimated spill volume:			
Lateral extent:					Volume of soil removed:			
Is additional investigation required?								
Was groundwater encountered during the investigation? No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater:					Was remedial groundwater removal conducted? Yes No			
Date Groundwater was encountered:					Commencement date of removal:			
Sheen on groundwater? Yes No					Volume of groundwater removed prior to sampling:			
Free product observed? Yes No					Volume of groundwater removed post sampling:			
Total number of samples collected:					Total Volume of groundwater removed:			
Total number of samples submitted to lab for analysis:								

Photographic Log



Equipment ID: FL01-A@4'		Equipment Type: Flowline		Equipment ID: FL01-B@4'		Equipment Type: Flowline	
Material: Steel	Volume:	Contents: Oil/Gas/Water		Material: Steel	Volume:	Contents: Oil/Gas/Water	
Notes/Conditions: Facing South				Notes/Conditions: Facing West			

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - VERN MARSHALL 1

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@4'	09/05/23	0.0	No Staining	No Odor	Lab	40.26730141	-104.6940782	0.9
FL01-B@4'	09/05/23	0.0	No Staining	No Odor	Lab	40.26625573	-104.6923908	1.0

Notes:

PID = Photoionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

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

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - VERN MARSHALL 1

Soil Sample ID	Date	¹ Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)	
Residential SSL ²		1.2	490	5.8	58	30	27	2	500			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24	
Protection of Groundwater SSL ^{2,3}		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019	
FL01-A@4'	09/05/23	<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
FL01-B@4'	09/05/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	0.0340	0.0649	0.176	0.131	0.156	0.0649	0.152	<0.00500	0.365	0.0202	0.0672	0.363	0.00875	<0.00500	

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@4'	09/05/23	6.78	0.303	0.421	0.0854
FL01-B@4'	09/05/23	7.60	0.0484	0.130	0.0466

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 ²		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^{2,3}		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-A@4'	09/05/23	0.557	56.9	<0.200	<0.30	1.58	5.81	1.50	<0.260	0.0213	5.72
FL01-B@4'	09/05/23	0.719	57.6	0.256	<0.30	1.84	5.98	1.87	<0.260	0.0354	7.90

Notes:

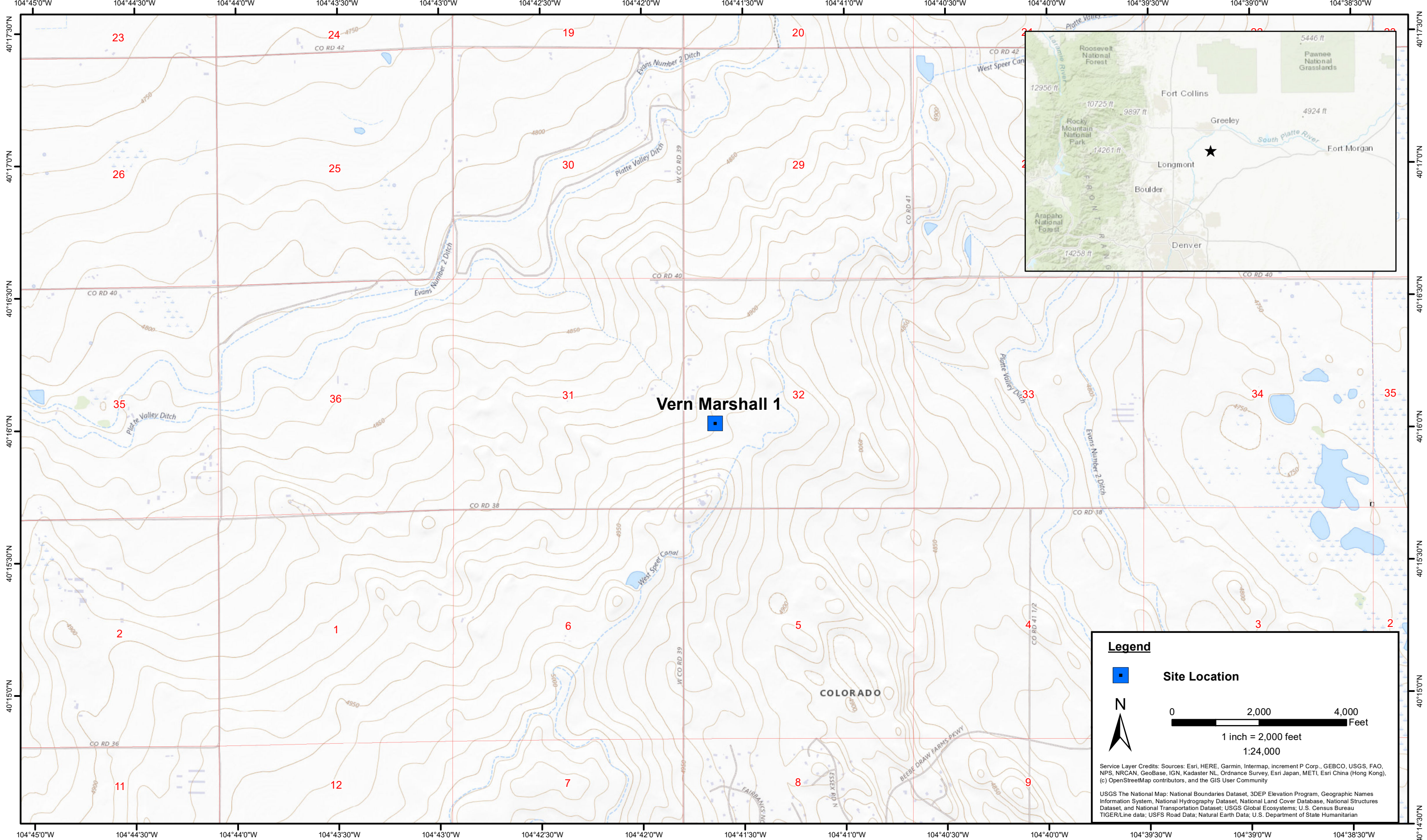
1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with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

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission
 TPH-GRO = Total petroleum hydrocarbons - gasoline range organics
 TPH-DRO = Total petroleum hydrocarbons - diesel range organics
 TPH-ORO = Total petroleum hydrocarbons - oil range organics
 mg/kg = Milligrams per kilogram
 SAR = Sodium Adsorption Ratio
 EC = Electrical Conductivity
 mmhos/cm = 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) = Benzo(a)anthracene
 Benzo(b) = Benzo(b)fluoranthene
 Benzo(k) = Benzo(k)fluoranthene
 Benzo(a) = Benzo(a)pyrene
 A,H = Dibenzo(a,h)anthracene
 1,2,3-CD = Indeno(1,2,3-cd)pyrene
 1-M = 1-Methylnaphthalene
 2-M = 2-Methylnaphthalene

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



DATE: September 2023
 DESIGNED BY: J. Whritenour
 DRAWN BY: L. Reed



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

Noble Energy, Inc - DJ Basin
Vern Marshall 1
 NWSW, Section 32, Township 4 North, Range 65 West
 Weld County, Colorado

Site Location Map

Figure
1



FL01-A@4'
(09/05/2023)

PID = 0.0 ppm
Arsenic = **0.557** mg/kg

FL01-B@4'
(09/05/2023)

PID = 0.0 ppm
Benzo(a)anthracene = **0.176** mg/kg
1-Methylnaphthalene = **0.00875** mg/kg
Arsenic = **0.719** mg/kg

Legend

- - - Flowline Location
- + 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
PID – Photoionization Detector

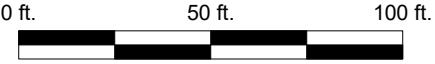


Image Source: Google Earth; Google 2020

DATE: 09/20/2023

DESIGNED BY: JW

DRAWN BY: HM



**Noble Energy, Inc. – DJ Basin
Vern Marshall 1**
NWSW, Section 32, Township 4 North, Range 65 West
Weld County, Colorado

Flowline Closure & Soil
Analytical Results Map
(09/05/2023)

FIGURE
2

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 20, 2023

Jacob Whritenour
Tasman Geosciences
6855 W. 119th Ave.
Broomfield, CO 80020
RE: Noble - Vern Marshall 1
Work Order #2309050

Enclosed are the results of analyses for samples received by Summit Scientific on 09/05/23 17:18. 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 - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@4'	2309050-01	Soil	09/05/23 13:22	09/05/23 17:18
FL01-B@4'	2309050-02	Soil	09/05/23 13:28	09/05/23 17:18

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.

		Send Data To:	Send Invoice To:
Client: Noble / Tasman		Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave		E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Vern Marshall 1
City/State/Zip: Broomfield, CO 80020			AFE#: UWRWE-A3126-ABN
Phone: 303-903-5168		Project Name: Vern Marshall 1	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-Ae4	9/5/23	1322	3			X			X				X	X	X	X	X	X	X		pH, EC, SAR by saturated paste	
2	FL01-Be4	L	1328	L			L			L				L	L	L	L	L	L	L			
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							
15																							

Relinquished by: 9/5/23 1530	Date/Time: 9/5/23 1530	Received by: Tasman Lockbox 9/5/23 1530	Date/Time: 9/5/23 1530	TAT Business Days		Field DO	Notes:
				Same Day		Field EC	
1 Day		Field ORP					
2 Days		Field pH					
3 Days		Field Temp.					
Standard	X	Field Turb.					
Temperature Upon Receipt: 94	Corrected Temperature: 9	IR gun #: _____	HNO3 lot #: _____				

S₂

Sample Receipt Checklist

S2 Work Order# 2309050

Client: Nabe Tasman Client Project ID: Vern Marshall 7

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? ⁽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"/>	OK 7/16
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 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 ²⁺), Hexavalent Chromium (Cr ⁶⁺ , 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? ⁽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 ₂ SO ₄ , NaOH, HNO ₃ , 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.

AS
Custodian Printed Name

9/5/23
Date/Time

11



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

Project: Noble - Vern Marshall I
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

FL01-A@4'
2309050-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGI0118	09/06/23	09/07/23	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: **09/05/23 13:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0340	85.0 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0381	95.3 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0381	95.3 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGI0124	09/06/23	09/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	12.8	102 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

FL01-A@4'
2309050-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGI0280	09/12/23	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: **09/05/23 13:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0202	60.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0164	49.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0854	0.0100	mg/L	1	BGI0100	09/06/23	09/07/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/05/23 13:22**

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

Project: Noble - Vern Marshall 1

Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

FL01-A@4'
2309050-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.557	0.200	mg/kg dry	1	BGI0159	09/07/23	09/08/23	EPA 6020B	
Barium	56.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.58	0.400	"	"	"	"	"	"	
Lead	5.81	0.200	"	"	"	"	"	"	
Nickel	1.50	0.400	"	"	"	"	"	"	
Silver	0.0213	0.0200	"	"	"	"	"	"	
Zinc	5.72	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/05/23 13:22**

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: **09/05/23 13:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	188	0.0532	mg/L dry	1	BGI0133	09/06/23	09/07/23	EPA 6020B	
Magnesium	43.2	0.0532	"	"	"	"	"	"	
Sodium	17.7	0.0532	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.303	0.00100	units	1	BGI0211	09/08/23	09/08/23	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 - Vern Marshall I
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

FL01-A@4'
2309050-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	94.0			%	1	BGI0099	09/06/23	09/06/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.421	0.0100		mmhos/cm	1	BGI0149	09/07/23	09/07/23	EPA 120.1	

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

Date Sampled: **09/05/23 13:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	6.78			pH Units	1	BGI0148	09/07/23	09/07/23	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Vern Marshall I
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

FL01-B@4'
2309050-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGI0118	09/06/23	09/07/23	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: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0320	80.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0410	102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	98.5 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGI0124	09/06/23	09/07/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	14.5	116 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

FL01-B@4'
2309050-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	0.0340	0.00500	mg/kg	1	BGI0280	09/12/23	09/13/23	EPA 8270D SIM	
Anthracene	0.0649	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.176	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.131	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.156	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	0.0649	0.00500	"	"	"	"	"	"	
Chrysene	0.152	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.365	0.00500	"	"	"	"	"	"	E
Fluorene	0.0202	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.0672	0.00500	"	"	"	"	"	"	
Pyrene	0.363	0.00500	"	"	"	"	"	"	E
1-Methylnaphthalene	0.00875	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0195	58.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0153	46.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0466	0.0100	mg/L	1	BGI0100	09/06/23	09/07/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.719	0.200	mg/kg dry	1	BGI0159	09/07/23	09/08/23	EPA 6020B	

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Project: Noble - Vern Marshall 1

Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

FL01-B@4'
2309050-02 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	57.6	0.400	mg/kg dry	1	BGI0159	09/07/23	09/08/23	EPA 6020B	
Cadmium	0.256	0.200	"	"	"	"	"	"	
Copper	1.84	0.400	"	"	"	"	"	"	
Lead	5.98	0.200	"	"	"	"	"	"	
Nickel	1.87	0.400	"	"	"	"	"	"	
Silver	0.0354	0.0200	"	"	"	"	"	"	
Zinc	7.90	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/05/23 13:28**

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: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	107	0.0546	mg/L dry	1	BGI0133	09/06/23	09/07/23	EPA 6020B	
Magnesium	21.0	0.0546	"	"	"	"	"	"	
Sodium	2.09	0.0546	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0484	0.00100	units	1	BGI0211	09/08/23	09/08/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.5		%	1	BGI0099	09/06/23	09/06/23	Calculation	

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Project: Noble - Vern Marshall 1
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Reported:
09/20/23 13:29

FL01-B@4'
2309050-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.130	0.0100	mmhos/cm	1	BGI0149	09/07/23	09/07/23	EPA 120.1	

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

Date Sampled: **09/05/23 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.60		pH Units	1	BGI0148	09/07/23	09/07/23	EPA 9045D	

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Project: Noble - Vern Marshall 1

Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 BGI0118 - EPA 5030 Soil MS

Blank (BGI0118-BLK1)

Prepared & Analyzed: 09/06/23

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	0.0252		"	0.0400		62.9	50-150			
Surrogate: Toluene-d8	0.0423		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.5	50-150			

LCS (BGI0118-BS1)

Prepared & Analyzed: 09/06/23

Benzene	0.116	0.0020	mg/kg	0.100		116	70-130			
Toluene	0.116	0.0050	"	0.100		116	70-130			
Ethylbenzene	0.130	0.0050	"	0.100		130	70-130			
m,p-Xylene	0.249	0.010	"	0.200		124	70-130			
o-Xylene	0.113	0.0050	"	0.100		113	70-130			
1,2,4-Trimethylbenzene	0.121	0.0050	"	0.100		121	70-130			
1,3,5-Trimethylbenzene	0.124	0.0050	"	0.100		124	70-130			
Naphthalene	0.0731	0.0038	"	0.100		73.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0275		"	0.0400		68.8	50-150			
Surrogate: Toluene-d8	0.0388		"	0.0400		97.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0400		96.0	50-150			

Matrix Spike (BGI0118-MS1)

Source: 2309027-01

Prepared & Analyzed: 09/06/23

Benzene	0.104	0.0020	mg/kg	0.100	ND	104	70-130			
Toluene	0.0996	0.0050	"	0.100	ND	99.6	70-130			
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
m,p-Xylene	0.192	0.010	"	0.200	ND	95.9	70-130			
o-Xylene	0.0895	0.0050	"	0.100	ND	89.5	70-130			
1,2,4-Trimethylbenzene	0.0880	0.0050	"	0.100	ND	88.0	70-130			
1,3,5-Trimethylbenzene	0.0954	0.0050	"	0.100	ND	95.4	70-130			
Naphthalene	0.108	0.0038	"	0.100	ND	108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0351		"	0.0400		87.7	50-150			
Surrogate: Toluene-d8	0.0418		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0359		"	0.0400		89.7	50-150			

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6855 W. 119th Ave.
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Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 BGI0118 - EPA 5030 Soil MS

Matrix Spike Dup (BGI0118-MSD1)	Source: 2309027-01			Prepared & Analyzed: 09/06/23						
Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130	1.52	30	
Toluene	0.0941	0.0050	"	0.100	ND	94.1	70-130	5.67	30	
Ethylbenzene	0.0934	0.0050	"	0.100	ND	93.4	70-130	7.84	30	
m,p-Xylene	0.231	0.010	"	0.200	ND	115	70-130	18.4	30	
o-Xylene	0.108	0.0050	"	0.100	ND	108	70-130	18.6	30	
1,2,4-Trimethylbenzene	0.0970	0.0050	"	0.100	ND	97.0	70-130	9.76	30	
1,3,5-Trimethylbenzene	0.120	0.0050	"	0.100	ND	120	70-130	22.5	30	
Naphthalene	0.100	0.0038	"	0.100	ND	100	70-130	7.33	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0318</i>		<i>"</i>	<i>0.0400</i>		<i>79.6</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>98.0</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0237</i>		<i>"</i>	<i>0.0400</i>		<i>59.3</i>	<i>50-150</i>			

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Broomfield CO, 80020

Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BGI0124 - EPA 3550A

Blank (BGI0124-BLK1)

Prepared & Analyzed: 09/06/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	13.7		"	12.5		109	30-150				

LCS (BGI0124-BS1)

Prepared & Analyzed: 09/06/23

C10-C28 (DRO)	525	50	mg/kg	500		105	70-130				
Surrogate: <i>o</i> -Terphenyl	12.8		"	12.5		102	30-150				

Matrix Spike (BGI0124-MS1)

Source: 2309027-01

Prepared & Analyzed: 09/06/23

C10-C28 (DRO)	411	50	mg/kg	500	11.3	79.9	70-130				
Surrogate: <i>o</i> -Terphenyl	11.5		"	12.5		91.9	30-150				

Matrix Spike Dup (BGI0124-MSD1)

Source: 2309027-01

Prepared & Analyzed: 09/06/23

C10-C28 (DRO)	426	50	mg/kg	500	11.3	82.9	70-130	3.69	20		
Surrogate: <i>o</i> -Terphenyl	12.7		"	12.5		101	30-150				

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Broomfield CO, 80020

Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 BGI0280 - EPA 5030 Soil MS

Blank (BGI0280-BLK1)

Prepared & Analyzed: 09/12/23

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0257</i>		<i>"</i>	<i>0.0333</i>		<i>77.2</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0315</i>		<i>"</i>	<i>0.0333</i>		<i>94.6</i>		<i>40-150</i>		

LCS (BGI0280-BS1)

Prepared & Analyzed: 09/12/23

Acenaphthene	0.0290	0.00500	mg/kg	0.0333		87.1		31-137		
Anthracene	0.0302	0.00500	"	0.0333		90.7		30-120		
Benzo (a) anthracene	0.0279	0.00500	"	0.0333		83.8		30-120		
Benzo (a) pyrene	0.0292	0.00500	"	0.0333		87.6		30-120		
Benzo (b) fluoranthene	0.0290	0.00500	"	0.0333		87.1		30-120		
Benzo (k) fluoranthene	0.0310	0.00500	"	0.0333		92.9		30-120		
Chrysene	0.0303	0.00500	"	0.0333		90.8		30-120		
Dibenz (a,h) anthracene	0.0123	0.00500	"	0.0333		36.9		30-120		
Fluoranthene	0.0295	0.00500	"	0.0333		88.6		30-120		
Fluorene	0.0293	0.00500	"	0.0333		87.8		30-120		
Indeno (1,2,3-cd) pyrene	0.0216	0.00500	"	0.0333		64.8		30-120		
Pyrene	0.0280	0.00500	"	0.0333		84.0		35-142		
1-Methylnaphthalene	0.0268	0.00500	"	0.0333		80.4		35-142		
2-Methylnaphthalene	0.0310	0.00500	"	0.0333		92.9		35-142		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0279</i>		<i>"</i>	<i>0.0333</i>		<i>83.7</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0301</i>		<i>"</i>	<i>0.0333</i>		<i>90.4</i>		<i>40-150</i>		

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Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 BGI0280 - EPA 5030 Soil MS

Matrix Spike (BGI0280-MS1)	Source: 2309005-01			Prepared & Analyzed: 09/12/23						
Acenaphthene	0.0181	0.00500	mg/kg	0.0333	ND	54.2	31-137			
Anthracene	0.0197	0.00500	"	0.0333	ND	59.0	30-120			
Benzo (a) anthracene	0.0188	0.00500	"	0.0333	ND	56.5	30-120			
Benzo (a) pyrene	0.0172	0.00500	"	0.0333	ND	51.7	30-120			
Benzo (b) fluoranthene	0.0178	0.00500	"	0.0333	ND	53.5	30-120			
Benzo (k) fluoranthene	0.0192	0.00500	"	0.0333	ND	57.5	30-120			
Chrysene	0.0184	0.00500	"	0.0333	ND	55.2	30-120			
Dibenz (a,h) anthracene	0.0190	0.00500	"	0.0333	ND	57.0	30-120			
Fluoranthene	0.0187	0.00500	"	0.0333	ND	56.1	30-120			
Fluorene	0.0208	0.00500	"	0.0333	ND	62.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0150	0.00500	"	0.0333	ND	45.1	30-120			
Pyrene	0.0158	0.00500	"	0.0333	ND	47.4	35-142			
1-Methylnaphthalene	0.0196	0.00500	"	0.0333	ND	58.9	15-130			
2-Methylnaphthalene	0.0210	0.00500	"	0.0333	ND	63.1	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0214</i>		<i>"</i>	<i>0.0333</i>		<i>64.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0193</i>		<i>"</i>	<i>0.0333</i>		<i>58.0</i>	<i>40-150</i>			

Matrix Spike Dup (BGI0280-MSD1)	Source: 2309005-01			Prepared & Analyzed: 09/12/23						
Acenaphthene	0.0175	0.00500	mg/kg	0.0333	ND	52.5	31-137	3.04	30	
Anthracene	0.0159	0.00500	"	0.0333	ND	47.8	30-120	21.1	30	
Benzo (a) anthracene	0.0177	0.00500	"	0.0333	ND	53.0	30-120	6.43	30	
Benzo (a) pyrene	0.0176	0.00500	"	0.0333	ND	52.8	30-120	2.09	30	
Benzo (b) fluoranthene	0.0182	0.00500	"	0.0333	ND	54.6	30-120	2.01	30	
Benzo (k) fluoranthene	0.0190	0.00500	"	0.0333	ND	57.0	30-120	0.852	30	
Chrysene	0.0181	0.00500	"	0.0333	ND	54.2	30-120	1.89	30	
Dibenz (a,h) anthracene	0.0169	0.00500	"	0.0333	ND	50.6	30-120	11.8	30	
Fluoranthene	0.0176	0.00500	"	0.0333	ND	52.9	30-120	5.82	30	
Fluorene	0.0184	0.00500	"	0.0333	ND	55.1	30-120	12.5	30	
Indeno (1,2,3-cd) pyrene	0.0202	0.00500	"	0.0333	ND	60.7	30-120	29.6	30	
Pyrene	0.0165	0.00500	"	0.0333	ND	49.4	35-142	4.02	30	
1-Methylnaphthalene	0.0190	0.00500	"	0.0333	ND	57.0	15-130	3.25	50	
2-Methylnaphthalene	0.0166	0.00500	"	0.0333	ND	49.9	15-130	23.4	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0178</i>		<i>"</i>	<i>0.0333</i>		<i>53.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0180</i>		<i>"</i>	<i>0.0333</i>		<i>54.0</i>	<i>40-150</i>			

Summit Scientific

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

Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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

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

Batch BGI0100 - EPA 3050B

Blank (BGI0100-BLK1)

Prepared: 09/06/23 Analyzed: 09/07/23

Boron ND 0.0100 mg/L

LCS (BGI0100-BS1)

Prepared: 09/06/23 Analyzed: 09/07/23

Boron 4.71 0.0100 mg/L 5.00 94.2 80-120

Duplicate (BGI0100-DUP1)

Source: 2309033-01

Prepared: 09/06/23 Analyzed: 09/07/23

Boron 0.298 0.0100 mg/L 0.210 34.4 20 QR-04

Matrix Spike (BGI0100-MS1)

Source: 2309033-01

Prepared: 09/06/23 Analyzed: 09/07/23

Boron 4.83 0.0100 mg/L 5.00 0.210 92.4 75-125

Matrix Spike Dup (BGI0100-MSD1)

Source: 2309033-01

Prepared: 09/06/23 Analyzed: 09/07/23

Boron 4.96 0.0100 mg/L 5.00 0.210 95.0 75-125 2.59 25

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Broomfield CO, 80020

Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 BGI0133 - General Preparation

Blank (BGI0133-BLK1)

Prepared: 09/06/23 Analyzed: 09/07/23

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

LCS (BGI0133-BS1)

Prepared: 09/06/23 Analyzed: 09/07/23

Calcium	4.76	0.0500	mg/L wet	5.00		95.2	70-130			
Magnesium	4.73	0.0500	"	5.00		94.6	70-130			
Sodium	4.52	0.0500	"	5.00		90.4	70-130			

Summit Scientific

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

Project: Noble - Vern Marshall 1
 Project Number: UWRWE-A3126-ABN
 Project Manager: Jacob Whritenour

Reported:
 09/20/23 13:29

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 BGI0099 - General Preparation

Duplicate (BGI0099-DUP1)

Source: 2308165-05

Prepared & Analyzed: 09/06/23

% Solids	77.0		%		76.4			0.779	20	
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Summit Scientific

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

Project: Noble - Vern Marshall 1
Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 BGI0149 - General Preparation

Blank (BGI0149-BLK1)

Prepared & Analyzed: 09/07/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGI0149-BS1)

Prepared & Analyzed: 09/07/23

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 104 95-105

Duplicate (BGI0149-DUP1)

Source: 2309048-01

Prepared & Analyzed: 09/07/23

Specific Conductance (EC) 0.608 0.0100 mmhos/cm 0.608 0.00 20

Summit Scientific

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

Project: Noble - Vern Marshall 1

Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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 BGI0148 - General Preparation

LCS (BGI0148-BS1)

Prepared & Analyzed: 09/07/23

pH 9.06 pH Units 9.18 98.7 95-105

Duplicate (BGI0148-DUP1)

Source: 2309048-01

Prepared & Analyzed: 09/07/23

pH 7.17 pH Units 7.17 0.00 20

Summit Scientific

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

Project: Noble - Vern Marshall 1

Project Number: UWRWE-A3126-ABN
Project Manager: Jacob Whritenour

Reported:
09/20/23 13:29

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.
- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- 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