

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - PAPPENHEIM USX AB13-99HZ

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
SS01@4'	02/24/21	2.0	No Staining	No Odor	Grab	40.57867908	-104.50532362	1.0
SS02@4'	02/24/21	23.1	No Staining	No Odor	Grab	40.57866098	-104.50529857	1.0
SS03@4'	02/24/21	0.5	No Staining	No Odor	Grab	40.57865342	-104.50531497	1.0
SS04@4'	02/24/21	0.3	No Staining	No Odor	Grab	40.57865342	-104.50535748	1.1
FS01@5'	02/24/21	13.4	No Staining	No Odor	Lab	40.57865890	-104.50532930	1.1
Flare01@0.5'	3/22/2021	0.1	No Staining	No Odor	Grab	40.57860551	-104.5061986	1.6
Flare02@0.5'	3/22/2021	0.1	No Staining	No Odor	Grab	40.57858726	-104.5062201	1.1
MH01@0.5'	3/22/2021	0.0	No Staining	No Odor	Grab	40.57852528	-104.5063444	1.4
MH02@0.5'	3/22/2021	0.0	No Staining	No Odor	Grab	40.57852503	-104.5063254	1.3
SS01@2.5'	3/25/2021	0.9	No Staining	No Odor	Grab	40.57827737	-104.5061764	1.2
SS02@2.5'	3/25/2021	0.7	No Staining	No Odor	Grab	40.57826569	-104.5061482	1.2
SS03@2.5'	3/25/2021	0.9	No Staining	No Odor	Grab	40.57823583	-104.5061738	1.1
SS04@2.5'	3/25/2021	0.7	No Staining	No Odor	Grab	40.57826207	-104.50619610	1.1
FS01@5'	3/25/2021	9.5	No Staining	No Odor	Lab	40.57825892	-104.5061622	1.1
AST01@0.5'	3/25/2021	2.1	No Staining	No Odor	Lab	40.57825708	-104.5062217	1.3
AST02@0.5'	3/25/2021	0.9	No Staining	No Odor	Lab	40.57821674	-104.5062415	1.0
AST03@0.5'	3/25/2021	0.9	No Staining	No Odor	Lab	40.57816667	-104.5062381	1.1
AST04@0.5'	3/25/2021	5.9	No Staining	No Odor	Lab	40.57812363	-104.5062397	1.1
AST05@0.5'	03/25/21	0.3	No Staining	No Odor	Lab	40.5780966 ²	-104.5062408 ²	N/A
AST06@0.5'	3/25/2021	0.5	No Staining	No Odor	Lab	40.5780369	-104.5062406	1.1
FL01-A@4'	3/25/2021	0.3	No Staining	No Odor	Lab	40.57848194	-104.5062039	1.1
FL01-B@4'	3/25/2021	0.7	No Staining	No Odor	Lab	40.57827626	-104.5061534	1.4
DL01-A@4'	3/25/2021	3.2	No Staining	No Odor	Lab	40.5784892	-104.5062419	1.1
DL01-B@6'	3/25/2021	0.0	No Staining	No Odor	Lab	40.57828992	-104.5062562	1.1
DL02-A@4'	3/25/2021	0.0	No Staining	No Odor	Lab	40.57848291	-104.5062346	1.1
DL02-B@6'	3/25/2021	0.0	No Staining	No Odor	Lab	40.57827436	-104.5062292	1.6
SS05@2.5'	3/26/2021	0.1	No Staining	No Odor	Grab	40.57823224	-104.50615230	1.2
SS05@4'	3/26/2021	0.1	No Staining	No Odor	Lab	40.57823224	-104.50615230	1.2
SS06@2.5'	3/26/2021	0.1	No Staining	No Odor	Grab	40.57818500	-104.50614850	1.1
SS06@4'	3/26/2021	0.4	No Staining	No Odor	Lab	40.57818500	-104.50614850	1.1
SS07@2.5'	3/26/2021	0.2	No Staining	No Odor	Grab	40.57813923	-104.50615790	1.2
SS07@4'	3/26/2021	1.2	No Staining	No Odor	Lab	40.57813923	-104.50615790	1.2
SS08@2.5'	3/26/2021	2.6	No Staining	No Odor	Lab	40.57807924	-104.50615020	1.4
SS08@4'	3/26/2021	0.7	No Staining	No Odor	Lab	40.57807924	-104.50615020	1.4
SS09@2.5'	3/26/2021	0.1	No Staining	No Odor	Grab	40.57802605	-104.50616110	2.3
SS09@4'	3/26/2021	0.2	No Staining	No Odor	Lab	40.57802605	-104.50616110	2.3
SS10@2.5'	3/26/2021	0.2	No Staining	No Odor	Grab	40.57807422	-104.50619950	1.4
SS10@4'	3/26/2021	0.0	No Staining	No Odor	Lab	40.57807422	-104.50619950	1.4
SS11@2.5'	3/26/2021	0.4	No Staining	No Odor	Grab	40.57813842	-104.50619550	1.2
SS11@4'	3/26/2021	7.9	No Staining	No Odor	Lab	40.57813842	-104.50619550	1.2
SS12@2.5'	3/26/2021	0.4	No Staining	No Odor	Grab	40.57818802	-104.50619830	1.2
SS12@4'	3/26/2021	0.3	No Staining	No Odor	Lab	40.57818802	-104.50619830	1.2
SS13@2.5'	3/26/2021	0.1	No Staining	No Odor	Grab	40.57822732	-104.50618600	1.2
SS13@4'	3/26/2021	0.2	No Staining	No Odor	Lab	40.57822732	-104.50618600	1.2
FS02	3/26/2021	0.8	No Staining	No Odor	Lab	40.57822380	-104.50617540	1.2
FS03	3/26/2021	0.1	No Staining	No Odor	Lab	40.57818024	-104.50617920	1.2
FS04	3/26/2021	1.8	No Staining	No Odor	Lab	40.57813087	-104.50616940	1.1

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - PAPPENHEIM USX AB13-99HZ

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FS05	3/26/2021	5.9	No Staining	No Odor	Lab	40.57808663	-104.50617450	1.4
FS06	3/26/2021	0.4	No Staining	No Odor	Lab	40.57805389	-104.50617230	1.8

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

2) Coordinates approximate due to GPS technical complications during field collection

TABLE 2
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - Pappenheim USX AB 13-99HZ

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FS03@5'	03/26/21	8.06	1.39	2.33	0.165
FS04@5'	03/26/21	8.14	2.50	2.35	0.131
FS05@5'	03/26/21	9.78	1.23	1.08	0.076
FS06@5'	03/26/21	8.10	2.16	2.23	0.149
BG01@2.5'	03/26/21	8.06	0.311	0.395	0.133
BH01@4'	03/26/21	8.37	0.317	0.346	0.0886
BG01@5'	03/26/21	8.31	0.280	0.356	0.0585
BHG01@6'	03/26/21	8.44	0.585	0.375	0.109

Notes:

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

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission
 TPH-GRO = Total petroleum hydrocarbons - gasoline range organics
 TPH-DRO = Total petroleum hydrocarbons - diesel range organics
 TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram
 SAR = Sodium Adsorption Ratio
 EC = Electrical Conductivity
 mmhos/cm = Millimhos per centimeter

mg/L = Milligrams per liter
 1,2,4 - TMB = 1,2,4 Trimethylbenzene
 1,3,5 - TMB = 1,3,5 Trimethylbenzene
 Benz(a) = Benzanthracene

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

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

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

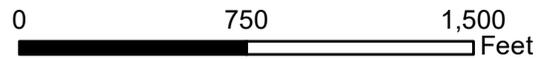
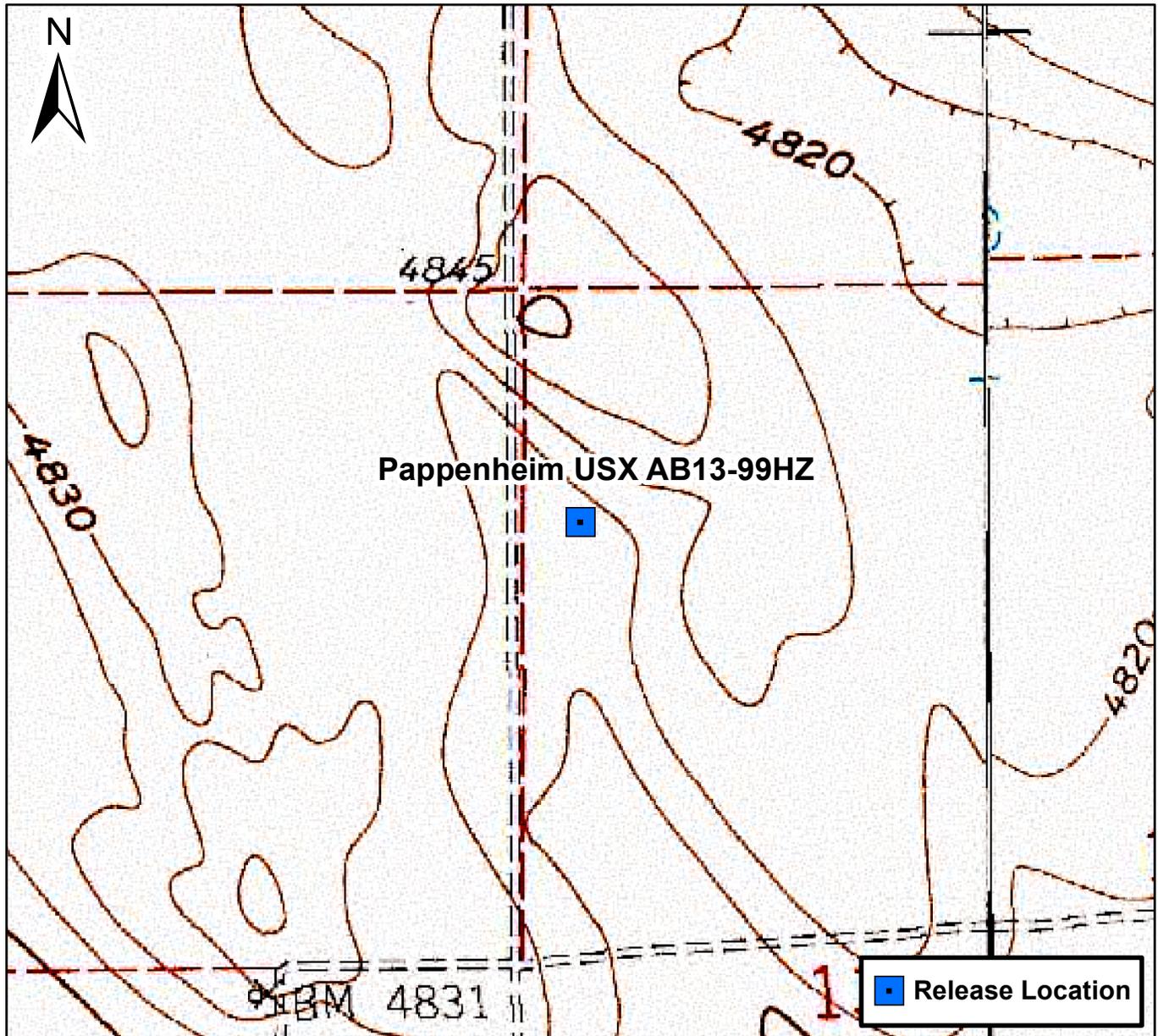
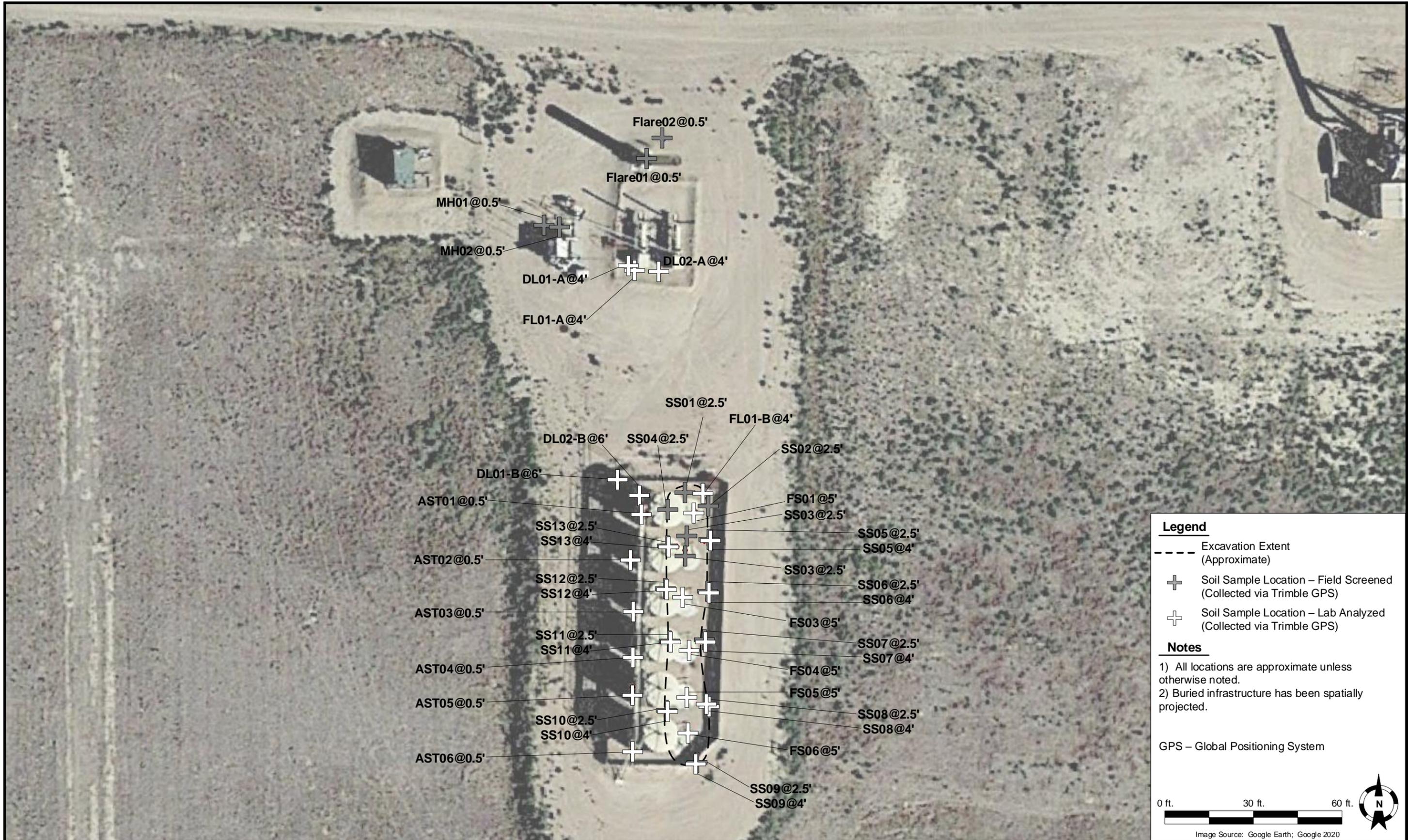


Figure 1

Site Location Map
 Pappenheim USX AB13-99HZ
 NWNW S13 T7N R64W
 Weld County, Colorado





Legend

- Excavation Extent (Approximate)
- + Soil Sample Location – Field Screened (Collected via Trimble GPS)
- + 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.

GPS – Global Positioning System

0 ft. 30 ft. 60 ft.

Image Source: Google Earth; Google 2020

DATE:	04/09/2021
DESIGNED BY:	TC
DRAWN BY:	TC



TASMAN
GEOSCIENCES

Tasman Geosciences, Inc.
6855 W 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Pappenheim USX AB 13-99HZ
NWNW, Section 13, Township 7 North, Range 67 West
Weld County, Colorado

Facility Site Overview

FIGURE
2



Legend

- Excavation Extent (Approximate)
- ⊕ Soil Sample Location – Field Screen (Collected via Trimble GPS)
- ⊕ 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. 20 ft. 40 ft.

Image Source: Google Earth; Google 2020

DATE:	04/09/2021
DESIGNED BY:	TC
DRAWN BY:	TC

TASMAN GEOSCIENCES
Tasman Geosciences, Inc.
6855 W 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Pappenheim USX AB 13-99HZ
NWNW, Section 13, Township 7 North, Range 67 West
Weld County, Colorado

Facility Soil Analytical
Results Map
(03/25/2021, 03/26/2021)

FIGURE
3

Photographic Log

Equipment ID: PWV01 - PWV06

Equipment Type: Partially Buried Vault

Material: Concrete

Volume: 60 BBL

Contents: Produced Water

Notes/Conditions: View of PWV01-PWV06 before removal excavation.

Equipment ID: PWV01

Equipment Type: Partially Buried Vault

Material: Concrete

Volume: 60 BBL

Contents: Produced Water

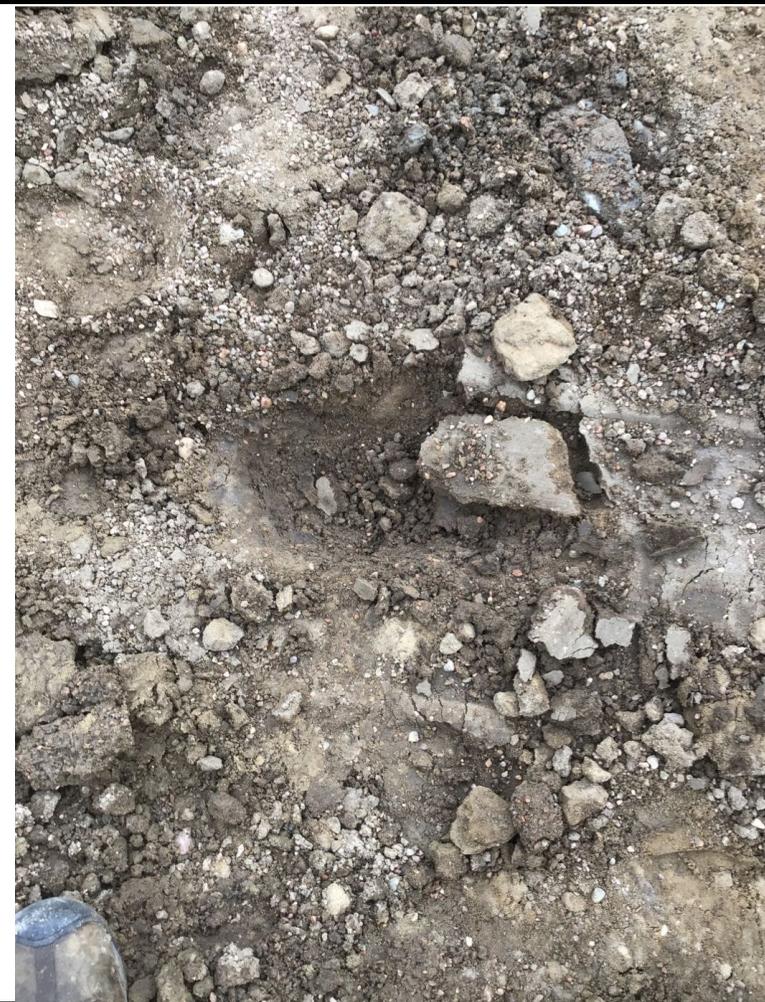
Notes/Conditions: SS01@2.5' sample location. No hydrocarbon odor or staining.

Photographic Log

					
Equipment ID: DL02		Equipment Type: Dump Line	Equipment ID: DL01		Equipment Type: Dump Line
Material: Fiberglass	Volume: N/A	Contents: Produced Water	Material: Fiberglass	Volume: N/A	Contents: Produced Water
Notes/Conditions: DL02-B@6' sample location. No hydrocarbon odor or staining.			Notes/Conditions: DL01-B@6' sample location. No hydrocarbon odor or staining.		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS02@2.5' sample location. No hydrocarbon odor or staining.			Notes/Conditions: SS03@2.5' sample location. No hydrocarbon odor or staining.		

Photographic Log


Equipment ID: PWV01	Equipment Type: Partially Buried Vault		Equipment ID: PWV01	Equipment Type: Partially Buried Vault	
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS04@2.5' sample location. No hydrocarbon odor or staining.			Notes/Conditions: FS01@5' sample location. No hydrocarbon odor or staining.		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS05@4' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS05@2.5' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS06@4' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS06@2.5' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS07@2.5' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS07@4' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS08@2.5' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS8@4' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS09@2.5' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS09@4' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Equipment ID: PWV02-PWV06		Equipment Type: Partially Buried Vault	Equipment ID: PWV02-PWV06		Equipment Type: Partially Buried Vault
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS10@2.5' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS10@4' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS11@2.5' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS11@4' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Equipment ID: PWV02-PWV06		Equipment Type: Partially Buried Vault	Equipment ID: PWV02-PWV06		Equipment Type: Partially Buried Vault
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: SS12@2.5' sample location. No hydrocarbon odor or staining			Notes/Conditions: SS12@4' sample location. No hydrocarbon odor or staining		

Photographic Log

			
Equipment ID: PWV02-PWV06		Equipment Type: Partially Buried Vault	
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	
Notes/Conditions: SS13@4' sample location. No hydrocarbon odor or staining			
Equipment ID: PWV02-PWV06		Equipment Type: Partially Buried Vault	
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	
Notes/Conditions: SS13@2.5' sample location. No hydrocarbon odor or staining			

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: FS03@5' sample location. No hydrocarbon odor or staining			Notes/Conditions: FS02@5' sample location. No hydrocarbon odor or staining		

Photographic Log

					
Material: Concrete	Volume: 60 BBL	Contents: Produced Water	Material: Concrete	Volume: 60 BBL	Contents: Produced Water
Notes/Conditions: FS04@5' sample location. No hydrocarbon odor or staining			Notes/Conditions: FS05@5' sample location. No hydrocarbon odor or staining		

Photographic Log

											
Equipment ID: PV02-PWV06		Equipment Type: Partially Buried Vault		Equipment ID:		Equipment Type:					
Material: Concrete		Volume: 60 BBL		Contents: Produced Water		Material:		Volume:		Contents:	
Notes/Conditions: FS06@5' sample location. No hydrocarbon odor or staining						Notes/Conditions:					

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 02, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Pappenheim USX AB13-99HZ

Work Order #2103402

Enclosed are the results of analyses for samples received by Summit Scientific on 03/26/21 08:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury

President



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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DL01-A@4'	2103402-01	Soil	03/25/21 16:00	03/26/21 08:00
DL02-A@4'	2103402-02	Soil	03/25/21 16:05	03/26/21 08:00
FL01-A@4'	2103402-03	Soil	03/25/21 16:10	03/26/21 08:00
FL01-B@4'	2103402-04	Soil	03/25/21 17:20	03/26/21 08:00
DL01-B@6'	2103402-05	Soil	03/25/21 16:15	03/26/21 08:00
DL02-B@6'	2103402-06	Soil	03/25/21 16:20	03/26/21 08:00
AST01@0.5'	2103402-07	Soil	03/25/21 16:25	03/26/21 08:00
AST02@0.5'	2103402-08	Soil	03/25/21 16:30	03/26/21 08:00
AST03@0.5'	2103402-09	Soil	03/25/21 16:35	03/26/21 08:00
AST04@0.5'	2103402-10	Soil	03/25/21 16:40	03/26/21 08:00
AST05@0.5'	2103402-11	Soil	03/25/21 16:45	03/26/21 08:00
AST06@0.5'	2103402-12	Soil	03/25/21 16:50	03/26/21 08:00
FS01@5'	2103402-13	Soil	03/25/21 17:15	03/26/21 08:00

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 2103402.1

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 2

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Wade Firestien
Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
City/State/Zip: Broomfield / CO/ 80020
Phone: 303-487-1228 Project Name: Pappenheim USX AB13-99HZ
Sampler Name: Tanner Cook Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Camister #	Other	8260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH		Boron - HWS
1	DLO1-A@4'	3/25/21	1600	3			X			X				X	X	X	X	X	
2	DLO2-A@4'		1605																
3	FLO1-A@4'		1610																
4	FLO1-B@4'		1720																
5	DLO1-B@6'		1615																
6	DLO2-B@6'		1620																
7	AST01@0.5'		1625																
8	AST02@0.5'		1630																
9	AST03@0.5'		1635																
10	AST04@0.5'		1640																

Relinquished by:  Date/Time: 3/26/21 0800	Received by: Tasman's Lock Box Date/Time: 3/26/21 0800	Turn Around Time (Check) <input type="checkbox"/> Same Day <input type="checkbox"/> 72 hours <input checked="" type="checkbox"/> 24 hours <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/>	Notes:
Relinquished by: Tasman's Lock Box Date/Time: 3-26-21 08:00	Received by:  3-26-21 08:00	Sample Integrity: Temperature Upon Receipt: 2.0	
Relinquished by:	Received by:	Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

Summit Scientific

S₂

2103402.2

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 2 of 2

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Wade Firestien
 Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
 City/State/Zip: Broomfield / CO/ 80020
 Phone: 303-487-1228 Project Name: Pappenheim USX AB 13-99H2
 Sampler Name: Tanner Cook Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	
1	ASTOS @ 0.5'	3/25/21	1645	3			X			X				X	X	X	X	X	
2	ASTO6 @ 0.5'	↓	1650	↓			↓		↓					↓	↓	↓	↓	↓	
3	FSO1 @ 5'	↓	1715	↓			↓		↓					↓	↓	↓	↓	↓	
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <u>[Signature]</u> Date/Time: <u>3/26/21 0800</u>	Received by: <u>Tasman's Lock Box</u> Date/Time: <u>3/26/21 0800</u>	Turn Around Time (Check) ___ Same Day ___ 72 hours ___ 24 hours <u>X</u> Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: <u>20</u> Samples Intact: <u>Yes</u> No	Notes:
Relinquished by: <u>Tasman's Lock Box</u> Date/Time: <u>3-26-21 08:00</u>	Received by: <u>[Signature]</u> Date/Time: <u>3-26-21 08:00</u>		
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____		

Sample Receipt Checklist

S2 Work Order 2103402

Client: Noble/Tasman Client Project ID: Pappenheim USX AB13-99HZ

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

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Temp (°C)	2.0
-----------	-----

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			On Ice
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽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⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽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, H2SO4, NaOH, HNO3, ect			✓	
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?			✓	
<u>Additional Comments (if any):</u> 				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

MP
Custodian Printed Name or Initials

Muri Premer
Signature of Custodian

3/26/21
Date/Time



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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL01-A@4'
2103402-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL01-A@4'
2103402-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		89.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		84.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.126	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/02/21 12:23

DL01-A@4'
2103402-01 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.0	0.0584	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	7.59	0.0584	"	"	"	"	"	"	
Sodium	103	0.0584	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.51	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.6		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.827	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.27		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/21 12:23

DL02-A@4'
2103402-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		113 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL02-A@4'
2103402-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		79.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		80.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.125	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL02-A@4'
2103402-02 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	41.0	0.0557	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	12.1	0.0557	"	"	"	"	"	"	
Sodium	46.8	0.0557	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.65	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.8		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.458	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.18		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FL01-A@4'
2103402-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.8 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FL01-A@4'
2103402-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		81.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		80.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0765	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/02/21 12:23

FL01-A@4'
2103402-03 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	36.7	0.0571	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	11.0	0.0571	"	"	"	"	"	"	
Sodium	21.2	0.0571	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.788	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.6		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.395	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.25		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FL01-B@4'
2103402-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FL01-B@4'
2103402-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		67.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		72.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0586	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FL01-B@4'
2103402-04 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	40.2	0.0571	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	12.6	0.0571	"	"	"	"	"	"	
Sodium	7.16	0.0571	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.252	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	87.6		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.347	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 17:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.32		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL01-B@6'
2103402-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		77.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL01-B@6'
2103402-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		87.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		87.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0380	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL01-B@6'
2103402-05 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	35.3	0.0567	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	11.3	0.0567	"	"	"	"	"	"	
Sodium	4.89	0.0567	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.183	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.1		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.315	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.31		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/02/21 12:23

DL02-B@6'
2103402-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		113 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL02-B@6'
2103402-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		80.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		81.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0722	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

DL02-B@6'
2103402-06 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	36.9	0.0571	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	11.2	0.0571	"	"	"	"	"	"	
Sodium	8.35	0.0571	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.309	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	87.6		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.340	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.28		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST01@0.5'
2103402-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST01@0.5'
2103402-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		84.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.407	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST01@0.5'
2103402-07 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	461	0.0565	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	171	0.0565	"	"	"	"	"	"	
Sodium	998	0.0565	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	10.1	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.5		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	8.27	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.66		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST02@0.5'
2103402-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST02@0.5'
2103402-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		83.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		83.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0741	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST02@0.5'
2103402-08 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	66.9	0.0568	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	16.7	0.0568	"	"	"	"	"	"	
Sodium	17.8	0.0568	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.504	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.0		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.443	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.59		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST03@0.5'
2103402-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST03@0.5'
2103402-09 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		86.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.129	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST03@0.5'
2103402-09 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	349	0.0553	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	150	0.0553	"	"	"	"	"	"	
Sodium	348	0.0553	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.92	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	90.4		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	4.53	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:35**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.93		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST04@0.5'
2103402-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST04@0.5'
2103402-10 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		80.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		77.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.164	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/02/21 12:23

AST04@0.5'
2103402-10 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	87.7	0.0556	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	30.2	0.0556	"	"	"	"	"	"	
Sodium	139	0.0556	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.26	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.9		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.29	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.37		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/02/21 12:23

AST05@0.5'
2103402-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST05@0.5'
2103402-11 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		91.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		90.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0821	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/02/21 12:23

AST05@0.5'
2103402-11 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	115	0.0577	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	36.4	0.0577	"	"	"	"	"	"	
Sodium	24.0	0.0577	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.500	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	86.7		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.608	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.36		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST06@0.5'
2103402-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		140 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST06@0.5'
2103402-12 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		85.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		85.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0565	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

AST06@0.5'
2103402-12 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	184	0.0588	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	35.1	0.0588	"	"	"	"	"	"	
Sodium	58.6	0.0588	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.04	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	85.1		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.998	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 16:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.30		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FS01@5'
2103402-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0519	03/30/21	03/31/21	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: **03/25/21 17:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0532	03/31/21	04/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
6855 W. 119th Ave.
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Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FS01@5'
2103402-13 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0521	03/30/21	03/31/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		85.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		88.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0995	0.0100	mg/L	1	BEC0539	03/31/21	04/01/21	EPA 6020B	

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

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

FS01@5'
2103402-13 (Soil)

Summit Scientific

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

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	67.1	0.0563	mg/L dry	1	BEC0541	03/31/21	04/02/21	EPA 6020B	
Magnesium	19.7	0.0563	"	"	"	"	"	"	
Sodium	22.1	0.0563	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.610	0.100	units	1	BED0035	04/02/21	04/02/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.9		%	1	BEC0483	03/29/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.656	0.0100	mmhos/cm	1	BED0019	04/01/21	04/01/21	EPA 120.1	

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

Date Sampled: **03/25/21 17:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.32		pH Units	1	BED0020	"	04/01/21	EPA 9045D	

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Broomfield CO, 80020

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/21 12:23

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 BEC0519 - EPA 5030 Soil MS

Blank (BEC0519-BLK1)

Prepared: 03/30/21 Analyzed: 03/31/21

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>	0.0363		"	0.0400		90.8	23-173			
<i>Surrogate: Toluene-d8</i>	0.0421		"	0.0400		105	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0413		"	0.0400		103	21-167			

LCS (BEC0519-BS1)

Prepared: 03/30/21 Analyzed: 03/31/21

Benzene	0.0988	0.0020	mg/kg	0.100		98.8	70-130			
Toluene	0.0938	0.0050	"	0.100		93.8	70-130			
Ethylbenzene	0.106	0.0050	"	0.100		106	70-130			
m,p-Xylene	0.206	0.010	"	0.200		103	70-130			
o-Xylene	0.104	0.0050	"	0.100		104	70-130			
1,2,4-Trimethylbenzene	0.125	0.0050	"	0.100		125	70-130			
1,3,5-Trimethylbenzene	0.121	0.0050	"	0.100		121	70-130			
Naphthalene	0.0970	0.0038	"	0.100		97.0	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0368		"	0.0400		92.1	23-173			
<i>Surrogate: Toluene-d8</i>	0.0428		"	0.0400		107	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0412		"	0.0400		103	21-167			

Matrix Spike (BEC0519-MS1)

Source: 2103383-01

Prepared: 03/30/21 Analyzed: 03/31/21

Benzene	0.0959	0.0020	mg/kg	0.100	ND	95.9	70-130			
Toluene	0.0862	0.0050	"	0.100	ND	86.2	70-130			
Ethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130			
m,p-Xylene	0.192	0.010	"	0.200	0.00495	93.4	70-130			
o-Xylene	0.0999	0.0050	"	0.100	ND	99.9	70-130			
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130			
1,3,5-Trimethylbenzene	0.114	0.0050	"	0.100	ND	114	70-130			
Naphthalene	0.100	0.0038	"	0.100	ND	100	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0366		"	0.0400		91.6	23-173			
<i>Surrogate: Toluene-d8</i>	0.0405		"	0.0400		101	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0402		"	0.0400		101	21-167			

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Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BEC0519 - EPA 5030 Soil MS

Matrix Spike Dup (BEC0519-MSD1)	Source: 2103383-01			Prepared: 03/30/21 Analyzed: 03/31/21						
Benzene	0.0965	0.0020	mg/kg	0.100	ND	96.5	70-130	0.655	30	
Toluene	0.0898	0.0050	"	0.100	ND	89.8	70-130	4.16	30	
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130	2.61	30	
m,p-Xylene	0.201	0.010	"	0.200	0.00495	97.8	70-130	4.48	30	
o-Xylene	0.103	0.0050	"	0.100	ND	103	70-130	3.19	30	
1,2,4-Trimethylbenzene	0.122	0.0050	"	0.100	ND	122	70-130	3.57	30	
1,3,5-Trimethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130	3.88	30	
Naphthalene	0.102	0.0038	"	0.100	ND	102	70-130	1.22	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0361</i>		<i>"</i>	<i>0.0400</i>		<i>90.2</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0409</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>21-167</i>			

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BEC0532 - EPA 3550A

Blank (BEC0532-BLK1)

Prepared: 03/31/21 Analyzed: 04/01/21

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

LCS (BEC0532-BS1)

Prepared: 03/31/21 Analyzed: 04/01/21

C10-C28 (DRO)	520	50	mg/kg				70-130			
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Matrix Spike (BEC0532-MS1)

Source: 2103402-01

Prepared: 03/31/21 Analyzed: 04/01/21

C10-C28 (DRO)	415	50	mg/kg		17.7		70-130			
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Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/21 12:23

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 BEC0521 - EPA 5030 Soil MS

Blank (BEC0521-BLK1)

Prepared & Analyzed: 03/30/21

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	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0291</i>		"	<i>0.0333</i>		<i>87.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0301</i>		"	<i>0.0333</i>		<i>90.3</i>	<i>40-150</i>			

LCS (BEC0521-BS1)

Prepared: 03/30/21 Analyzed: 03/31/21

Acenaphthene	0.0310	0.00500	mg/kg	0.0333	93.0	31-137
Anthracene	0.0309	0.00500	"	0.0333	92.8	30-120
Benzo (a) anthracene	0.0372	0.00500	"	0.0333	112	30-120
Benzo (a) pyrene	0.0370	0.00500	"	0.0333	111	30-120
Benzo (b) fluoranthene	0.0185	0.00500	"	0.0333	55.4	30-120
Benzo (k) fluoranthene	0.0157	0.00500	"	0.0333	47.1	30-120
Chrysene	0.0309	0.00500	"	0.0333	92.6	30-120
Dibenz (a,h) anthracene	0.0341	0.00500	"	0.0333	102	30-120
Fluoranthene	0.0329	0.00500	"	0.0333	98.7	30-120
Fluorene	0.0275	0.00500	"	0.0333	82.5	30-120
Indeno (1,2,3-cd) pyrene	0.0297	0.00500	"	0.0333	89.1	30-120
Naphthalene	0.0298	0.00500	"	0.0333	89.4	30-120
Pyrene	0.0196	0.00500	"	0.0333	58.8	35-142
1-Methylnaphthalene	0.0346	0.00500	"	0.0333	104	35-142
2-Methylnaphthalene	0.0310	0.00500	"	0.0333	93.0	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0315</i>		"	<i>0.0333</i>	<i>94.6</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0333</i>		"	<i>0.0333</i>	<i>99.9</i>	<i>40-150</i>

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BEC0521 - EPA 5030 Soil MS

Matrix Spike (BEC0521-MS1)	Source: 2103402-01			Prepared: 03/30/21 Analyzed: 03/31/21					
Acenaphthene	0.0318	0.00500	mg/kg	0.0333	ND	95.5	31-137		
Anthracene	0.0307	0.00500	"	0.0333	ND	92.0	30-120		
Benzo (a) anthracene	0.0374	0.00500	"	0.0333	ND	112	30-120		
Benzo (a) pyrene	0.0374	0.00500	"	0.0333	ND	112	30-120		
Benzo (b) fluoranthene	0.0188	0.00500	"	0.0333	ND	56.5	30-120		
Benzo (k) fluoranthene	0.0160	0.00500	"	0.0333	ND	48.1	30-120		
Chrysene	0.0310	0.00500	"	0.0333	ND	92.9	30-120		
Dibenz (a,h) anthracene	0.0336	0.00500	"	0.0333	ND	101	30-120		
Fluoranthene	0.0321	0.00500	"	0.0333	ND	96.4	30-120		
Fluorene	0.0282	0.00500	"	0.0333	ND	84.6	30-120		
Indeno (1,2,3-cd) pyrene	0.0294	0.00500	"	0.0333	ND	88.3	30-120		
Naphthalene	0.0287	0.00500	"	0.0333	ND	86.1	30-120		
Pyrene	0.0194	0.00500	"	0.0333	ND	58.3	35-142		
1-Methylnaphthalene	0.0349	0.00500	"	0.0333	ND	105	15-130		
2-Methylnaphthalene	0.0320	0.00500	"	0.0333	ND	96.0	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0314</i>		"	<i>0.0333</i>		<i>94.1</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0331</i>		"	<i>0.0333</i>		<i>99.2</i>	<i>40-150</i>		

Matrix Spike Dup (BEC0521-MSD1)	Source: 2103402-01			Prepared: 03/30/21 Analyzed: 03/31/21					
Acenaphthene	0.0346	0.00500	mg/kg	0.0333	ND	104	31-137	8.32	30
Anthracene	0.0328	0.00500	"	0.0333	ND	98.3	30-120	6.63	30
Benzo (a) anthracene	0.0399	0.00500	"	0.0333	ND	120	30-120	6.37	30
Benzo (a) pyrene	0.0397	0.00500	"	0.0333	ND	119	30-120	5.98	30
Benzo (b) fluoranthene	0.0199	0.00500	"	0.0333	ND	59.7	30-120	5.44	30
Benzo (k) fluoranthene	0.0170	0.00500	"	0.0333	ND	51.1	30-120	5.96	30
Chrysene	0.0337	0.00500	"	0.0333	ND	101	30-120	8.56	30
Dibenz (a,h) anthracene	0.0356	0.00500	"	0.0333	ND	107	30-120	5.73	30
Fluoranthene	0.0344	0.00500	"	0.0333	ND	103	30-120	6.75	30
Fluorene	0.0269	0.00500	"	0.0333	ND	80.6	30-120	4.93	30
Indeno (1,2,3-cd) pyrene	0.0289	0.00500	"	0.0333	ND	86.6	30-120	1.92	30
Naphthalene	0.0319	0.00500	"	0.0333	ND	95.8	30-120	10.7	30
Pyrene	0.0211	0.00500	"	0.0333	ND	63.2	35-142	8.03	30
1-Methylnaphthalene	0.0378	0.00500	"	0.0333	ND	113	15-130	7.89	50
2-Methylnaphthalene	0.0330	0.00500	"	0.0333	ND	99.0	15-130	3.03	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0340</i>		"	<i>0.0333</i>		<i>102</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0353</i>		"	<i>0.0333</i>		<i>106</i>	<i>40-150</i>		

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BEC0539 - EPA 3050B

Blank (BEC0539-BLK1)

Prepared: 03/31/21 Analyzed: 04/01/21

Boron ND 0.0100 mg/L

LCS (BEC0539-BS1)

Prepared: 03/31/21 Analyzed: 04/01/21

Boron 5.54 0.0100 mg/L 5.00 111 80-120

Duplicate (BEC0539-DUP1)

Source: 2103402-01

Prepared: 03/31/21 Analyzed: 04/01/21

Boron 0.120 0.0100 mg/L 0.126 4.27 20

Matrix Spike (BEC0539-MS1)

Source: 2103402-01

Prepared: 03/31/21 Analyzed: 04/01/21

Boron 6.02 0.0100 mg/L 5.00 0.126 118 75-125

Matrix Spike Dup (BEC0539-MSD1)

Source: 2103402-01

Prepared: 03/31/21 Analyzed: 04/01/21

Boron 5.77 0.0100 mg/L 5.00 0.126 113 75-125 4.31 25

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BEC0541 - General Preparation

Blank (BEC0541-BLK1)

Prepared: 03/31/21 Analyzed: 04/02/21

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

LCS (BEC0541-BS1)

Prepared: 03/31/21 Analyzed: 04/02/21

Calcium	5.54	0.0500	mg/L wet	5.00		111	70-130			
Magnesium	5.65	0.0500	"	5.00		113	70-130			
Sodium	5.83	0.0500	"	5.00		117	70-130			

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BEC0483 - General Preparation

Duplicate (BEC0483-DUP1)	Source: 2103398-02		Prepared: 03/29/21 Analyzed: 03/30/21		
% Solids	94.7	%	94.9	0.207	20

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BED0019 - General Preparation

Blank (BED0019-BLK1)

Prepared & Analyzed: 04/01/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BED0019-BS1)

Prepared & Analyzed: 04/01/21

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 90-110

Duplicate (BED0019-DUP1)

Source: 2103067-03

Prepared & Analyzed: 04/01/21

Specific Conductance (EC) 1.32 0.0100 mmhos/cm 1.28 2.85 20

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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 BED0020 - General Preparation

LCS (BED0020-BS1)

Prepared & Analyzed: 04/01/21

pH	9.24	pH Units	9.21	100	95-105
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Duplicate (BED0020-DUP1)

Source: 2103067-03

Prepared & Analyzed: 04/01/21

pH	8.17	pH Units	8.14	0.368	20
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/21 12:23

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 08, 2021

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Pappenheim USX AB13-99HZ

Work Order #2103403

Enclosed are the results of analyses for samples received by Summit Scientific on 03/26/21 21:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury

President



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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 04/08/21 16:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS05@4'	2103403-01	Soil	03/26/21 15:17	03/26/21 21:30
SS06@4'	2103403-02	Soil	03/26/21 15:22	03/26/21 21:30
SS07@4'	2103403-03	Soil	03/26/21 15:27	03/26/21 21:30
SS08@2.5'	2103403-04	Soil	03/26/21 15:30	03/26/21 21:30
SS08@4'	2103403-05	Soil	03/26/21 15:32	03/26/21 21:30
SS09@4'	2103403-06	Soil	03/26/21 15:37	03/26/21 21:30
SS10@4'	2103403-07	Soil	03/26/21 15:42	03/26/21 21:30
SS11@4'	2103403-08	Soil	03/26/21 15:47	03/26/21 21:30
SS12@4'	2103403-09	Soil	03/26/21 15:52	03/26/21 21:30
SS13@4'	2103403-10	Soil	03/26/21 15:57	03/26/21 21:30
FS02@5'	2103403-11	Soil	03/26/21 16:00	03/26/21 21:30
FS03@5'	2103403-12	Soil	03/26/21 16:02	03/26/21 21:30
FS04@5'	2103403-13	Soil	03/26/21 16:05	03/26/21 21:30
FS05@5'	2103403-14	Soil	03/26/21 16:07	03/26/21 21:30
FS06@5'	2103403-15	Soil	03/26/21 16:10	03/26/21 21:30
BG01@2.5'	2103403-16	Soil	03/26/21 16:15	03/26/21 21:30
BG01@4'	2103403-17	Soil	03/26/21 16:20	03/26/21 21:30
BG01@5'	2103403-18	Soil	03/26/21 16:25	03/26/21 21:30
BG01@6'	2103403-19	Soil	03/26/21 16:30	03/26/21 21:30

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

403.3

2103403.3

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Client: Noble / Tasman Geosciences Project Manager: Brandon Bruns, Invoice: Wade Firestien
Address: 6855 W. 119th Ave. E-Mail: Bbruns@tasman-geo.com
City/State/Zip: Broomfield / CO/ 80020
Phone: 303-487-1228 Project Name: Pappenheim USX AB13-99HZ
Sampler Name: Tanner Cook Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions					
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD						
1	SS06@2.5'	3/26/2021	1520	3			x			x															
2	SS07@2.5'	3/26/2021	1525	3			x			x															
3	SS09@2.5'	3/26/2021	1535	3			x			x															
4	SS10@2.5'	3/26/2021	1540	3			x			x															
5	SS11@2.5'	3/26/2021	1545	3			x			x															
6	SS12@2.5'	3/26/2021	1550	3			x			x															
7	SS13@2.5'	3/26/2021	1555	3			x			x															
8																									
9																									
10																									

Relinquished by: <i>Tanner Cook</i>	Date/Time: 3/26/2021 2130	Received by:	Date/Time:	Turn Around Time (Check) <input type="checkbox"/> Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: <u>4.9</u> Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by: <i>[Signature]</i>	Date/Time: 3/26/21 2130		

Sample Receipt Checklist

S2 Work Order 2103403

Client: Noble/Tasman Client Project ID: Pappenheim USX AB13-99HZ

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

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Temp (°C)	2.0
-----------	-----

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			On Ice
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽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⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽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, H2SO4, NaOH, HNO3, ect			✓	
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?			✓	
<u>Additional Comments (if any):</u> 				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

MP
Custodian Printed Name or Initials

Muri Premer
Signature of Custodian

3/26/21
Date/Time



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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS05@4'
2103403-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 15:17**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		96.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.6 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		108 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS05@4'
2103403-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		79.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0996	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS05@4'
2103403-01 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	48.5	0.0536	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	13.9	0.0536	"	"	"	"	"	"	
Sodium	13.6	0.0536	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.443	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.3		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.527	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.29		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS06@4'
2103403-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 15:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		84.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		113 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS06@4'
2103403-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		78.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		77.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.108	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/08/21 16:50

SS06@4'
2103403-02 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	159	0.0556	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	48.8	0.0556	"	"	"	"	"	"	
Sodium	96.4	0.0556	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.72	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.9		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.81	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.04		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS07@4'
2103403-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 15:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		111 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS07@4'
2103403-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		88.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		84.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.145	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS07@4'
2103403-03 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	89.2	0.0559	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	26.8	0.0559	"	"	"	"	"	"	
Sodium	47.5	0.0559	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.13	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.4		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.03	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:27**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.14		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS08@2.5'
2103403-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/03/21	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: **03/26/21 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		93.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS08@2.5'
2103403-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		90.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		91.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0502	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS08@2.5'
2103403-04 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	51.5	0.0565	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	11.5	0.0565	"	"	"	"	"	"	
Sodium	4.81	0.0565	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.158	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.6		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.443	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.26		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS08@4'
2103403-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/03/21	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: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS08@4'
2103403-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		92.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		87.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0655	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS08@4'
2103403-05 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	104	0.0566	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	31.0	0.0566	"	"	"	"	"	"	
Sodium	14.0	0.0566	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.310	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.3		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.450	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.29		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS09@4'
2103403-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 15:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.3 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS09@4'
2103403-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		85.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		85.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.147	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS09@4'
2103403-06 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	166	0.0546	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	48.4	0.0546	"	"	"	"	"	"	
Sodium	41.9	0.0546	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.736	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	91.6		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.13	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:37**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.13		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS10@4'
2103403-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 15:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:42**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS10@4'
2103403-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		91.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		85.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0634	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS10@4'
2103403-07 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	56.1	0.0579	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	14.4	0.0579	"	"	"	"	"	"	
Sodium	16.8	0.0579	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.518	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	86.3		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.549	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.28		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS11@4'
2103403-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/03/21	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: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:47**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS11@4'
2103403-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	EPA 8270D SIM	
Anthracene	0.0658	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	0.0173	0.00500	"	"	"	"	"	"	"
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	"
Fluoranthene	ND	0.00500	"	"	"	"	"	"	"
Fluorene	0.0247	0.00500	"	"	"	"	"	"	"
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	"
Naphthalene	ND	0.00500	"	"	"	"	"	"	"
Pyrene	ND	0.00500	"	"	"	"	"	"	"
1-Methylnaphthalene	0.0505	0.00500	"	"	"	"	"	"	"
2-Methylnaphthalene	0.0292	0.00500	"	"	"	"	"	"	"

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		85.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		82.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.176	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS11@4'
2103403-08 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	400	0.0559	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	72.3	0.0559	"	"	"	"	"	"	
Sodium	270	0.0559	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.26	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.5		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.74	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.38		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS12@4'
2103403-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/03/21	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: **03/26/21 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS12@4'
2103403-09 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	EPA 8270D SIM	
Anthracene	0.00841	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		79.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		79.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.139	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS12@4'
2103403-09 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	83.0	0.0544	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	23.7	0.0544	"	"	"	"	"	"	
Sodium	7.83	0.0544	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.195	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	92.0		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.408	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.44		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS13@4'
2103403-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 15:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.3 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS13@4'
2103403-10 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		94.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		91.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.180	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

SS13@4'
2103403-10 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	178	0.0560	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	66.2	0.0560	"	"	"	"	"	"	
Sodium	107	0.0560	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.74	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.2		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.92	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 15:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.15		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS02@5'
2103403-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/08/21 16:50

FS02@5'
2103403-11 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		88.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		87.1 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.132	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS02@5'
2103403-11 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	192	0.0550	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	60.4	0.0550	"	"	"	"	"	"	
Sodium	98.1	0.0550	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.58	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.9		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.11	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.09		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS03@5'
2103403-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS03@5'
2103403-12 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		97.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		90.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.135	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/08/21 16:50

FS03@5'
2103403-12 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	229	0.0545	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	73.7	0.0545	"	"	"	"	"	"	
Sodium	94.6	0.0545	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.39	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.7		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.33	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 16:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.06		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS04@5'
2103403-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/03/21	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: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		100 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS04@5'
2103403-13 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	EPA 8270D SIM	
Anthracene	0.0134	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	"	"	"	"	"	"	"
Naphthalene	ND	0.00500	"	"	"	"	"	"	"
Pyrene	ND	0.00500	"	"	"	"	"	"	"
1-Methylnaphthalene	0.0490	0.00500	"	"	"	"	"	"	"
2-Methylnaphthalene	0.0325	0.00500	"	"	"	"	"	"	"

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		81.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		80.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.131	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS04@5'
2103403-13 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	211	0.0551	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	53.2	0.0551	"	"	"	"	"	"	
Sodium	157	0.0551	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.50	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.8		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.35	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 16:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.14		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS05@5'
2103403-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/03/21	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: **03/26/21 16:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	140	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	100	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS05@5'
2103403-14 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	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	0.0204	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	0.0158	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Naphthalene	0.0186	0.00500	"	"	"	"	"	"	
Pyrene	0.00761	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.0554	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.0600	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		93.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		79.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0755	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/08/21 16:50

FS05@5'
2103403-14 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	227	0.0563	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	46.1	0.0563	"	"	"	"	"	"	
Sodium	77.9	0.0563	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.23	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.9		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.08	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 16:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	9.78		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS06@5'
2103403-15 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0002	04/01/21	04/02/21	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: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0001	04/01/21	04/03/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS06@5'
2103403-15 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0542	03/31/21	04/01/21	EPA 8270D SIM	
Anthracene	0.00572	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		86.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		82.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.149	0.0100	mg/L	1	BED0006	04/01/21	04/02/21	EPA 6020B	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

FS06@5'
2103403-15 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	201	0.0563	mg/L dry	1	BED0018	04/01/21	04/03/21	EPA 6020B	
Magnesium	71.5	0.0563	"	"	"	"	"	"	
Sodium	140	0.0563	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.16	0.100	units	1	BED0066	04/05/21	04/05/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.8		%	1	BEC0503	03/30/21	03/30/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.23	0.0100	mmhos/cm	1	BED0046	04/02/21	04/02/21	EPA 120.1	

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

Date Sampled: **03/26/21 16:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.10		pH Units	1	BED0047	04/02/21	04/02/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

BG01@2.5'
2103403-16 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.133	0.0100	mg/L	1	BED0051	04/05/21	04/05/21	EPA 6020B	

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

Date Sampled: **03/26/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	40.3	0.0561	mg/L dry	1	BED0084	04/06/21	04/08/21	EPA 6020B	
Magnesium	12.4	0.0561	"	"	"	"	"	"	
Sodium	8.79	0.0561	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.311	0.100	units	1	BED0149	04/08/21	04/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.1		%	1	BED0053	04/05/21	04/06/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.395	0.0100	mmhos/cm	1	BED0119	04/07/21	04/07/21	EPA 120.1	

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

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 04/08/21 16:50

BG01@2.5'
2103403-16 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.06		pH Units	1	BED0120	04/07/21	04/07/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

BG01@4'
2103403-17 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0886	0.0100	mg/L	1	BED0051	04/05/21	04/05/21	EPA 6020B	

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

Date Sampled: **03/26/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	42.9	0.0539	mg/L dry	1	BED0084	04/06/21	04/08/21	EPA 6020B	
Magnesium	13.0	0.0539	"	"	"	"	"	"	
Sodium	9.24	0.0539	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.317	0.100	units	1	BED0149	04/08/21	04/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.8		%	1	BED0053	04/05/21	04/06/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.346	0.0100	mmhos/cm	1	BED0119	04/07/21	04/07/21	EPA 120.1	

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

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 04/08/21 16:50

BG01@4'
2103403-17 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.37		pH Units	1	BED0120	04/07/21	04/07/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

BG01@5'
2103403-18 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0585	0.0100	mg/L	1	BED0051	04/05/21	04/05/21	EPA 6020B	

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

Date Sampled: **03/26/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	62.3	0.0542	mg/L dry	1	BED0084	04/06/21	04/08/21	EPA 6020B	
Magnesium	19.3	0.0542	"	"	"	"	"	"	
Sodium	9.86	0.0542	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.280	0.100	units	1	BED0149	04/08/21	04/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.2		%	1	BED0053	04/05/21	04/06/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.356	0.0100	mmhos/cm	1	BED0119	04/07/21	04/07/21	EPA 120.1	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 04/08/21 16:50

BG01@5'
2103403-18 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.31		pH Units	1	BED0120	04/07/21	04/07/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

BG01@6'
2103403-19 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/26/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.109	0.0100	mg/L	1	BED0051	04/05/21	04/05/21	EPA 6020B	

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

Date Sampled: **03/26/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	54.1	0.0540	mg/L dry	1	BED0084	04/06/21	04/08/21	EPA 6020B	
Magnesium	22.0	0.0540	"	"	"	"	"	"	
Sodium	20.2	0.0540	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/26/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.585	0.100	units	1	BED0149	04/08/21	04/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/26/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.6		%	1	BED0053	04/05/21	04/06/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/26/21 16:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.375	0.0100	mmhos/cm	1	BED0119	04/07/21	04/07/21	EPA 120.1	

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

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 04/08/21 16:50

BG01@6'
2103403-19 (Soil)

Summit Scientific

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

Date Sampled: **03/26/21 16:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.44		pH Units	1	BED0120	04/07/21	04/07/21	EPA 9045D	

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/08/21 16:50

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 BED0002 - EPA 5030 Soil MS

Blank (BED0002-BLK1)

Prepared: 04/01/21 Analyzed: 04/02/21

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>	0.0268		"	0.0400		67.0	23-173				
<i>Surrogate: Toluene-d8</i>	0.0480		"	0.0400		120	20-170				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0420		"	0.0400		105	21-167				

LCS (BED0002-BS1)

Prepared: 04/01/21 Analyzed: 04/02/21

Benzene	0.0781	0.0020	mg/kg	0.100		78.1	70-130				
Toluene	0.106	0.0050	"	0.100		106	70-130				
Ethylbenzene	0.0985	0.0050	"	0.100		98.5	70-130				
m,p-Xylene	0.176	0.010	"	0.200		88.0	70-130				
o-Xylene	0.0888	0.0050	"	0.100		88.8	70-130				
1,2,4-Trimethylbenzene	0.0930	0.0050	"	0.100		93.0	70-130				
1,3,5-Trimethylbenzene	0.0880	0.0050	"	0.100		88.0	70-130				
Naphthalene	0.118	0.0038	"	0.100		118	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0248		"	0.0400		62.0	23-173				
<i>Surrogate: Toluene-d8</i>	0.0450		"	0.0400		112	20-170				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0415		"	0.0400		104	21-167				

Matrix Spike (BED0002-MS1)

Source: 2103403-01

Prepared: 04/01/21 Analyzed: 04/02/21

Benzene	0.0835	0.0020	mg/kg	0.100	ND	83.5	70-130				
Toluene	0.107	0.0050	"	0.100	ND	107	70-130				
Ethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130				
m,p-Xylene	0.180	0.010	"	0.200	ND	90.0	70-130				
o-Xylene	0.0907	0.0050	"	0.100	ND	90.7	70-130				
1,2,4-Trimethylbenzene	0.0952	0.0050	"	0.100	ND	95.2	70-130				
1,3,5-Trimethylbenzene	0.0898	0.0050	"	0.100	ND	89.8	70-130				
Naphthalene	0.0928	0.0038	"	0.100	ND	92.8	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0272		"	0.0400		67.9	23-173				
<i>Surrogate: Toluene-d8</i>	0.0427		"	0.0400		107	20-170				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0400		"	0.0400		100	21-167				

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/08/21 16:50

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 BED0002 - EPA 5030 Soil MS

Matrix Spike Dup (BED0002-MSD1)	Source: 2103403-01			Prepared: 04/01/21 Analyzed: 04/02/21						
Benzene	0.0812	0.0020	mg/kg	0.100	ND	81.2	70-130	2.88	30	
Toluene	0.0999	0.0050	"	0.100	ND	99.9	70-130	7.01	30	
Ethylbenzene	0.0992	0.0050	"	0.100	ND	99.2	70-130	2.42	30	
m,p-Xylene	0.176	0.010	"	0.200	ND	88.2	70-130	2.02	30	
o-Xylene	0.0888	0.0050	"	0.100	ND	88.8	70-130	2.14	30	
1,2,4-Trimethylbenzene	0.0934	0.0050	"	0.100	ND	93.4	70-130	2.00	30	
1,3,5-Trimethylbenzene	0.0872	0.0050	"	0.100	ND	87.2	70-130	2.85	30	
Naphthalene	0.0942	0.0038	"	0.100	ND	94.2	70-130	1.48	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0293</i>		<i>"</i>	<i>0.0400</i>		<i>73.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0421</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.8</i>	<i>21-167</i>			

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

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 BED0001 - EPA 3550A

Blank (BED0001-BLK1)

Prepared: 04/01/21 Analyzed: 04/03/21

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

LCS (BED0001-BS1)

Prepared: 04/01/21 Analyzed: 04/03/21

C10-C28 (DRO)	495	50	mg/kg	500	99.0	70-130				
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Matrix Spike (BED0001-MS1)

Source: 2103403-01

Prepared: 04/01/21 Analyzed: 04/03/21

C10-C28 (DRO)	487	50	mg/kg	500	13.4	94.7	70-130			
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Matrix Spike Dup (BED0001-MSD1)

Source: 2103403-01

Prepared: 04/01/21 Analyzed: 04/03/21

C10-C28 (DRO)	477	50	mg/kg	500	13.4	92.6	70-130	2.16	20	
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Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/08/21 16:50

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 BEC0542 - EPA 5030 Soil MS

Blank (BEC0542-BLK1)

Prepared & Analyzed: 03/31/21

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	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0356</i>		<i>"</i>	<i>0.0333</i>		<i>107</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0342</i>		<i>"</i>	<i>0.0333</i>		<i>102</i>		<i>40-150</i>		

LCS (BEC0542-BS1)

Prepared & Analyzed: 03/31/21

Acenaphthene	0.0340	0.00500	mg/kg	0.0333		102		31-137		
Anthracene	0.0334	0.00500	"	0.0333		100		30-120		
Benzo (a) anthracene	0.0337	0.00500	"	0.0333		101		30-120		
Benzo (a) pyrene	0.0345	0.00500	"	0.0333		103		30-120		
Benzo (b) fluoranthene	0.0352	0.00500	"	0.0333		106		30-120		
Benzo (k) fluoranthene	0.0323	0.00500	"	0.0333		96.9		30-120		
Chrysene	0.0332	0.00500	"	0.0333		99.6		30-120		
Dibenz (a,h) anthracene	0.0346	0.00500	"	0.0333		104		30-120		
Fluoranthene	0.0254	0.00500	"	0.0333		76.3		30-120		
Fluorene	0.0258	0.00500	"	0.0333		77.3		30-120		
Indeno (1,2,3-cd) pyrene	0.0340	0.00500	"	0.0333		102		30-120		
Naphthalene	0.0344	0.00500	"	0.0333		103		30-120		
Pyrene	0.0267	0.00500	"	0.0333		80.2		35-142		
1-Methylnaphthalene	0.0328	0.00500	"	0.0333		98.4		35-142		
2-Methylnaphthalene	0.0334	0.00500	"	0.0333		100		35-142		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0372</i>		<i>"</i>	<i>0.0333</i>		<i>112</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0352</i>		<i>"</i>	<i>0.0333</i>		<i>106</i>		<i>40-150</i>		

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

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 BEC0542 - EPA 5030 Soil MS

Matrix Spike (BEC0542-MS1)	Source: 2103403-01			Prepared: 03/31/21 Analyzed: 04/01/21						
Acenaphthene	0.0370	0.00500	mg/kg	0.0333	ND	111	31-137			
Anthracene	0.0361	0.00500	"	0.0333	ND	108	30-120			
Benzo (a) anthracene	0.0349	0.00500	"	0.0333	ND	105	30-120			
Benzo (a) pyrene	0.0365	0.00500	"	0.0333	ND	109	30-120			
Benzo (b) fluoranthene	0.0371	0.00500	"	0.0333	ND	111	30-120			
Benzo (k) fluoranthene	0.0344	0.00500	"	0.0333	ND	103	30-120			
Chrysene	0.0352	0.00500	"	0.0333	ND	106	30-120			
Dibenz (a,h) anthracene	0.0371	0.00500	"	0.0333	ND	111	30-120			
Fluoranthene	0.0279	0.00500	"	0.0333	ND	83.7	30-120			
Fluorene	0.0296	0.00500	"	0.0333	ND	88.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0365	0.00500	"	0.0333	ND	110	30-120			
Naphthalene	0.0367	0.00500	"	0.0333	ND	110	30-120			
Pyrene	0.0277	0.00500	"	0.0333	ND	83.1	35-142			
1-Methylnaphthalene	0.0358	0.00500	"	0.0333	ND	107	15-130			
2-Methylnaphthalene	0.0371	0.00500	"	0.0333	ND	111	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0329</i>		<i>"</i>	<i>0.0333</i>		<i>98.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0329</i>		<i>"</i>	<i>0.0333</i>		<i>98.8</i>	<i>40-150</i>			

Matrix Spike Dup (BEC0542-MSD1)	Source: 2103403-01			Prepared: 03/31/21 Analyzed: 04/01/21						
Acenaphthene	0.0361	0.00500	mg/kg	0.0333	ND	108	31-137	2.34	30	
Anthracene	0.0354	0.00500	"	0.0333	ND	106	30-120	1.80	30	
Benzo (a) anthracene	0.0341	0.00500	"	0.0333	ND	102	30-120	2.25	30	
Benzo (a) pyrene	0.0363	0.00500	"	0.0333	ND	109	30-120	0.412	30	
Benzo (b) fluoranthene	0.0371	0.00500	"	0.0333	ND	111	30-120	0.0458	30	
Benzo (k) fluoranthene	0.0339	0.00500	"	0.0333	ND	102	30-120	1.56	30	
Chrysene	0.0345	0.00500	"	0.0333	ND	103	30-120	2.21	30	
Dibenz (a,h) anthracene	0.0363	0.00500	"	0.0333	ND	109	30-120	2.17	30	
Fluoranthene	0.0269	0.00500	"	0.0333	ND	80.6	30-120	3.80	30	
Fluorene	0.0296	0.00500	"	0.0333	ND	88.7	30-120	0.110	30	
Indeno (1,2,3-cd) pyrene	0.0360	0.00500	"	0.0333	ND	108	30-120	1.58	30	
Naphthalene	0.0369	0.00500	"	0.0333	ND	111	30-120	0.658	30	
Pyrene	0.0271	0.00500	"	0.0333	ND	81.3	35-142	2.25	30	
1-Methylnaphthalene	0.0348	0.00500	"	0.0333	ND	105	15-130	2.62	50	
2-Methylnaphthalene	0.0350	0.00500	"	0.0333	ND	105	15-130	5.83	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0371</i>		<i>"</i>	<i>0.0333</i>		<i>111</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0353</i>		<i>"</i>	<i>0.0333</i>		<i>106</i>	<i>40-150</i>			

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

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 BED0006 - EPA 3050B

Blank (BED0006-BLK1)				Prepared: 04/01/21 Analyzed: 04/02/21							
Boron	ND	0.0100	mg/L								
LCS (BED0006-BS1)				Prepared: 04/01/21 Analyzed: 04/02/21							
Boron	5.63	0.0100	mg/L	5.00	113	80-120					
Duplicate (BED0006-DUP1)				Source: 2103067-03		Prepared: 04/01/21 Analyzed: 04/02/21					
Boron	0.337	0.0100	mg/L	0.319			5.65	20			
Matrix Spike (BED0006-MS1)				Source: 2103067-03		Prepared: 04/01/21 Analyzed: 04/02/21					
Boron	6.22	0.0100	mg/L	5.00	0.319	118	75-125				
Matrix Spike Dup (BED0006-MSD1)				Source: 2103067-03		Prepared: 04/01/21 Analyzed: 04/02/21					
Boron	5.82	0.0100	mg/L	5.00	0.319	110	75-125	6.67	25		

Batch BED0051 - EPA 3050B

Blank (BED0051-BLK1)				Prepared & Analyzed: 04/05/21							
Boron	ND	0.0100	mg/L								
LCS (BED0051-BS1)				Prepared & Analyzed: 04/05/21							
Boron	5.35	0.0100	mg/L	5.00	107	80-120					
Duplicate (BED0051-DUP1)				Source: 2103403-16		Prepared & Analyzed: 04/05/21					
Boron	0.128	0.0100	mg/L	0.133			3.49	20			
Matrix Spike (BED0051-MS1)				Source: 2103403-16		Prepared & Analyzed: 04/05/21					
Boron	4.97	0.0100	mg/L	5.00	0.133	96.7	75-125				

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

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 BED0051 - EPA 3050B

Matrix Spike Dup (BED0051-MSD1)

Source: 2103403-16

Prepared & Analyzed: 04/05/21

Boron	5.33	0.0100	mg/L	5.00	0.133	104	75-125	7.02	25	
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Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brun

Reported:
04/08/21 16:50

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

Summit Scientific

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

Batch BED0018 - General Preparation

Blank (BED0018-BLK1)

Prepared: 04/01/21 Analyzed: 04/03/21

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

LCS (BED0018-BS1)

Prepared: 04/01/21 Analyzed: 04/03/21

Calcium	5.40	0.0500	mg/L wet	5.00	108	70-130
Magnesium	5.60	0.0500	"	5.00	112	70-130
Sodium	6.11	0.0500	"	5.00	122	70-130

Batch BED0084 - General Preparation

Blank (BED0084-BLK1)

Prepared: 04/06/21 Analyzed: 04/08/21

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

LCS (BED0084-BS1)

Prepared: 04/06/21 Analyzed: 04/08/21

Calcium	5.70	0.0500	mg/L wet	5.00	114	70-130
Magnesium	6.43	0.0500	"	5.00	129	70-130
Sodium	5.97	0.0500	"	5.00	119	70-130

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

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

Summit Scientific

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

Batch BEC0503 - General Preparation

Duplicate (BEC0503-DUP1)		Source: 2103403-01			Prepared & Analyzed: 03/30/21			
% Solids	93.2		%		93.3		0.106	20

Batch BED0053 - General Preparation

Duplicate (BED0053-DUP1)		Source: 2103388-07			Prepared: 04/05/21 Analyzed: 04/06/21			
% Solids	95.5		%		95.5		0.00469	20

Summit Scientific



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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/08/21 16:50

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 BED0046 - General Preparation

Blank (BED0046-BLK1)

Prepared & Analyzed: 04/02/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BED0046-BS1)

Prepared & Analyzed: 04/02/21

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 102 90-110

Duplicate (BED0046-DUP1)

Source: 2103113-05

Prepared & Analyzed: 04/02/21

Specific Conductance (EC) 3.07 0.0100 mmhos/cm 3.04 1.11 20

Batch BED0119 - General Preparation

Blank (BED0119-BLK1)

Prepared & Analyzed: 04/07/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BED0119-BS1)

Prepared & Analyzed: 04/07/21

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 99.7 90-110

Duplicate (BED0119-DUP1)

Source: 2103289-01

Prepared & Analyzed: 04/07/21

Specific Conductance (EC) 0.387 0.0100 mmhos/cm 0.386 0.155 20

Summit Scientific

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

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

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

Summit Scientific

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

Batch BED0047 - General Preparation

LCS (BED0047-BS1)

Prepared & Analyzed: 04/02/21

pH	9.28		pH Units	9.21	101	95-105		
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Duplicate (BED0047-DUP1)

Source: 2103113-05

Prepared & Analyzed: 04/02/21

pH	8.00		pH Units	7.97			0.376	20
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Batch BED0120 - General Preparation

LCS (BED0120-BS1)

Prepared & Analyzed: 04/07/21

pH	9.29		pH Units	9.21	101	95-105		
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Duplicate (BED0120-DUP1)

Source: 2103289-01

Prepared & Analyzed: 04/07/21

pH	8.12		pH Units	8.09			0.370	20
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Pappenheim USX AB13-99HZ

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/08/21 16:50

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