

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: Stephens J31-9		Date: 02/24/23						Remediation Project #: 22242
Associated Wells:		Age of Site:						Number of Photos Attached:
Starting point: (GPS coordinates and descriptions) 40.354092, -104.815557								
End point: (GPS coordinates and descriptions) 40.352176, -104.818406								
USCS Soil Type:					Estimated Depth to Groundwater:			
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								
Depth	4.5'							
Age								
Length	1,800							
Construction Material	steel							
Were flowlines pulled?	yes							
Visual Integrity of lines	good							
Visual impacts if trenched	good							
PID Readings if trenched	0.2-0.8							
Sample taken? Location/Sample ID#								
Photo Number(s)								
Other observations regarding on location flowlines: A point collected by Eagle during wellhead cut and cap								
Summary								
Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards								
Total number of samples field screened: 6					Total number of samples collected: 6			
Highest PID Reading: 0.8					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-D@5'		Equipment Type: Flowline		Equipment ID: FL01-C@4.5'		Equipment Type: Flowline	
Material: Steel		Volume:		Contents: Oil/Gas/Water		Material: Steel	
Volume:		Contents: Oil/Gas/Water		Volume:		Contents: Oil/Gas/Water	
Notes/Conditions:				Notes/Conditions:			

Photographic Log

					
Equipment ID: FL01-E@4.5'		Equipment Type: Flowline			
Material: Steel		Volume:		Contents: Oil/Gas/Water	
Notes/Conditions: Direction change occurs here, 90 degrees					

					
Equipment ID: FL01-F@4.5'		Equipment Type:			
Material:		Volume:		Contents:	
Notes/Conditions:					

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - STEPHENS J31-09 FL

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-C@4.5'	02/24/23	0.8	No Staining	No Odor	Grab	40.35439632	-104.818229	1.1
FL01-D@5'	02/24/23	0.2	No Staining	No Odor	Grab	40.35437829	-104.8180057	1.1
FL01-F@4.5'	02/24/23	0.6	No Staining	No Odor	Grab	40.35426736	-104.8170629	1.1
FL01-E@4.5'	03/08/23	0.3	No Staining	No Odor	Lab	40.35440127	-104.8185392	0.9

Notes:

PID = Photo-ionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

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

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - STEPHENS J31-09 FL

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-E@4.5'	03/08/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01-E@4.5'	03/08/23	7.84	0.847	0.764	0.377

Notes:

1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millmhos per centimeter

mg/L = Milligrams per liter

< = Analytical result is less than the indicated laboratory reporting limit

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

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzanthracene

Benzo(b) = Benzo(a)fluoranthene

Benzo(k) = Benzo(a)fluoranthene

Benzo(a) = Benzopyrene

A,H = Dibenzo(a,h)anthracene

1,2,3-CD = Indeno(1,2,3-cd)pyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



DATE:	3/15/2022	 TASMAN Tasman Geosciences, Inc. 6855 W 119 th Avenue Broomfield, CO 80020	Noble Energy, Inc. – DJ Basin STEPHENS J31-09 NESE, Section 31, Township 5 North, Range 66 West Weld County, Colorado	Flowline Closure & Soil Analytical Results Map (02/24/2023, 03/08/2023)	FIGURE 1
DESIGNED BY:	JW				
DRAWN BY:	JW				

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 14, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Stephens J 31-9

Work Order #2303187

Enclosed are the results of analyses for samples received by Summit Scientific on 03/08/23 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Sheely".

Scott Sheely For Paul Shrewsbury
President



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

Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-E@4.5'	2303187-01	Soil	03/08/23 12:10	03/08/23 17:40

Summit Scientific

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

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2303187	

Send Data To:		Send Invoice To:	
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Noble	
Address: 6855 W 119TH AVE	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Stephens J31-9	
City/State/Zip: Broomfield CO 80020		AFE#:	
Phone: 503-915-3046	Project Name: Stephens J31-9	PO/Billing Codes: UWRWE-A1667-ABN	
Sampler Name: Martin Medeiros	Project Number: UWRWE-A1667-ABN	Contact: Wade Firestien	

					Preservative				Matrix				Analysis Requested					Special Instructions																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	VOC-915	TPH-915	PAH-915	PH, EC, SAR	Boron-HWS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

Relinquished by: Martin Medeiros <i>Martin Medeiros</i>	Date/Time: 3/8/23 15:30	Received by:	Date/Time: 3/8/23 15:30	TAT Business Days	Field DO	Notes:
				Same Day ☒	Field EC	
Relinquished by: Tasman LAB BOX	Date/Time: 3/8/23 1740	Received by: <i>[Signature]</i>	Date/Time: 3/8/23 1740	1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Standard	Field Turb.	
Temperature Upon Receipt: 8.0	Corrected Temperature: 8.0	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2303187Client: Noble/Tawman Client Project ID: Stephens J31-9Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐

☐	☐	☐	☐	☐
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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 8.0 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.	☒	☐	☐	<u>on ICE</u>
If custody seals are present, are they intact? ⁽¹⁾	☒	☐	☐	
Are samples due within 48 hours present?	☒	☐	☐	<u>same day</u>
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	☐	☐	☒	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	☒	☐	☐	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	☒	☐	☐	
Were all samples received intact? ⁽¹⁾	☒	☐	☐	
Was adequate sample volume provided? ⁽¹⁾	☒	☐	☐	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	☒	☐	☐	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	☒	☐	☐	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	☐	☐	☒	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	☐	☐	☒	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	☐	☐	☒	
If dissolved metals are requested, were samples field filtered?	☐	☐	☒	
Additional Comments (if any):				

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

AS
Custodian Printed Name

3/8/23
Date/Time



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

Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

FL01-E@4.5'
2303187-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGC0243	03/08/23	03/08/23	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: **03/08/23 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0274	68.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0327	81.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0335	83.7 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGC0244	03/08/23	03/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	13.1	105 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Broomfield CO, 80020

Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

FL01-E@4.5'
2303187-01 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGC0251	03/09/23	03/10/23	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: **03/08/23 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0331	99.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0185	55.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.377	0.0100	mg/L	1	BGC0234	03/08/23	03/09/23	EPA 6020B	

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

Date Sampled: **03/08/23 12:10**

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

Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

FL01-E@4.5'
2303187-01 (Soil)

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

Calcium	101	0.0687	mg/L dry	1	BGC0241	03/08/23	03/13/23	EPA 6020B
Magnesium	23.7	0.0687	"	"	"	"	"	"
Sodium	36.4	0.0687	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.847	0.00100	units	1	BGC0378	03/14/23	03/14/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	72.8		%	1	BGC0270	03/09/23	03/10/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.764	0.0100	mmhos/cm	1	BGC0263	03/09/23	03/09/23	EPA 120.1	

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

Date Sampled: **03/08/23 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.84		pH Units	1	BGC0262	03/09/23	03/09/23	EPA 9045D	

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Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BGC0243 - EPA 5030 Soil MS

Blank (BGC0243-BLK1)

Prepared & Analyzed: 03/08/23

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	0.0447		"	0.0400		112	50-150			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	50-150			

LCS (BGC0243-BS1)

Prepared & Analyzed: 03/08/23

Benzene	0.0898	0.0020	mg/kg	0.100		89.8	70-130			
Toluene	0.0805	0.0050	"	0.100		80.5	70-130			
Ethylbenzene	0.0917	0.0050	"	0.100		91.7	70-130			
m,p-Xylene	0.185	0.010	"	0.200		92.4	70-130			
o-Xylene	0.0877	0.0050	"	0.100		87.7	70-130			
1,2,4-Trimethylbenzene	0.0844	0.0050	"	0.100		84.4	70-130			
1,3,5-Trimethylbenzene	0.0878	0.0050	"	0.100		87.8	70-130			
Naphthalene	0.0721	0.0038	"	0.100		72.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0401		"	0.0400		100	50-150			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0400		95.8	50-150			

Matrix Spike (BGC0243-MS1)

Source: 2303173-01

Prepared & Analyzed: 03/08/23

Benzene	0.0899	0.0020	mg/kg	0.100	ND	89.9	70-130			
Toluene	0.0823	0.0050	"	0.100	ND	82.3	70-130			
Ethylbenzene	0.0964	0.0050	"	0.100	ND	96.4	70-130			
m,p-Xylene	0.193	0.010	"	0.200	ND	96.3	70-130			
o-Xylene	0.0890	0.0050	"	0.100	ND	89.0	70-130			
1,2,4-Trimethylbenzene	0.0904	0.0050	"	0.100	ND	90.4	70-130			
1,3,5-Trimethylbenzene	0.0917	0.0050	"	0.100	ND	91.7	70-130			
Naphthalene	0.0752	0.0038	"	0.100	ND	75.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0379		"	0.0400		94.8	50-150			
Surrogate: Toluene-d8	0.0393		"	0.0400		98.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	50-150			

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Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch BGC0243 - EPA 5030 Soil MS

Matrix Spike Dup (BGC0243-MSD1)		Source: 2303173-01			Prepared & Analyzed: 03/08/23						
Benzene	0.0857	0.0020	mg/kg	0.100	ND	85.7	70-130	4.78	30		
Toluene	0.0772	0.0050	"	0.100	ND	77.2	70-130	6.36	30		
Ethylbenzene	0.0913	0.0050	"	0.100	ND	91.3	70-130	5.46	30		
m,p-Xylene	0.180	0.010	"	0.200	ND	90.2	70-130	6.52	30		
o-Xylene	0.0846	0.0050	"	0.100	ND	84.6	70-130	5.08	30		
1,2,4-Trimethylbenzene	0.0848	0.0050	"	0.100	ND	84.8	70-130	6.47	30		
1,3,5-Trimethylbenzene	0.0863	0.0050	"	0.100	ND	86.3	70-130	6.03	30		
Naphthalene	0.0751	0.0038	"	0.100	ND	75.1	70-130	0.0799	30		
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0400		105	50-150				
Surrogate: Toluene-d8	0.0389		"	0.0400		97.3	50-150				
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.6	50-150				

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

Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BGC0244 - EPA 3550A

Blank (BGC0244-BLK1)

Prepared & Analyzed: 03/08/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	14.9		"	12.5	119		30-150			

LCS (BGC0244-BS1)

Prepared & Analyzed: 03/08/23

C10-C28 (DRO)	482	50	mg/kg	500	96.5		70-130			
Surrogate: o-Terphenyl	15.3		"	12.5	122		30-150			

Matrix Spike (BGC0244-MS1)

Source: 2303173-01

Prepared & Analyzed: 03/08/23

C10-C28 (DRO)	490	50	mg/kg	500	12.6	95.5	70-130			
Surrogate: o-Terphenyl	11.4		"	12.5	91.2		30-150			

Matrix Spike Dup (BGC0244-MSD1)

Source: 2303173-01

Prepared & Analyzed: 03/08/23

C10-C28 (DRO)	448	50	mg/kg	500	12.6	87.1	70-130	8.97	20	
Surrogate: o-Terphenyl	13.4		"	12.5	107		30-150			

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Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGC0251 - EPA 5030 Soil MS

Blank (BGC0251-BLK1)

Prepared & Analyzed: 03/09/23

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	0.0316		"	0.0333		94.7	40-150			
Surrogate: Fluoranthene-d10	0.0305		"	0.0333		91.4	40-150			

LCS (BGC0251-BS1)

Prepared & Analyzed: 03/09/23

Acenaphthene	0.0345	0.00500	mg/kg	0.0333	104	31-137
Anthracene	0.0344	0.00500	"	0.0333	103	30-120
Benzo (a) anthracene	0.0280	0.00500	"	0.0333	83.9	30-120
Benzo (a) pyrene	0.0241	0.00500	"	0.0333	72.2	30-120
Benzo (b) fluoranthene	0.0254	0.00500	"	0.0333	76.3	30-120
Benzo (k) fluoranthene	0.0331	0.00500	"	0.0333	99.4	30-120
Chrysene	0.0300	0.00500	"	0.0333	89.9	30-120
Dibenz (a,h) anthracene	0.0328	0.00500	"	0.0333	98.3	30-120
Fluoranthene	0.0343	0.00500	"	0.0333	103	30-120
Fluorene	0.0388	0.00500	"	0.0333	116	30-120
Indeno (1,2,3-cd) pyrene	0.0260	0.00500	"	0.0333	77.9	30-120
Pyrene	0.0319	0.00500	"	0.0333	95.8	35-142
1-Methylnaphthalene	0.0327	0.00500	"	0.0333	98.0	35-142
2-Methylnaphthalene	0.0330	0.00500	"	0.0333	99.0	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0364		"	0.0333	109	40-150
Surrogate: Fluoranthene-d10	0.0393		"	0.0333	118	40-150

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Broomfield CO, 80020

Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGC0251 - EPA 5030 Soil MS

Matrix Spike (BGC0251-MS1)			Source: 2303134-01		Prepared & Analyzed: 03/09/23						
Acenaphthene	0.0134	0.00500	mg/kg	0.0333	ND	40.3	31-137				
Anthracene	0.0209	0.00500	"	0.0333	ND	62.8	30-120				
Benzo (a) anthracene	0.0179	0.00500	"	0.0333	ND	53.8	30-120				
Benzo (a) pyrene	0.0203	0.00500	"	0.0333	ND	60.8	30-120				
Benzo (b) fluoranthene	0.0138	0.00500	"	0.0333	ND	41.3	30-120				
Benzo (k) fluoranthene	0.0152	0.00500	"	0.0333	ND	45.5	30-120				
Chrysene	0.0162	0.00500	"	0.0333	ND	48.5	30-120				
Dibenz (a,h) anthracene	0.0163	0.00500	"	0.0333	ND	48.9	30-120				
Fluoranthene	0.0194	0.00500	"	0.0333	ND	58.3	30-120				
Fluorene	0.0241	0.00500	"	0.0333	ND	72.3	30-120				
Indeno (1,2,3-cd) pyrene	0.0160	0.00500	"	0.0333	ND	48.1	30-120				
Pyrene	0.0208	0.00500	"	0.0333	0.00196	56.6	35-142				
1-Methylnaphthalene	0.0371	0.00500	"	0.0333	0.00856	85.7	15-130				
2-Methylnaphthalene	0.0398	0.00500	"	0.0333	0.00968	90.5	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0263		"	0.0333		78.9	40-150				
Surrogate: Fluoranthene-d10	0.0194		"	0.0333		58.3	40-150				

Matrix Spike Dup (BGC0251-MSD1)			Source: 2303134-01		Prepared & Analyzed: 03/09/23						
Acenaphthene	0.0175	0.00500	mg/kg	0.0333	ND	52.5	31-137	26.4	30		
Anthracene	0.0169	0.00500	"	0.0333	ND	50.8	30-120	21.2	30		
Benzo (a) anthracene	0.0138	0.00500	"	0.0333	ND	41.5	30-120	25.7	30		
Benzo (a) pyrene	0.0166	0.00500	"	0.0333	ND	49.7	30-120	20.0	30		
Benzo (b) fluoranthene	0.0168	0.00500	"	0.0333	ND	50.5	30-120	20.0	30		
Benzo (k) fluoranthene	0.0145	0.00500	"	0.0333	ND	43.4	30-120	4.84	30		
Chrysene	0.0144	0.00500	"	0.0333	ND	43.1	30-120	11.8	30		
Dibenz (a,h) anthracene	0.0185	0.00500	"	0.0333	ND	55.6	30-120	12.8	30		
Fluoranthene	0.0156	0.00500	"	0.0333	ND	46.9	30-120	21.6	30		
Fluorene	0.0211	0.00500	"	0.0333	ND	63.3	30-120	13.3	30		
Indeno (1,2,3-cd) pyrene	0.0151	0.00500	"	0.0333	ND	45.4	30-120	5.88	30		
Pyrene	0.0156	0.00500	"	0.0333	0.00196	41.0	35-142	28.5	30		
1-Methylnaphthalene	0.0254	0.00500	"	0.0333	0.00856	50.4	15-130	37.6	50		
2-Methylnaphthalene	0.0306	0.00500	"	0.0333	0.00968	62.7	15-130	26.4	50		
Surrogate: 2-Methylnaphthalene-d10	0.0208		"	0.0333		62.3	40-150				
Surrogate: Fluoranthene-d10	0.0159		"	0.0333		47.8	40-150				

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Tasman Geosciences
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Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

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

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

Batch BGC0234 - EPA 3050B

Blank (BGC0234-BLK1)

Prepared: 03/08/23 Analyzed: 03/09/23

Boron ND 0.0100 mg/L

LCS (BGC0234-BS1)

Prepared: 03/08/23 Analyzed: 03/09/23

Boron 4.98 0.0100 mg/L 5.00 99.6 80-120

Duplicate (BGC0234-DUP1)

Source: 2303154-04

Prepared: 03/08/23 Analyzed: 03/09/23

Boron 0.552 0.0100 mg/L 0.536 3.06 20

Matrix Spike (BGC0234-MS1)

Source: 2303154-04

Prepared: 03/08/23 Analyzed: 03/09/23

Boron 4.69 0.0100 mg/L 5.00 0.536 83.0 75-125

Matrix Spike Dup (BGC0234-MSD1)

Source: 2303154-04

Prepared: 03/08/23 Analyzed: 03/09/23

Boron 4.63 0.0100 mg/L 5.00 0.536 81.8 75-125 1.31 25

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Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

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

Summit Scientific

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

Batch BGC0241 - General Preparation

Blank (BGC0241-BLK1)

Prepared: 03/08/23 Analyzed: 03/13/23

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

LCS (BGC0241-BS1)

Prepared: 03/08/23 Analyzed: 03/13/23

Calcium	5.47	0.0500	mg/L wet	5.00	109	70-130
Magnesium	4.88	0.0500	"	5.00	97.7	70-130
Sodium	4.78	0.0500	"	5.00	95.6	70-130

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Project: Noble - Stephens J 31-9

Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

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

Summit Scientific

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

Batch BGC0270 - General Preparation

Duplicate (BGC0270-DUP1)

Source: 2303185-01

Prepared: 03/09/23 Analyzed: 03/10/23

% Solids	75.1	%	75.5	0.579	20
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Stephens J 31-9
Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

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

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

Batch BGC0263 - General Preparation

Blank (BGC0263-BLK1)

Prepared & Analyzed: 03/09/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGC0263-BS1)

Prepared & Analyzed: 03/09/23

Specific Conductance (EC) 0.145 0.0100 mmhos/cm 0.150 96.4 95-105

Duplicate (BGC0263-DUP1)

Source: 2303170-01

Prepared & Analyzed: 03/09/23

Specific Conductance (EC) 8.53 0.0100 mmhos/cm 8.49 0.470 20

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Broomfield CO, 80020

Project: Noble - Stephens J 31-9

Project Number: UWRWE-A1667-ABN

Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

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

Summit Scientific

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

Batch BGC0262 - General Preparation

LCS (BGC0262-BS1)

Prepared & Analyzed: 03/09/23

pH	9.14	pH Units	9.18	99.6	95-105
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Duplicate (BGC0262-DUP1)

Source: 2303170-01

Prepared & Analyzed: 03/09/23

pH	7.54	pH Units	8.46	11.5	20
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Project: Noble - Stephens J 31-9

Project Number: UWRWE-A1667-ABN
Project Manager: Jacob Whritenour

Reported:
03/14/23 13:53

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