

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	<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:

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

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

SAR = Sodium Adsorption Ratio

EC = Electrical Conductivity

mmhos/cm = Millimhos per centimeter

mg/L = Milligrams per liter

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

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

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

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

Benzo(a) = Benzoanthracene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

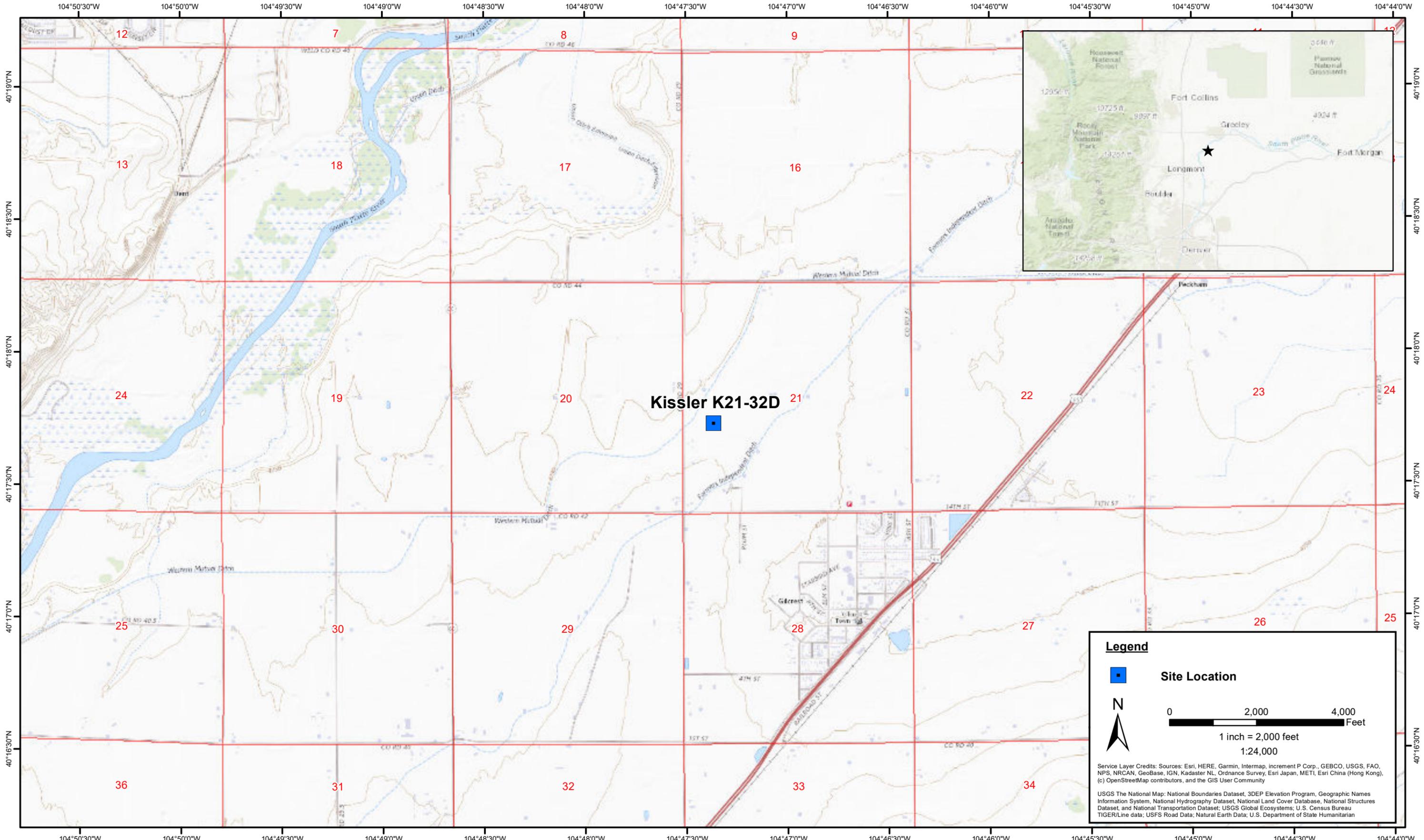
Benzo(a) = Benzopyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



Legend

 **Site Location**

 N

0 2,000 4,000 Feet

1 inch = 2,000 feet
1:24,000

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian

DATE: May 2023

DESIGNED BY: J. Whritenour

DRAWN BY: L. Reed



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



FL01-A@5'
(04/24/2023)

PID = 0.3 ppm
 Naphthalene = 0.025 mg/kg
 Benzo(a)anthracene = 0.399 mg/kg
 Benzo(a)pyrene = 0.218 mg/kg
 Benzo(b)fluoranthene = 0.319 mg/kg
 1-Methylnaphthalene = 0.0175 mg/kg
 2-Methylnaphthalene = 0.0383 mg/kg
 Arsenic = 0.377 mg/kg

FL01-B@3'
(04/24/2023)

PID = 108.2 ppm

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

0 ft. 120 ft. 240 ft.

Image Source: Google Earth; Google 2020

DATE:	05/26/2023
DESIGNED BY:	JW
DRAWN BY:	HM



TASMAN
GEOSCIENCES

Tasman Geosciences, Inc.
 6855 W 119th 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

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 'Paul Shrewsbury', written in a cursive style.

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

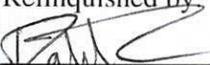
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@5'	2304555-01	Soil	04/24/23 17:03	04/25/23 17:51
FL01-B@3'	2304555-02	Soil	04/24/23 16:43	04/25/23 17:51

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		Project Manager: Jake Whritenour		Company: Chevron	
Address: 6855 W. 119th Ave		E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location: Kissler K21-32D	
City/State/Zip: Broomfield, CO 80020				AFE#: UWRWE-A2454-ABN	
Phone: 303-903-5168		Project Name: Kissler K21-32D		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-A05'	4/24/23	1703	2			X			X				X	X	X	X	X	X	X		pH, EC, SAR by saturated paste	
2	FL01-B03'	L	1643	L			+			L				L	L	L	L	L	L	L			
3																							
4																							
5																							
6																							
7																							
8																							
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:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 4/25/23 1751	Received by: 	Date/Time: 4/25/23 1751	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	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# 2304555

Client: Noble/Asman Client Project ID: Kissler K21-320

Shipped 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		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	0.025	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

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

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

Extractable Petroleum Hydrocarbons by 8015

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

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 17:03**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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



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

Project: Noble - 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	"	"	"	"	"	"	E
Chrysene	0.260	0.00500	"	"	"	"	"	"	E
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	E
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	"	"	"	"	"	"	E
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	

Summit Scientific

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



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

Project: Noble - 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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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



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

Project: Noble - 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
---------------------------	-------	--------	----------	---	---------	----------	----------	-----------

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

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

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

Summit Scientific

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



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

Project: Noble - 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

Summit Scientific

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



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

Project: Noble - 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
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

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



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

Project: Noble - 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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	

Summit Scientific

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



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

Project: Noble - 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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0340		"	0.0400		84.9	50-150			
<i>Surrogate: Toluene-d8</i>	0.0383		"	0.0400		95.8	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	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			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0307		"	0.0400		76.8	50-150			
<i>Surrogate: Toluene-d8</i>	0.0417		"	0.0400		104	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	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			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0318		"	0.0400		79.6	50-150			
<i>Surrogate: Toluene-d8</i>	0.0405		"	0.0400		101	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0497		"	0.0400		124	50-150			

Summit Scientific

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



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

Project: Noble - 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	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD		

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	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0345</i>		<i>"</i>	<i>0.0400</i>		<i>86.2</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.6</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0465</i>		<i>"</i>	<i>0.0400</i>		<i>116</i>	<i>50-150</i>			

Summit Scientific

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



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

Project: Noble - 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	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

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: <i>o</i> -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: <i>o</i> -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: <i>o</i> -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: <i>o</i> -Terphenyl	8.61		"	12.5		68.9	30-150				

Summit Scientific

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



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

Project: Noble - 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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0245</i>		"	<i>0.0333</i>		<i>73.5</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0339</i>		"	<i>0.0333</i>		<i>102</i>	<i>40-150</i>			

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			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0278</i>		"	<i>0.0333</i>		<i>83.5</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0345</i>		"	<i>0.0333</i>		<i>103</i>	<i>40-150</i>			

Summit Scientific

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



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

Project: Noble - 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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

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			

Summit Scientific

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



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

Project: Noble - 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	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

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

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



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

Project: Noble - 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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

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

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



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

Project: Noble - 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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

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

Summit Scientific

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



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

Project: Noble - 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	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

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

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



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

Project: Noble - 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	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

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

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



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

Project: Noble - 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	Source	%REC			RPD	Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

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

Summit Scientific

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



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

Project: Noble - 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		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

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

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



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

Project: Noble - 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	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BGE0067 - General Preparation

LCS (BGE0067-BS1)

Prepared & Analyzed: 05/02/23

pH	9.18	pH Units	9.18	100	95-105
----	------	----------	------	-----	--------

Duplicate (BGE0067-DUP1)

Source: 2304550-01

Prepared & Analyzed: 05/02/23

pH	7.42	pH Units	7.47	0.672	20
----	------	----------	------	-------	----

Summit Scientific

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



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

Project: Noble - 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