

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: KISSLER K 21-32D		Date: 4/24/2023						Remediation Project #: 25474
Associated Wells:		Age of Site:						Number of Photos Attached: 2
Starting point: (GPS coordinates and descriptions) 40.295426/ - 104.789455								
End point: (GPS coordinates and descriptions) 40.293110/ - 104.786837								
USCS Soil Type: SW					Estimated Depth to Groundwater: greater than 20ft			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
Yes, impacts detected via in field PID								
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	5ft							
Age								
Length	1,156ft							
Construction Material	steel							
Were flowlines pulled?	no							
Visual Integrity of lines	good							
Visual impacts if trenched	yes							
PID Readings if trenched	0.3 - 108.2							
Sample taken? Location/Sample ID#								
Photo Number(s)	2							
Other observations regarding on location flowlines:								
Flowline was ABIP due to landowner agreement								
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: 108.2					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?								
Facility decommissioning scheduled for later date								
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:								

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - KISSLER K21-32D

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@5'	04/24/23	0.3	No Staining	No Odor	Lab	40.29541073	-104.7894565	0.9
FL01-B@3'	04/24/23	108.2	No Staining	Slight HC Odor	Lab	40.29310904	-104.7868470	1.0

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. - KISSLER K21-32D

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@5'	04/24/23	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	0.025	<0.50	<50	<50	0.196	0.305	0.399	0.218	0.319	0.0841	0.260	<0.00500	0.542	0.217	0.197	0.516	0.0175	0.0383
FL01-B@3'	04/24/23	<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	

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@5'	04/24/23	7.53	1.70	0.774	0.355
FL01-B@3'	04/24/23	7.94	1.64	0.324	0.310

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		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-A@5'	04/24/23	0.377	32.1	<0.206	<0.30	3.16	3.34	0.997	<0.260	<0.0206	4.72

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

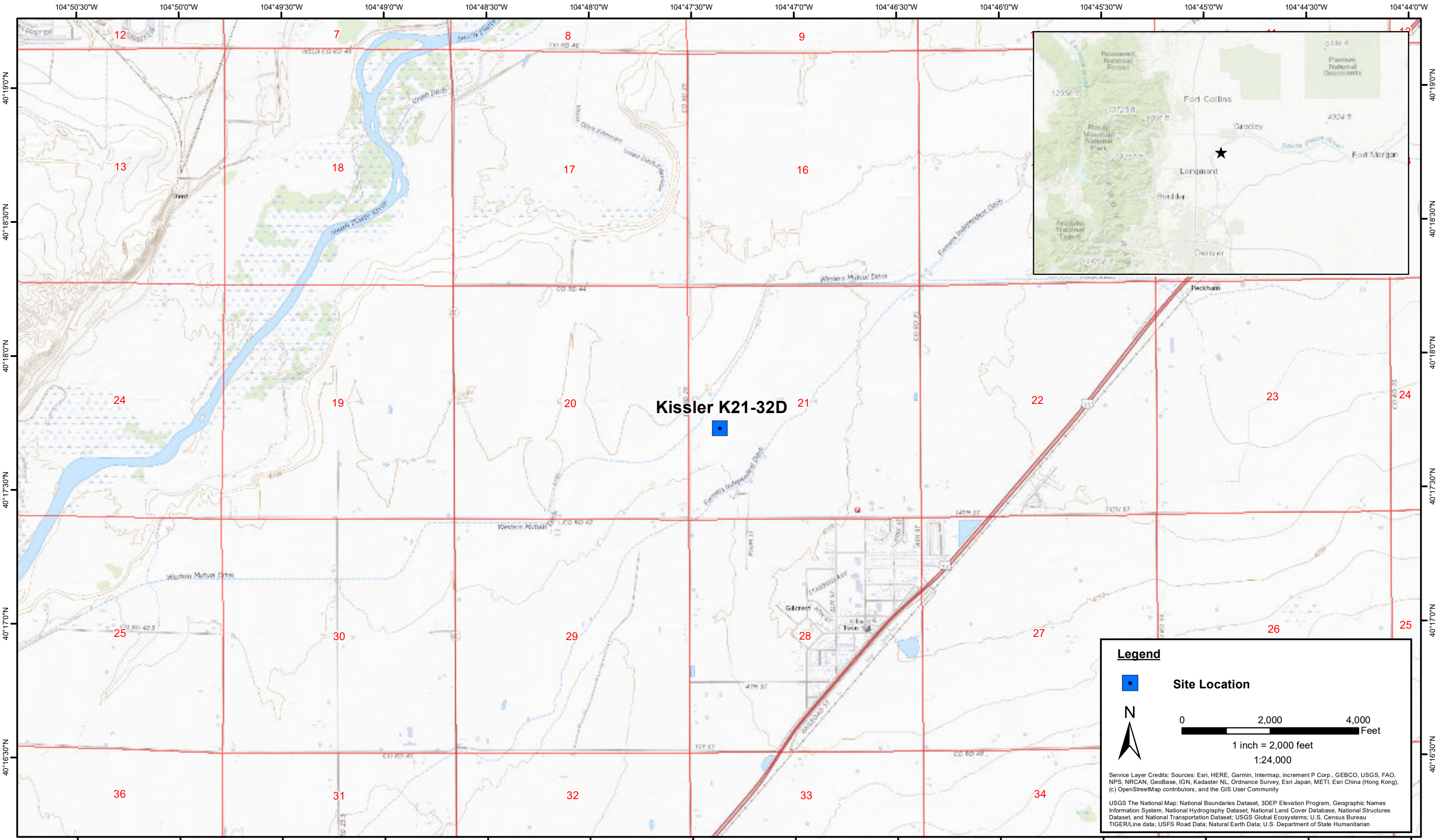
Benzo(a) = Benzopyrene


A,H = Dibenzoanthracene

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


1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



DATE: May 2023	 Tasman, Inc. 6855 W. 119th Ave Broomfield, CO 80020	Noble Energy, Inc - DJ Basin Kissler K21-32D NWSW Sec. 21-T4N-R66W Weld County, Colorado	Site Location Map	Figure 1
DESIGNED BY: J. Whritenour				
DRAWN BY: L. Reed				



DATE:	05/26/2023	 TASMAN GEOSCIENCES	Tasman Geosciences, Inc. 6855 W 119 th Avenue Broomfield, CO 80020	Noble Energy, Inc. – DJ Basin Kissler K21-32D NWSW, Section 21, Township 4 North, Range 66 West Weld County, Colorado	Flowline Closure & Soil Analytical Results Map (04/24/2023)	FIGURE 2
DESIGNED BY:	JW					
DRAWN BY:	HM					

Photographic Log



Equipment ID:FL01-A@5'		Equipment Type:Flowline		Equipment ID:FL01-B@3'		Equipment Type:Flowline	
Material:Steel	Volume:	Contents:Oil/Gas/Water		Material:Steel	Volume:	Contents:Oil/Gas/Water	
Notes/Conditions:Facing Northwest				Notes/Conditions:Facing south / PID impacts detected			

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 26, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Kissler K21-32D

Work Order #2304555

Enclosed are the results of analyses for samples received by Summit Scientific on 04/25/23 17:51. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

ANALYTICAL REPORT FOR SAMPLES

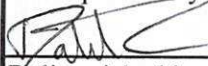


Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@5'	2304555-01	Soil	04/24/23 17:03	04/25/23 17:51
FL01-B@3'	2304555-02	Soil	04/24/23 16:43	04/25/23 17:51

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.

Client: Noble / Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W. 119th Ave		Project Manager: Jake Whritenour		Company: Chevron	
City/State/Zip: Broomfield, CO 80020		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: Kissler K21-32D	
Phone: 303-903-5168		Project Name: Kissler K21-32D		AFE#: UWRWE-A2454-ABN	
Sampler Name: Dalton Hagen		Project Number:		PO/Billing Codes:	
				Contact: Jeff White	

					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	Metals - 915	HOLD				pH, EC, SAR by saturated paste
1	FL01-A @ 5'	4/24/23	1703	2			X			X			X	X	X	X	X	X	X				
2	FL01-B @ 3'	1	1643	1			+			1			1	1	1	1	1	1	1				
3																							
4																							
5																							
6																							
7																							
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9																							
10																							
11																							
12																							
13																							
14																							
15																							

Relinquished by: 	Date/Time: 4/24/23 1820	Received by: Tasman Lockbox	Date/Time: 4/24/23 1820	TAT Business Days	Field DO	Notes:
Relinquished by: Tasman Lockbox	Date/Time: 42523 1751	Received by: 	Date/Time: 42523 1751	Same Day	Field EC	
				1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 10.1	Corrected Temperature: 	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2304555Client: Noble/Asman Client Project ID: Kissler K21-320Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐
☐ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 10.1 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on ice</u>
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

4/25/23
Date/Time



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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

FL01-A@5'
2304555-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGD0990	04/29/23	04/30/23	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	0.025	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0344	86.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0365	91.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0444	111 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGD0992	04/29/23	04/30/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	6.33	50.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

FL01-A@5'
2304555-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	0.196	0.00500	mg/kg	1	BGD0993	04/29/23	04/30/23	EPA 8270D SIM	E
Anthracene	0.305	0.00500	"	"	"	"	"	"	E
Benzo (a) anthracene	0.399	0.00500	"	"	"	"	"	"	E
Benzo (a) pyrene	0.218	0.00500	"	"	"	"	"	"	E
Benzo (b) fluoranthene	0.319	0.00500	"	"	"	"	"	"	E
Benzo (k) fluoranthene	0.0841	0.00500	"	"	"	"	"	"	
Chrysene	0.260	0.00500	"	"	"	"	"	"	E
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.542	0.00500	"	"	"	"	"	"	E
Fluorene	0.217	0.00500	"	"	"	"	"	"	E
Indeno (1,2,3-cd) pyrene	0.197	0.00500	"	"	"	"	"	"	E
Pyrene	0.516	0.00500	"	"	"	"	"	"	E
1-Methylnaphthalene	0.0175	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0383	0.00500	"	"	"	"	"	"	E

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0216	64.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0275	82.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.355	0.0100	mg/L	1	BGD1022	04/30/23	05/05/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.377	0.206	mg/kg dry	1	BGE0821	05/23/23	05/25/23	EPA 6020B	

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Broomfield CO, 80020

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

FL01-A@5'
2304555-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Barium	32.1	0.413	mg/kg dry	1	BGE0821	05/23/23	05/25/23	EPA 6020B
Cadmium	ND	0.206	"	"	"	"	"	"
Copper	1.07	0.413	"	"	"	"	"	"
Lead	3.34	0.206	"	"	"	"	"	"
Nickel	0.997	0.413	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"
Silver	ND	0.0206	"	"	"	"	"	"
Zinc	4.72	0.413	"	"	"	"	"	"

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

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.9	0.0516	mg/L dry	1	BGE0032	05/01/23	05/06/23	EPA 6020B	
Magnesium	14.8	0.0516	"	"	"	"	"	"	
Sodium	44.7	0.0516	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.70	0.00100	units	1	BGE0216	05/07/23	05/07/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.9		%	1	BGD1015	04/30/23	05/01/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

FL01-A@5'
2304555-01 (Soil)

Summit Scientific

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Specific Conductance (EC)	0.774	0.0100	mmhos/cm	1	BGE0068	05/02/23	05/02/23	EPA 120.1
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Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **04/24/23 17:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.53		pH Units	1	BGE0067	05/02/23	05/02/23	EPA 9045D	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

FL01-B@3'
2304555-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGD0990	04/29/23	04/30/23	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: **04/24/23 16:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0319	79.7 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0383	95.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0445	111 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGD0992	04/29/23	04/30/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	5.32	42.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

FL01-B@3'
2304555-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGD0993	04/29/23	04/30/23	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: **04/24/23 16:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0198	59.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0245	73.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.310	0.0100	mg/L	1	BGD1022	04/30/23	05/05/23	EPA 6020B	

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

Date Sampled: **04/24/23 16:43**

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 - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

FL01-B@3'
2304555-02 (Soil)

Summit Scientific

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

Calcium	38.6	0.0595	mg/L dry	1	BGE0032	05/01/23	05/06/23	EPA 6020B
Magnesium	10.8	0.0595	"	"	"	"	"	"
Sodium	44.8	0.0595	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.64	0.00100	units	1	BGE0216	05/07/23	05/07/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.0		%	1	BGD1015	04/30/23	05/01/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.324	0.0100	mmhos/cm	1	BGE0068	05/02/23	05/02/23	EPA 120.1	

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

Date Sampled: **04/24/23 16:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.94		pH Units	1	BGE0067	05/02/23	05/02/23	EPA 9045D	

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGD0990 - EPA 5030 Soil MS

Blank (BGD0990-BLK1)

Prepared: 04/29/23 Analyzed: 04/30/23

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	0.0340		"	0.0400		84.9	50-150			
Surrogate: Toluene-d8	0.0383		"	0.0400		95.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0452		"	0.0400		113	50-150			

LCS (BGD0990-BS1)

Prepared: 04/29/23 Analyzed: 04/30/23

Benzene	0.0778	0.0020	mg/kg	0.100		77.8	70-130			
Toluene	0.0787	0.0050	"	0.100		78.7	70-130			
Ethylbenzene	0.0712	0.0050	"	0.100		71.2	70-130			
m,p-Xylene	0.141	0.010	"	0.200		70.3	70-130			
o-Xylene	0.0771	0.0050	"	0.100		77.1	70-130			
1,2,4-Trimethylbenzene	0.0863	0.0050	"	0.100		86.3	70-130			
1,3,5-Trimethylbenzene	0.0888	0.0050	"	0.100		88.8	70-130			
Naphthalene	0.0777	0.0038	"	0.100		77.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0307		"	0.0400		76.8	50-150			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0520		"	0.0400		130	50-150			

Matrix Spike (BGD0990-MS1)

Source: 2304552-01

Prepared: 04/29/23 Analyzed: 04/30/23

Benzene	0.0836	0.0020	mg/kg	0.100	ND	83.6	70-130			
Toluene	0.0854	0.0050	"	0.100	ND	85.4	70-130			
Ethylbenzene	0.0820	0.0050	"	0.100	ND	82.0	70-130			
m,p-Xylene	0.165	0.010	"	0.200	ND	82.7	70-130			
o-Xylene	0.0896	0.0050	"	0.100	ND	89.6	70-130			
1,2,4-Trimethylbenzene	0.0728	0.0050	"	0.100	ND	72.8	70-130			
1,3,5-Trimethylbenzene	0.0754	0.0050	"	0.100	ND	75.4	70-130			
Naphthalene	0.0898	0.0038	"	0.100	ND	89.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0318		"	0.0400		79.6	50-150			
Surrogate: Toluene-d8	0.0405		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0497		"	0.0400		124	50-150			

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGD0990 - EPA 5030 Soil MS

Matrix Spike Dup (BGD0990-MSD1)		Source: 2304552-01			Prepared: 04/29/23 Analyzed: 04/30/23					
Benzene	0.0847	0.0020	mg/kg	0.100	ND	84.7	70-130	1.32	30	
Toluene	0.0868	0.0050	"	0.100	ND	86.8	70-130	1.64	30	
Ethylbenzene	0.0847	0.0050	"	0.100	ND	84.7	70-130	3.24	30	
m,p-Xylene	0.169	0.010	"	0.200	ND	84.5	70-130	2.19	30	
o-Xylene	0.0893	0.0050	"	0.100	ND	89.3	70-130	0.235	30	
1,2,4-Trimethylbenzene	0.0731	0.0050	"	0.100	ND	73.1	70-130	0.329	30	
1,3,5-Trimethylbenzene	0.0760	0.0050	"	0.100	ND	76.0	70-130	0.753	30	
Naphthalene	0.0784	0.0038	"	0.100	ND	78.4	70-130	13.6	30	
Surrogate: 1,2-Dichloroethane-d4		0.0345	"	0.0400		86.2	50-150			
Surrogate: Toluene-d8		0.0398	"	0.0400		99.6	50-150			
Surrogate: 4-Bromofluorobenzene		0.0465	"	0.0400		116	50-150			

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGD0992 - EPA 3550A

Blank (BGD0992-BLK1)

Prepared: 04/29/23 Analyzed: 04/30/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	8.71		"	12.5		69.7	30-150			

LCS (BGD0992-BS1)

Prepared: 04/29/23 Analyzed: 04/30/23

C10-C28 (DRO)	465	50	mg/kg	500		93.1	70-130			
Surrogate: o-Terphenyl	9.11		"	12.5		72.9	30-150			

Matrix Spike (BGD0992-MS1)

Source: 2304552-01

Prepared: 04/29/23 Analyzed: 04/30/23

C10-C28 (DRO)	478	50	mg/kg	500	16.2	92.3	70-130			
Surrogate: o-Terphenyl	9.21		"	12.5		73.7	30-150			

Matrix Spike Dup (BGD0992-MSD1)

Source: 2304552-01

Prepared: 04/29/23 Analyzed: 04/30/23

C10-C28 (DRO)	430	50	mg/kg	500	16.2	82.7	70-130	10.6	20	
Surrogate: o-Terphenyl	8.61		"	12.5		68.9	30-150			

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGD0993 - EPA 5030 Soil MS

Blank (BGD0993-BLK1)

Prepared: 04/29/23 Analyzed: 04/30/23

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	0.0245		"	0.0333		73.5	40-150			
Surrogate: Fluoranthene-d10	0.0339		"	0.0333		102	40-150			

LCS (BGD0993-BS1)

Prepared: 04/29/23 Analyzed: 04/30/23

Acenaphthene	0.0270	0.00500	mg/kg	0.0333		81.0	31-137			
Anthracene	0.0338	0.00500	"	0.0333		102	30-120			
Benzo (a) anthracene	0.0383	0.00500	"	0.0333		115	30-120			
Benzo (a) pyrene	0.0297	0.00500	"	0.0333		89.0	30-120			
Benzo (b) fluoranthene	0.0336	0.00500	"	0.0333		101	30-120			
Benzo (k) fluoranthene	0.0302	0.00500	"	0.0333		90.7	30-120			
Chrysene	0.0339	0.00500	"	0.0333		102	30-120			
Dibenz (a,h) anthracene	0.0297	0.00500	"	0.0333		89.0	30-120			
Fluoranthene	0.0320	0.00500	"	0.0333		95.9	30-120			
Fluorene	0.0288	0.00500	"	0.0333		86.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0293	0.00500	"	0.0333		87.9	30-120			
Pyrene	0.0379	0.00500	"	0.0333		114	35-142			
1-Methylnaphthalene	0.0315	0.00500	"	0.0333		94.6	35-142			
2-Methylnaphthalene	0.0363	0.00500	"	0.0333		109	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0278		"	0.0333		83.5	40-150			
Surrogate: Fluoranthene-d10	0.0345		"	0.0333		103	40-150			

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BGD0993 - EPA 5030 Soil MS

Matrix Spike (BGD0993-MS1)			Source: 2304555-01		Prepared: 04/29/23 Analyzed: 04/30/23						
Acenaphthene	0.142	0.00500	mg/kg	0.0333	0.196	NR	31-137				QM-01
Anthracene	0.182	0.00500	"	0.0333	0.305	NR	30-120				QM-01
Benzo (a) anthracene	0.250	0.00500	"	0.0333	0.399	NR	30-120				QM-01
Benzo (a) pyrene	0.136	0.00500	"	0.0333	0.218	NR	30-120				QM-01
Benzo (b) fluoranthene	0.177	0.00500	"	0.0333	0.319	NR	30-120				QM-01
Benzo (k) fluoranthene	0.0643	0.00500	"	0.0333	0.0841	NR	30-120				QM-01
Chrysene	0.165	0.00500	"	0.0333	0.260	NR	30-120				QM-01
Dibenz (a,h) anthracene	0.0434	0.00500	"	0.0333	ND	130	30-120				QM-01
Fluoranthene	0.364	0.00500	"	0.0333	0.542	NR	30-120				QM-01
Fluorene	0.161	0.00500	"	0.0333	0.217	NR	30-120				QM-01
Indeno (1,2,3-cd) pyrene	0.137	0.00500	"	0.0333	0.197	NR	30-120				QM-01
Pyrene	0.326	0.00500	"	0.0333	0.516	NR	35-142				QM-01
1-Methylnaphthalene	0.0374	0.00500	"	0.0333	0.0175	59.7	15-130				
2-Methylnaphthalene	0.0672	0.00500	"	0.0333	0.0383	86.9	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0189		"	0.0333		56.8	40-150				
Surrogate: Fluoranthene-d10	0.0280		"	0.0333		84.0	40-150				

Matrix Spike Dup (BGD0993-MSD1)			Source: 2304555-01		Prepared: 04/29/23 Analyzed: 04/30/23						
Acenaphthene	0.141	0.00500	mg/kg	0.0333	0.196	NR	31-137	1.01	30		QM-01
Anthracene	0.225	0.00500	"	0.0333	0.305	NR	30-120	21.3	30		QM-01
Benzo (a) anthracene	0.277	0.00500	"	0.0333	0.399	NR	30-120	10.2	30		QM-01
Benzo (a) pyrene	0.155	0.00500	"	0.0333	0.218	NR	30-120	12.8	30		QM-01
Benzo (b) fluoranthene	0.223	0.00500	"	0.0333	0.319	NR	30-120	22.7	30		QM-01
Benzo (k) fluoranthene	0.0756	0.00500	"	0.0333	0.0841	NR	30-120	16.0	30		QM-01
Chrysene	0.180	0.00500	"	0.0333	0.260	NR	30-120	8.41	30		QM-01
Dibenz (a,h) anthracene	0.0429	0.00500	"	0.0333	ND	129	30-120	1.12	30		QM-01
Fluoranthene	0.394	0.00500	"	0.0333	0.542	NR	30-120	7.98	30		QM-01
Fluorene	0.173	0.00500	"	0.0333	0.217	NR	30-120	7.26	30		QM-01
Indeno (1,2,3-cd) pyrene	0.140	0.00500	"	0.0333	0.197	NR	30-120	2.73	30		QM-01
Pyrene	0.365	0.00500	"	0.0333	0.516	NR	35-142	11.4	30		QM-01
1-Methylnaphthalene	0.0349	0.00500	"	0.0333	0.0175	52.2	15-130	6.89	50		
2-Methylnaphthalene	0.0593	0.00500	"	0.0333	0.0383	63.2	15-130	12.5	50		
Surrogate: 2-Methylnaphthalene-d10	0.0192		"	0.0333		57.7	40-150				
Surrogate: Fluoranthene-d10	0.0255		"	0.0333		76.5	40-150				

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGD1022 - EPA 3050B

Blank (BGD1022-BLK1)

Prepared: 04/30/23 Analyzed: 05/05/23

Boron ND 0.0100 mg/L

LCS (BGD1022-BS1)

Prepared: 04/30/23 Analyzed: 05/05/23

Boron 5.60 0.0100 mg/L 5.00 112 80-120

Duplicate (BGD1022-DUP1)

Source: 2304549-01

Prepared: 04/30/23 Analyzed: 05/05/23

Boron 0.166 0.0100 mg/L 0.166 0.151 20

Matrix Spike (BGD1022-MS1)

Source: 2304549-01

Prepared: 04/30/23 Analyzed: 05/05/23

Boron 5.68 0.0100 mg/L 5.00 0.166 110 75-125

Matrix Spike Dup (BGD1022-MSD1)

Source: 2304549-01

Prepared: 04/30/23 Analyzed: 05/05/23

Boron 5.66 0.0100 mg/L 5.00 0.166 110 75-125 0.388 25

Summit Scientific

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGE0821 - EPA 3050B

Blank (BGE0821-BLK1)

Prepared: 05/23/23 Analyzed: 05/25/23

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

LCS (BGE0821-BS1)

Prepared: 05/23/23 Analyzed: 05/25/23

Arsenic	34.0	0.200	mg/kg wet	40.0	85.1	80-120
Barium	32.0	0.400	"	40.0	80.1	80-120
Cadmium	1.61	0.200	"	2.00	80.3	80-120
Copper	34.4	0.400	"	40.0	86.1	80-120
Lead	16.4	0.200	"	20.0	81.9	80-120
Nickel	34.4	0.400	"	40.0	85.9	80-120
Selenium	3.50	0.260	"	4.00	87.5	80-120
Silver	1.62	0.0200	"	2.00	81.0	80-120
Zinc	34.1	0.400	"	40.0	85.3	80-120

Duplicate (BGE0821-DUP1)

Source: 2305453-01

Prepared: 05/23/23 Analyzed: 05/25/23

Arsenic	0.967	0.225	mg/kg dry	1.01	4.60	20
Barium	159	0.451	"	148	6.73	20
Cadmium	0.155	0.225	"	0.158	1.73	20
Copper	2.10	0.451	"	2.20	4.60	20
Lead	5.53	0.225	"	5.66	2.40	20
Nickel	2.78	0.451	"	2.86	2.98	20
Selenium	ND	0.260	"	ND		20
Silver	0.0257	0.0225	"	0.0239	7.27	20
Zinc	8.28	0.451	"	8.63	4.15	20

Summit Scientific

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGE0821 - EPA 3050B

Matrix Spike (BGE0821-MS1)		Source: 2305453-01			Prepared: 05/23/23		Analyzed: 05/25/23				
Arsenic	10.1	0.225	mg/kg dry	45.1	1.01	20.2	75-125				QM-07
Barium	216	0.451	"	45.1	148	150	75-125				QM-07
Cadmium	1.97	0.225	"	2.25	0.158	80.5	75-125				
Copper	11.7	0.451	"	45.1	2.20	21.1	75-125				QM-07
Lead	22.0	0.225	"	22.5	5.66	72.6	75-125				QM-07
Nickel	12.5	0.451	"	45.1	2.86	21.3	75-125				QM-07
Selenium	2.88	0.260	"	4.51	ND	63.8	75-125				QM-07
Silver	1.75	0.0225	"	2.25	0.0239	76.8	75-125				
Zinc	18.3	0.451	"	45.1	8.63	21.4	75-125				QM-07

Matrix Spike Dup (BGE0821-MSD1)		Source: 2305453-01			Prepared: 05/23/23		Analyzed: 05/25/23				
Arsenic	10.0	0.225	mg/kg dry	45.1	1.01	20.0	75-125	0.550	25		QM-07
Barium	215	0.451	"	45.1	148	149	75-125	0.288	25		QM-07
Cadmium	1.97	0.225	"	2.25	0.158	80.5	75-125	0.0457	25		
Copper	11.7	0.451	"	45.1	2.20	21.0	75-125	0.343	25		QM-07
Lead	22.1	0.225	"	22.5	5.66	73.1	75-125	0.561	25		QM-07
Nickel	12.6	0.451	"	45.1	2.86	21.5	75-125	0.857	25		QM-07
Selenium	3.13	0.260	"	4.51	ND	69.4	75-125	8.41	25		QM-07
Silver	1.75	0.0225	"	2.25	0.0239	76.8	75-125	0.00	25		
Zinc	18.2	0.451	"	45.1	8.63	21.3	75-125	0.254	25		QM-07

Post Spike (BGE0821-PS1)		Source: 2305453-01			Prepared: 05/23/23		Analyzed: 05/25/23				
Arsenic	27.9		ug/l	100	2.25	25.7	75-125				QM-07
Barium	455		"	100	329	126	75-125				QM-07
Cadmium	4.85		"	5.00	0.350	89.9	75-125				
Copper	30.0		"	100	4.88	25.1	75-125				QM-07
Lead	53.0		"	50.0	12.6	80.8	75-125				
Nickel	31.4		"	100	6.34	25.1	75-125				QM-07
Selenium	9.24		"	10.0	0.207	90.4	75-125				
Silver	4.58		"	5.00	0.0530	90.5	75-125				
Zinc	44.2		"	100	19.2	25.1	75-125				QM-07

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BGD0871 - 3060A Mod

Blank (BGD0871-BLK1)

Prepared & Analyzed: 04/26/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGD0871-BS1)

Prepared & Analyzed: 04/26/23

Chromium, Hexavalent 21.0 0.30 mg/kg wet 25.0 84.0 80-120

Duplicate (BGD0871-DUP1)

Source: 2304116-01

Prepared & Analyzed: 04/26/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGD0871-MS1)

Source: 2304116-01

Prepared & Analyzed: 04/26/23

Chromium, Hexavalent 21.9 0.30 mg/kg dry 28.1 ND 78.0 75-125

Matrix Spike Dup (BGD0871-MSD1)

Source: 2304116-01

Prepared & Analyzed: 04/26/23

Chromium, Hexavalent 23.9 0.30 mg/kg dry 28.1 ND 85.2 75-125 8.82 20

Summit Scientific

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGE0032 - General Preparation

Blank (BGE0032-BLK1)

Prepared: 05/01/23 Analyzed: 05/06/23

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

LCS (BGE0032-BS1)

Prepared: 05/01/23 Analyzed: 05/06/23

Calcium	4.54	0.0500	mg/L wet	5.00	90.8	70-130
Magnesium	4.74	0.0500	"	5.00	94.8	70-130
Sodium	4.59	0.0500	"	5.00	91.8	70-130

Summit Scientific

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

Project: Noble - Kissler K21-32D

Project Number: UWRWE-A2454-ABN

Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGD1015 - General Preparation

Duplicate (BGD1015-DUP1)

Source: 2304555-01

Prepared: 04/30/23 Analyzed: 05/01/23

% Solids	97.6	%	96.9	0.652	20
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Summit Scientific

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

Project: Noble - Kissler K21-32D
Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGE0068 - General Preparation

Blank (BGE0068-BLK1)

Prepared & Analyzed: 05/02/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGE0068-BS1)

Prepared & Analyzed: 05/02/23

Specific Conductance (EC) 0.157 0.0100 mmhos/cm 0.150 105 95-105

Duplicate (BGE0068-DUP1)

Source: 2304550-01

Prepared & Analyzed: 05/02/23

Specific Conductance (EC) 0.441 0.0100 mmhos/cm 0.443 0.543 20

Summit Scientific

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

Project: Noble - Kissler K21-32D

Project Number: UWRWE-A2454-ABN

Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

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 BGE0067 - General Preparation

LCS (BGE0067-BS1)

Prepared & Analyzed: 05/02/23

pH	9.18	pH Units	9.18	100	95-105
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Duplicate (BGE0067-DUP1)

Source: 2304550-01

Prepared & Analyzed: 05/02/23

pH	7.42	pH Units	7.47	0.672	20
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Summit Scientific

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

Project: Noble - Kissler K21-32D

Project Number: UWRWE-A2454-ABN
Project Manager: Jacob Whritenour

Reported:
05/26/23 12:02

Notes and Definitions

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-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
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