TASMAN

FLOWLINE ABANDONMENT FORM

SITE NAME: Chenoweth 1 Flowline	**DATE:** 7/16/2024	**REM. PROJECT #:** 34500	**WEATHER:** 90s Sunny
SITE DIRECTIONS: CR44 & CR53 South 1200’ then on South side of canal follow road East 1/2 mile into location	**CLIENT:** Noble		
LEGALS AND LAT/LONG: 40.302500, -104.558180	**TASMAN PERSONNEL:** LM		
SOIL TYPES: Well Graded Sand - SW	**SURFACE GRADIENT:** Southwest		

SOIL SAMPLING

Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?
7/16/2024 08:00	FL01-01@4’	0.3	No Staining	No Odor	Yes	Lab
7/16/2024 08:10	FL01-02@4’	0.7	No Staining	No Odor	Yes	Lab

GROUNDWATER SAMPLING

Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?

FACILITY INFRASTRUCTURE

EQUIPMENT	Quantity	Photo?
Above Ground Storage Tank (AST)		
Buried or Partially Buried Vessel		
Separator		
Emission Control Device (ECD)		
Dump Line		
Wellhead		
Flowline	1	✓
Other:		

Soil Loads Removed

IMPACTED SOIL IDENTIFIED?

ESTIMATED VOLUME OF IMPACTS:

Date	Number	CY
Total Removed	0	0

Disposal Facility:

Groundwater Recovery

DATE GW ENCOUNTERED:	**DEPTH:**

GROUNDWATER IN CONTACT WITH IMPACTED SOIL?

LNAPL OR SHEEN OBSERVED ON GW?

Date	BBLS
Total Removed	0

Disposal Facility:

TASMAN

Date: 7/16/2024

GENERAL OBSERVATION FORM

Site Area/AOC: Chenoweth 1 Flowline

Client: Noble

Daily Forecast/Weather: 90s Sunny

Personnel: LM

Task/Location Description: Confirmation Soil Sampling

Time	Description
07:00	Arrived onsite
	Flowline separator sample collected on 07/15/2024 during facility decommissioning
	Southern 1/4 of Flowline left in place until health and safety team arrived onsite to spectate pull / pull completed
	Background samples collected at BKG01 @ 3’ and 4’ REM#34826 / BKG01 @ 3’ REM#34522
	Crew left before backgrounds were collected

Need photo log? X

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-01		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-02		

TANK BATTERY DECOMMISSIONING FORM

SITE NAME: Handscome C #21-19 Tank Battery	**DATE:** 7/15/2024	**REM. PROJECT #:** 35800 / **WEATHER:** 80s Sunny
SITE DIRECTIONS: CR44 & CR53 South 1200' then on South side of canal follow road East 1/2 mile into location	**CLIENT:** Noble	
LEGALS AND LAT/LONG: 40.302889, -104.558017	**TASMAN PERSONNEL:** LM	
SOIL TYPES: Well Graded Sand - SW	**SURFACE GRADIENT:** Southwest	

SOIL SAMPLING

Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?
7/15/2024 09:45	PWV01-B@4'	0.5	No Staining	No Odor	Yes	Lab
7/15/2024 09:50	PWV01-N@2.5'	0.2	No Staining	No Odor	Yes	On-hold
7/15/2024 09:55	PWV01-E@2.5'	2.0	No Staining	No Odor	Yes	Lab
7/15/2024 10:00	PWV01-S@2.5'	0.0	No Staining	No Odor	Yes	On-hold
7/15/2024 10:05	PWV01-W@2.5'	1.9	No Staining	No Odor	Yes	On-hold
7/15/2024 10:15	PWV02-B@4'	217.9	No Staining	HC Odor	Yes	Lab
7/15/2024 10:20	PWV02-N@2.5'	4.4	No Staining	No Odor	Yes	On-hold
7/15/2024 10:25	PWV02-E@2.5	8.4	No Staining	No Odor	Yes	Lab
7/15/2024 10:30	PWV02-S@2.5'	2.9	No Staining	No Odor	Yes	On-hold
7/15/2024 10:35	PWV02-W@2.5'	4.9	No Staining	No Odor	Yes	On-hold
7/15/2024 11:00	AST01@0-6"	0.5	No Staining	No Odor	Yes	Lab
7/15/2024 11:05	AST02@0-6"	0.1	No Staining	No Odor	Yes	Lab
7/15/2024 11:10	SEP01-DL@3'	0.8	No Staining	No Odor	Yes	Lab
7/15/2024 11:15	SEP01-FL@3'	0.2	No Staining	No Odor	Yes	Lab
7/15/2024 11:20	FLARE01@0-6"	0.6	No Staining	No Odor	Yes	Grab
7/15/2024 11:25	FLARE02@0-6"	0.0	No Staining	No Odor	Yes	Grab
7/15/2024 12:00	MH01@0-6"	0.5	No Staining	No Odor	Yes	Grab
7/15/2024 12:05	MH02@0-6"	3.2	No Staining	No Odor	Yes	Grab
7/15/2024 12:10	MH03@0-6"	0.9	No Staining	No Odor	Yes	Grab

FACILITY INFRASTRUCTURE

EQUIPMENT	Quantity	Photo?
Above Ground Storage Tank (AST)		
Buried or Partially Buried Vessel		
Separator		
Emission Control Device (ECD)		
Dump Line		
Wellhead		
Flowline		
Other:		

Soil Loads Removed

IMPACTED SOIL IDENTIFIED?

ESTIMATED VOLUME OF IMPACTS:

Date	Number	CY
Total Removed	0	0

Disposal Facility:

Groundwater Recovery

DATE GW ENCOUNTERED:	DEPTH:

GROUNDWATER IN CONTACT WITH IMPACTED SOIL?

LNAPL OR SHEEN OBSERVED ON GW?

GROUNDWATER SAMPLING

Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?

Date	BBLS
Total Removed	0
Disposal Facility:	

TASMAN

Date: 7/15/2024

GENERAL OBSERVATION FORM

Site Area/AOC: Handscome C #21-19 Tank Battery Client: Noble

Daily Forecast/Weather: 80s Sunny Personnel: LM

Task/Location Description: Soil Confirmation Sampling

Time	Description
09:15	Arrived onsite
	Two produced water vessels removed
	HC odor observed in PWV02 Base (western PWV)
	Coating observed on Flowline, contacted David Vigil for CABI
	Jordan (CABI) and Julia onsite for asbestos sampling on flowline
	Background samples collected at BKG01 @ 3’ and 4’ REM#34826 / BKG01 @ 3’ REM#34522 (07/16/2024)

Need photo log? X

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV01-B@4'		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV01-N@2.5'		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV01-E@2.5'		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV01-S@2.5'		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV01@2.5'		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV-B@4'		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV02-N@2.5'		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV02-E@2.5'		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV02-S@2.5'		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: PWV02-W@2.5'		

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: AST01@0-6"		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: AST02@0-6"		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: SEP01-DL@3'		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FLARE01@0-6"		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: SEP01-FL@3'		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FLARE02@0-6"		

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: MH01@0-6"		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: MH02@0-6"		

Photographic Log

Equipment ID:	Equipment Type:		Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:	Material:	Volume:	Contents:
Notes/Conditions: MH03@0-6"			Notes/Conditions:		

FLOWLINE ABANDONMENT FORM

SITE NAME: Hanscome C 21-18 Flowline	**DATE:** 7/16/2024	**REM. PROJECT #:** 34826 / **WEATHER:** 90s Sunny
SITE DIRECTIONS: CR44 & CR53 South 1200' then on South side of canal follow road East 1/2 mile into location	**CLIENT:** Noble	
LEGALS AND LAT/LONG: 40.301268, -104.555810	**TASMAN PERSONNEL:** LM	
SOIL TYPES: Well Graded Sand - SW	**SURFACE GRADIENT:** Southwest	

SOIL SAMPLING

Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?
7/16/2024 09:00	FL01-01@4'	0.1	No Staining	No Odor	Yes	Lab
7/16/2024 09:05	FL01-02@4'	0.2	No Staining	No Odor	Yes	Grab
7/16/2024 09:10	FL01-03@4'	0.2	No Staining	No Odor	Yes	Grab
7/16/2024 09:15	FL01-04@3'	0.8	No Staining	No Odor	Yes	Lab
7/16/2024 09:20	FL01-05@3'	0.1	No Staining	No Odor	Yes	Lab
7/16/2024 11:25	BKG01@3'	0.1	No Staining	No Odor	No	Lab
7/16/2024 11:30	BKG01@4'	0.0	No Staining	No Odor	No	Lab

FACILITY INFRASTRUCTURE

EQUIPMENT	Quantity	Photo?
Above Ground Storage Tank (AST)		
Buried or Partially Buried Vessel		
Separator		
Emission Control Device (ECD)		
Dump Line		
Wellhead		
Flowline	1	✓
Other:		

Soil Loads Removed

IMPACTED SOIL IDENTIFIED?

ESTIMATED VOLUME OF IMPACTS:

Date	Number	CY
Total Removed	0	0

Disposal Facility:

Groundwater Recovery

DATE GW ENCOUNTERED:	DEPTH:

GROUNDWATER IN CONTACT WITH IMPACTED SOIL?

LNAPL OR SHEEN OBSERVED ON GW?

GROUNDWATER SAMPLING

Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?

Date	BBLS
Total Removed	0

Disposal Facility:

TASMAN

Date: 7/16/2024

GENERAL OBSERVATION FORM

Site Area/AOC: Hanscome C 21-18 Client: Noble

Daily Forecast/Weather: 90s Sunny Personnel: LM

Task/Location Description: Confirmation Soil Sampling

Time	Description
07:00	Arrived onsite
	Wellhead sample point hand dug due to crops and utilities, FL02 pushed north west due to crops and utilities
	Flowline separator sample collected on 07/15/2024 during facility decommissioning
	Partial abandonment due to crops and utilities
	Background taken with hand auger

Need photo log? X

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-02		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-03		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-04		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-05		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:		Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:	Material:	Volume:	Contents:
Notes/Conditions: FL01-01			Notes/Conditions:		

TASMAN

Borehole Logging Form

Boring/Well ID #: ~~Hanscom CM~~ BT-601	SITE NAME: Hanscome C21-18	CLIENT NAME: Noble
Date Started: 7/16/24	Date Completed: 7/16/24	Relative Location:
Geologist: LM	Project Manager: JV	Drilling Company: Fortress
Type of Drill: Hand Auger	Bit Size: –	Surface Completion: –
Screen Interval: –	Riser Interval: –	Well Diameter: –
Sand Interval: –	Bentonite Interval: –	DTW: – TD: 4'

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1	N/A	HA	100%	0.0	BT601@3'	SW	0-4 Brown, fine to medium sand, well graded, medium dense, moist, no staining, no odor
2				0.0	1125		
3				0.0	BT601@4'		
4				0.0	1130		
5							Total Depth: 4 ft
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

FLOWLINE ABANDONMENT FORM

SITE NAME: Hanscome C 21-19	**DATE:** 7/16/2024	**REM. PROJECT #:** 34522	**WEATHER:** 90s Sunny
SITE DIRECTIONS: CR44 & CR53 South 1200' then on South side of canal follow road East 1/2 mile into l	**CLIENT:** Noble	
LEGALS AND LAT/LONG: 40.302889, -104.558017	**TASMAN PERSONNEL:** LM	
SOIL TYPES: Well Graded Sand - SW	**SURFACE GRADIENT:** Southwest	

SOIL SAMPLING

Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?
7/16/2024 12:30	FL01-01@3'	0.0	No Staining	No Odor	Yes	Lab
7/16/2024 11:55	FL01-02@3'	0.3	No Staining	No Odor	Yes	Grab
7/16/2024 12:00	FL01-03@3'	0.2	No Staining	No Odor	Yes	Lab
7/16/2024 12:05	FL01-04@3'	0.0	No Staining	No Odor	Yes	Lab
7/16/2024 12:10	FL01-05@3'	0.2	No Staining	No Odor	Yes	Lab
7/16/2024 12:50	BKG01@3'	0.0	No Staining	No Odor	No	Lab

FACILITY INFRASTRUCTURE

EQUIPMENT	Quantity	Photo?
Above Ground Storage Tank (AST)		
Buried or Partially Buried Vessel		
Separator		
Emission Control Device (ECD)		
Dump Line		
Wellhead		
Flowline	1	
Other:		

Soil Loads Removed

IMPACTED SOIL IDENTIFIED?

ESTIMATED VOLUME OF IMPACTS:

Date	Number	CY
Total Removed	0	0

Disposal Facility:

Groundwater Recovery

DATE GW ENCOUNTERED:	DEPTH:

GROUNDWATER IN CONTACT WITH IMPACTED SOIL?

LNAPL OR SHEEN OBSERVED ON GW?

GROUNDWATER SAMPLING

Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?

Date	BBLS
Total Removed	0
Disposal Facility:	

TASMAN

Date: 7/16/2024

GENERAL OBSERVATION FORM

Site Area/AOC: Hanscome C 21-19 Client: Noble

Daily Forecast/Weather: 90s Sunny Personnel: LM

Task/Location Description: Confirmation Soil Sampling

Time	Description
07:00	Arrived onsite
	Flowline cut and partially abandoned at point FL01-02@3' due to crops in the field
	Background sample collected using hand auger

Need photo log? X

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-02		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-03		

TASMAN

Photographic Log

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-04		

Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:
Notes/Conditions: FL01-05		

Photographic Log

Equipment ID:	Equipment Type:		Equipment ID:	Equipment Type:	
Material:	Volume:	Contents:	Material:	Volume:	Contents:
Notes/Conditions: FL01-01			Notes/Conditions:		

TASMAN

Borehole Logging Form

Boring/Well ID #: BKG01	SITE NAME: Hanscome C21-19	CLIENT NAME: Noble
Date Started: 7/16/24	Date Completed: 7/16/24	Relative Location:
Geologist: LM	Project Manager: JW	Drilling Company: Fortress
Type of Drill: Hand Auger	Bit Size:	Surface Completion: –
Screen Interval: –	Riser Interval: –	Well Diameter: –
Sand Interval: –	Bentonite Interval: –	DTW: – TD: 3'

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1	N/A	HA	100%	0.0	BKG01 @ 3' 1250	CL	0-3 Brown, sandy clay, med plasticity, med consistence, moist, no staining, no odor
2				0.0			
3				0.0			
4							Total Depth: 3 Ft
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

TABLE 1

FIELD DATA SUMMARY TABLE

NOBLE ENERGY, INC. - 100322

CHENOWETH 1 FLOWLINE, WELD COUNTY, COLORADO

REM # 34500

Sample ID	Sample Date	Depth (ft. bgs)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01-01@4'	07/16/2024	4	40.302487	-104.558186	0.9	0.3
FL01-02@4'	07/16/2024	4	40.302619	-104.558159	0.9	0.7
SEP01-FL@3'[(a)]	07/15/2024	3	40.302885	-104.558100	NC	0.2
BKG01@3'[(b)]	07/16/2024	3	40.301497	-104.560474	0.80	0.0
BKG01@3'[(c)]	07/16/2024	3	40.301140	-104.555734	1.5	0.1
BKG01@4'[(c)]	07/16/2024	4	40.301140	-104.555734	1.5	0.0

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTMZone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

a. Flowline riser sample was collected during decommissioning of the associated Hanscome C #21-19 Tank Battery (REM#35800)

b. Background sample collected during decommissioning of the associated Hanscome 21-19 flowline (REM#34522).

c. Background sample was collected during decommissioning of the associated Hanscome C21-18 flowline (REM# 34826)

PDOP = Position Dilution of Precision

ppm = Parts per million

in. = Inches

ft. = Feet

bgs = Below ground surface

NC= Not collected

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY, INC. (100322)
CHENOWETH 1 FLOWLINE, WELD COUNTY, COLORADO
REM # 34500

Sample ID	Sample Date	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	500**		
FL01-01@4'	07/16/2024	4	*<0.0020*	*<0.0050*	*<0.0050*	*<0.010*	*<0.0050*	*<0.0050*	*<0.0038*	*<500*	*<0.50*	*<50*	*<50*
FL01-02@4'	07/16/2024	4	*<0.0020*	*<0.0050*	*<0.0050*	*<0.010*	*<0.0050*	*<0.0050*	*<0.0038*	*<500*	*<0.50*	*<50*	*<50*
SEP01-FL@3'[(a)]	07/15/2024	3	*<0.0020*	*<0.0050*	*<0.0050*	*<0.010*	*<0.0050*	*<0.0050*	*<0.0038*	*<500*	*<0.50*	*<50*	*<50*

Notes:

1. **Bold** values exceed the ECMC Table 915-1 limit(s).
2. Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
3. * Indicates laboratory minimum detection limit in excess of SSL.
4. ** Summation of GRO+DRO+ORO must be less than 500 mg/kg.

a. Flowline riser sample was collected during decommissioning of the associated Hanscome C #21-19 (REM#35800) decommissioning

ECMC = Energy & Carbon Management Commission

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

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

ft. = Feet

bgs = Below ground surface

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE ENERGY, INC. (100322)
CHENOWETH 1 FLOWLINE, WELD COUNTY, COLORADO
REM # 34500

Sample ID	Sample Date	Depth (ft. bgs)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3-cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl-Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01-01@4'	07/16/2024	4	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*
FL01-02@4'	07/16/2024	4	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*
SEP01-FL@3'[(a)]	07/15/2024	3	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*

Notes:

1. **Bold** values exceed the ECMC Table 915-1 limit(s).
2. Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
3. * Indicates laboratory minimum detection limit in excess of SSL.

a. Flowline riser sample was collected during decommissioning of the associated Hanscome C #21-19 (REM#35800) decommissioning

ECMC = Colorado Energy & Carbon Management Commission

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

ft. = Feet

bgs = Below ground surface

mg/kg = Milligrams per kilogram

TABLE 4

SUMMARY OF SOIL SUITABILITY FOR RECLAMATION

NOBLE ENERGY, INC. (100322)

CHENOWETH 1 FLOWLINE, WELD COUNTY, COLORADO

REM # 34500

Sample ID	Sample Date	Depth (ft. bgs)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
FL01-01@4'	07/16/2024	4	**8.44**	0.193	0.0113	*<2.00*
FL01-02@4'	07/16/2024	4	8.10	0.0541	0.0079	*<2.00*
SEP01-FL@3'[(a)]	07/15/2024	3	**8.70**	0.131	0.108	*<2.00*
BKG01@3'[(b)]	07/16/2024	3	8.62	0.274	0.412	*<2.00*
BKG01@3'[(c)]	07/16/2024	3	7.90	1.140	3.900	*<2.00*
BKG01@4'[(c)]	07/16/2024	4	8.47	0.979	3.26	*<2.00*
Maximum Root Background Concentration (0 - 3 ft)			8.62	-	-	-
Mean Root Background Concentration (0 - 3 ft)			8.33	-	-	-
Maximum Background Concentration			8.62	-	-	-
Mean Background Concentration			8.33	-	-	-

Notes:

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within background concentrations.
2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.

a. Flowline riser sample was collected during decommissioning of the associated Hanscome C #21-19 Tank Battery (REM#35800)

b. Background sample collected during decommissioning of the associated Hanscome 21-19 flowline (REM#34522).

c. Background sample was collected during decommissioning of the associated Hanscome C21-18 flowline (REM# 34826)

3. Brown highlighted soil analytical values indicate a regulatory exceedance.

ECMC = Colorado Energy & Carbon Management Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = millgram per liter

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

ft. = Feet

bgs = Below ground surface

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE ENERGY, INC. (100322)
CHENOWETH 1 FLOWLINE, WELD COUNTY, COLORADO
REM # 34500

Sample ID	Sample Date	Depth (ft. bgs)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI)[4] (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01-01@4'	07/16/2024	4	**1.24**	38.7	0.204	*<0.30*	5.55	**21.6**	3.13	*<0.232*	*<0.0179*	28.7
FL01-02@4'	07/16/2024	4	**1.02**	29.6	*<0.200*	*<0.30*	2.59	4.3	2.64	*<0.260*	*<0.0179*	9.40
SEP01-FL@3'[(a)]	07/15/2024	3	**1.75**	45.1	*<0.200*	*<0.30**	3.13	4.30	3.22	*<0.260*	*<0.0200*	13.9
BKG01@3'[(b)]	07/16/2024	3	1.71	65.4	*<0.200*	*<0.30**	3.50	5.27	4.38	*<0.260*	0.0318	16.1
BKG01@3'[(c)]	07/16/2024	3	1.53	39.6	*<0.200*	*<0.30**	2.36	5.33	1.07	*<0.260*	0.0207	5.32
BKG01@4'[(c)]	07/16/2024	4	1.99	46.8	*<0.200*	*<0.30**	2.41	5.53	1.49	*<0.260*	0.0235	6.00
Maximum Background Concentration			1.99	-	-	-	-	5.53	-	-	-	-
Maximum Background Concentration X 1.25			2.49	-	-	-	-	6.91	-	-	-	-
Mean Background Concentration			1.74	-	-	-	-	5.38	-	-	-	-
Mean Background Concentration X 1.25			2.18	-	-	-	-	6.72	-	-	-	-

Notes:

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
3. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
4. Compound falls within ECMC Table 915-1 Footnote 9.
5. Non-detect background results accounted for in the highest background concentration by using the reporting limit.

a. Flowline riser sample was collected during decommissioning of the associated Hanscome C #21-19 Tank Battery (REM#35800)
b. Background sample collected during decommissioning of the associated Hanscome 21-19 flowline (REM#34522).
c. Background sample was collected during decommissioning of the associated Hanscome C21-18 flowline (REM# 34826)
ECMC = Energy & Carbon Management Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface
* Indicates laboratory minimum detection limit in excess of SSL

DATE: 10/02/2024 DESIGNED BY: J. Whritenour DRAWN BY: J. Adams	TASMAN	Tasman, Inc. 6855 W 119th Avenue Broomfield, CO 80020	**Noble Energy, Inc. – 100322 – DJ Basin** **Chenoweth 1 Flowline** NENW, Section 21, Township 4 North, Range 64 West Weld County, Colorado	Soil Sample Location Map (07/15/2024, 07/16/2024)	FIGURE 1

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 22, 2024

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

RE: Noble - Chenoweth 1 Flowline
Work Order #2407202

Enclosed are the results of analyses for samples received by Summit Scientific on 07/16/24 17:41. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Natalie Tessier For Paul Shrewsbury
President

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-01@4'	2407202-01	Soil	07/16/24 08:00	07/16/24 17:41
FL01-02@4'	2407202-02	Soil	07/16/24 08:10	07/16/24 17:41

Summit Scientific

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

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2407202	

	Send Data To:	Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Chenoweth 1 Flowline
City/State/Zip: Broomfield/CO/ 80020		AFE#: UWZWE-A4078-ABN
Phone: (317) 445-0601	Project Name: Chenoweth 1 Flowline	PO/Billing Codes:
Sampler Name: Luke Moran	Project Number:	Contact: ~~Dan Peterson~~ Miguel Barron

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		SAR, EC, pH by saturated paste
1	FL01-01@4'	7/16/24	0800	3			3			X			X	X	X	X	X	X			
2	FL01-02@4	1	0810	1			1			1			1	1	1	1	1	1			
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time:	Received by: **Tasman Lock Box**	Date/Time:
Luke Moran	7/16/24 1530		7/16/24 1530
Relinquished by:	Date/Time:	Received by:	Date/Time:
Tasman Lock Box	7/16/24 1741		7/16/24 1741
Relinquished by:	Date/Time:	Received by:	Date/Time:

TAT Business Days	
Same Day	
1 Day	
2 Days	
3 Days	
Standard	X

Field DO	
Field EC	
Field ORP	
Field pH	
Field Temp.	
Field Turb.	

Notes:

Temperature Upon Receipt: 10.1 | Corrected Temperature: 9 | IR gun #: 1 | HNO3 lot #:

S2

Sample Receipt Checklist

S2 Work Order# 2407202

Client: Nchnt Tasman Client Project ID: Chenoweth Flowline

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

Matrix (Check all that apply) Air [ ] Soil/Solid [ ] Water [ ] Other [ ]

Temp (°C) [10.1] Thermometer # [1]

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	–			ONICE
If custody seals are present, are they intact? (1)	–			
Are samples due within 48 hours present?		–		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+}, Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen		–		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	–			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	–			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_4, NaOH, HNO_3, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

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

AS — **Custodian Printed Name**

7/16/24 — **Date/Time**

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-01@4'

2407202-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/21/24	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: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0347	*86.8 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0399	*99.8 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0398	*99.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	8.63	*69.0 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-01@4'

2407202-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0442	07/17/24	07/18/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0253	*75.9 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0141	*42.3 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/18/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-01@4'

2407202-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.24**	0.179	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Barium	**38.7**	0.357	"	"	"	"	"	"	
Cadmium	**0.204**	0.179	"	"	"	"	"	"	
Copper	**5.55**	0.357	"	"	"	"	"	"	
Lead	**21.6**	0.179	"	"	"	"	"	"	
Nickel	**3.13**	0.357	"	"	"	"	"	"	
Silver	ND	0.0179	"	"	"	"	"	"	
Zinc	**28.7**	0.357	"	"	"	"	"	"	
Selenium	ND	0.232	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0522	07/19/24	07/19/24	EPA 7196A	

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

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**67.4**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**2.33**	0.0500	"	"	"	"	"	"	
Sodium	**0.345**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0113**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-01@4'

2407202-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.1**		%	1	BHG0486	07/18/24	07/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.193**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.44**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-02@4'

2407202-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/21/24	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: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0329	*82.2 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0411	*103 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	*97.5 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.7	*86.0 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-02@4'

2407202-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0442	07/17/24	07/18/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0299	*89.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0197	*59.1 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/18/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-02@4'

2407202-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.02**	0.200	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Barium	**29.6**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**2.59**	0.400	"	"	"	"	"	"	
Lead	**4.25**	0.200	"	"	"	"	"	"	
Nickel	**2.64**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**9.40**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0522	07/19/24	07/19/24	EPA 7196A	

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

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**54.4**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**3.62**	0.0500	"	"	"	"	"	"	
Sodium	**0.223**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.00790**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

FL01-02@4'

2407202-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**94.9**		%	1	BHG0486	07/18/24	07/18/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.0541**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 08:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.10**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0449 - EPA 5030 Soil MS										
Blank (BHG0449-BLK1)				Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0441*		*"*	*0.0400*		*110*	*50-150*			
Surrogate: Toluene-d8	*0.0387*		*"*	*0.0400*		*96.7*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0408*		*"*	*0.0400*		*102*	*50-150*			
LCS (BHG0449-BS1)				Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0821	0.0020	mg/kg	0.100		82.1	70-130			
Toluene	0.0938	0.0050	"	0.100		93.8	70-130			
Ethylbenzene	0.0893	0.0050	"	0.100		89.3	70-130			
m,p-Xylene	0.183	0.010	"	0.200		91.7	70-130			
o-Xylene	0.0959	0.0050	"	0.100		95.9	70-130			
1,2,4-Trimethylbenzene	0.0842	0.0050	"	0.100		84.2	70-130			
1,3,5-Trimethylbenzene	0.0852	0.0050	"	0.100		85.2	70-130			
Naphthalene	0.0779	0.0038	"	0.100		77.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0404*		*"*	*0.0400*		*101*	*50-150*			
Surrogate: Toluene-d8	*0.0401*		*"*	*0.0400*		*100*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0371*		*"*	*0.0400*		*92.7*	*50-150*			
Matrix Spike (BHG0449-MS1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0787	0.0020	mg/kg	0.100	ND	78.7	70-130			
Toluene	0.0913	0.0050	"	0.100	ND	91.3	70-130			
Ethylbenzene	0.0761	0.0050	"	0.100	ND	76.1	70-130			
m,p-Xylene	0.156	0.010	"	0.200	ND	78.2	70-130			
o-Xylene	0.0804	0.0050	"	0.100	ND	80.4	70-130			
1,2,4-Trimethylbenzene	0.0688	0.0050	"	0.100	ND	68.8	70-130			QM-05
1,3,5-Trimethylbenzene	0.0702	0.0050	"	0.100	ND	70.2	70-130			
Naphthalene	0.0676	0.0038	"	0.100	ND	67.6	70-130			QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0448*		*"*	*0.0400*		*112*	*50-150*			
Surrogate: Toluene-d8	*0.0436*		*"*	*0.0400*		*109*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0374*		*"*	*0.0400*		*93.4*	*50-150*			

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

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0449 - EPA 5030 Soil MS										
Matrix Spike Dup (BHG0449-MSD1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0683	0.0020	mg/kg	0.100	ND	68.3	70-130	14.2	30	QM-05
Toluene	0.0805	0.0050	"	0.100	ND	80.5	70-130	12.6	30	
Ethylbenzene	0.0703	0.0050	"	0.100	ND	70.3	70-130	7.95	30	
m,p-Xylene	0.143	0.010	"	0.200	ND	71.7	70-130	8.69	30	
o-Xylene	0.0749	0.0050	"	0.100	ND	74.9	70-130	7.07	30	
1,2,4-Trimethylbenzene	0.0627	0.0050	"	0.100	ND	62.7	70-130	9.35	30	QM-05
1,3,5-Trimethylbenzene	0.0649	0.0050	"	0.100	ND	64.9	70-130	7.82	30	QM-05
Naphthalene	0.0584	0.0038	"	0.100	ND	58.4	70-130	14.6	30	QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0426*		*"*	*0.0400*		*106*	*50-150*			
Surrogate: Toluene-d8	*0.0409*		*"*	*0.0400*		*102*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0372*		*"*	*0.0400*		*92.9*	*50-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0452 - EPA 3550A										
Blank (BHG0452-BLK1)				Prepared & Analyzed: 07/17/24						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*12.7*		*"*	*12.5*		*102*	*30-150*			
LCS (BHG0452-BS1)				Prepared & Analyzed: 07/17/24						
C10-C28 (DRO)	430	50	mg/kg	500		86.0	70-130			
Surrogate: o-Terphenyl	*11.1*		*"*	*12.5*		*88.6*	*30-150*			
Matrix Spike (BHG0452-MS1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/18/24						
C10-C28 (DRO)	454	50	mg/kg	500	5.22	89.7	70-130			
Surrogate: o-Terphenyl	*9.51*		*"*	*12.5*		*76.1*	*30-150*			
Matrix Spike Dup (BHG0452-MSD1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/18/24						
C10-C28 (DRO)	523	50	mg/kg	500	5.22	104	70-130	14.2	20	
Surrogate: o-Terphenyl	*9.42*		*"*	*12.5*		*75.3*	*30-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0442 - EPA 5030 Soil MS										
Blank (BHG0442-BLK1)				Prepared & Analyzed: 07/17/24						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0292*		*"*	*0.0333*		*87.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0257*		*"*	*0.0333*		*77.2*	*40-150*			
LCS (BHG0442-BS1)				Prepared & Analyzed: 07/17/24						
Acenaphthene	0.0181	0.00500	mg/kg	0.0333		54.4	31-137			
Anthracene	0.0174	0.00500	"	0.0333		52.1	30-120			
Benzo (a) anthracene	0.0182	0.00500	"	0.0333		54.5	30-120			
Benzo (a) pyrene	0.0164	0.00500	"	0.0333		49.1	30-120			
Benzo (b) fluoranthene	0.0170	0.00500	"	0.0333		51.0	30-120			
Benzo (k) fluoranthene	0.0180	0.00500	"	0.0333		54.1	30-120			
Chrysene	0.0182	0.00500	"	0.0333		54.7	30-120			
Dibenz (a,h) anthracene	0.0162	0.00500	"	0.0333		48.7	30-120			
Fluoranthene	0.0177	0.00500	"	0.0333		53.1	30-120			
Fluorene	0.0179	0.00500	"	0.0333		53.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0232	0.00500	"	0.0333		69.7	30-120			
Pyrene	0.0218	0.00500	"	0.0333		65.5	35-142			
1-Methylnaphthalene	0.0229	0.00500	"	0.0333		68.8	35-142			
2-Methylnaphthalene	0.0220	0.00500	"	0.0333		66.0	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0221*		*"*	*0.0333*		*66.3*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0185*		*"*	*0.0333*		*55.4*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0442 - EPA 5030 Soil MS										
Matrix Spike (BHG0442-MS1)	**Source: 2407198-01**			Prepared & Analyzed: 07/17/24						
Acenaphthene	0.0149	0.00500	mg/kg	0.0333	ND	44.8	31-137			
Anthracene	0.0146	0.00500	"	0.0333	ND	43.8	30-120			
Benzo (a) anthracene	0.0160	0.00500	"	0.0333	ND	48.0	30-120			
Benzo (a) pyrene	0.0146	0.00500	"	0.0333	ND	43.9	30-120			
Benzo (b) fluoranthene	0.0136	0.00500	"	0.0333	ND	40.8	30-120			
Benzo (k) fluoranthene	0.0158	0.00500	"	0.0333	ND	47.4	30-120			
Chrysene	0.0157	0.00500	"	0.0333	ND	47.1	30-120			
Dibenz (a,h) anthracene	0.0148	0.00500	"	0.0333	ND	44.3	30-120			
Fluoranthene	0.0140	0.00500	"	0.0333	ND	42.1	30-120			
Fluorene	0.0149	0.00500	"	0.0333	ND	44.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0181	0.00500	"	0.0333	ND	54.4	30-120			
Pyrene	0.0145	0.00500	"	0.0333	ND	43.4	35-142			
1-Methylnaphthalene	0.0148	0.00500	"	0.0333	ND	44.4	15-130			
2-Methylnaphthalene	0.0137	0.00500	"	0.0333	ND	41.1	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0138*		*"*	*0.0333*		*41.3*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0148*		*"*	*0.0333*		*44.5*	*40-150*			
Matrix Spike Dup (BHG0442-MSD1)	**Source: 2407198-01**			Prepared & Analyzed: 07/17/24						
Acenaphthene	0.0164	0.00500	mg/kg	0.0333	ND	49.2	31-137	9.42	30	
Anthracene	0.0158	0.00500	"	0.0333	ND	47.5	30-120	8.04	30	
Benzo (a) anthracene	0.0170	0.00500	"	0.0333	ND	50.9	30-120	5.92	30	
Benzo (a) pyrene	0.0146	0.00500	"	0.0333	ND	43.7	30-120	0.433	30	
Benzo (b) fluoranthene	0.0138	0.00500	"	0.0333	ND	41.3	30-120	1.24	30	
Benzo (k) fluoranthene	0.0142	0.00500	"	0.0333	ND	42.5	30-120	10.8	30	
Chrysene	0.0161	0.00500	"	0.0333	ND	48.2	30-120	2.28	30	
Dibenz (a,h) anthracene	0.0161	0.00500	"	0.0333	ND	48.3	30-120	8.74	30	
Fluoranthene	0.0154	0.00500	"	0.0333	ND	46.1	30-120	9.11	30	
Fluorene	0.0164	0.00500	"	0.0333	ND	49.2	30-120	9.67	30	
Indeno (1,2,3-cd) pyrene	0.0176	0.00500	"	0.0333	ND	52.8	30-120	2.99	30	
Pyrene	0.0189	0.00500	"	0.0333	ND	56.7	35-142	26.6	30	
1-Methylnaphthalene	0.0178	0.00500	"	0.0333	ND	53.5	15-130	18.6	50	
2-Methylnaphthalene	0.0176	0.00500	"	0.0333	ND	52.7	15-130	24.9	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0186*		*"*	*0.0333*		*55.8*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0162*		*"*	*0.0333*		*48.5*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

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

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0462 - EPA 3050B										
Blank (BHG0462-BLK1)				Prepared & Analyzed: 07/17/24						
Boron	ND	2.00	mg/L							
LCS (BHG0462-BS1)				Prepared & Analyzed: 07/17/24						
Boron	5.09	2.00	mg/L	5.00		102	80-120			
Duplicate (BHG0462-DUP1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	0.178	2.00	mg/L		0.215			18.6	20	
Matrix Spike (BHG0462-MS1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	5.42	2.00	mg/L	5.02	0.215	104	75-125			
Matrix Spike Dup (BHG0462-MSD1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	5.68	2.00	mg/L	5.02	0.215	109	75-125	4.66	25	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

Total Metals by EPA 6020B - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0470 - EPA 3050B										
Blank (BHG0470-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	ND	0.181	mg/kg wet							
Barium	ND	0.362	"							
Cadmium	ND	0.181	"							
Copper	ND	0.362	"							
Lead	ND	0.181	"							
Nickel	ND	0.362	"							
Silver	ND	0.0181	"							
Zinc	ND	0.362	"							
Selenium	ND	0.236	"							
LCS (BHG0470-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	34.4	0.200	mg/kg wet	37.3		92.2	80-120			
Barium	44.9	0.400	"	37.3		120	80-120			
Cadmium	1.77	0.200	"	1.87		94.9	80-120			
Copper	37.5	0.400	"	37.3		100	80-120			
Lead	18.4	0.200	"	18.7		98.6	80-120			
Nickel	37.4	0.400	"	37.3		100	80-120			
Silver	1.81	0.0200	"	1.87		97.2	80-120			
Zinc	35.4	0.400	"	37.3		95.0	80-120			
Selenium	4.36	0.260	"	3.73		117	80-120			
Duplicate (BHG0470-DUP1)		**Source: 2407063-03RE1**		Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	1.42	0.200	mg/kg wet		1.48			4.04	20	
Barium	591	0.400	"		605			2.38	20	
Cadmium	0.141	0.200	"		0.150			6.28	20	
Copper	3.55	0.400	"		3.37			5.15	20	
Lead	2.85	0.200	"		2.83			0.614	20	
Nickel	2.08	0.400	"		2.00			4.13	20	
Silver	0.00754	0.0200	"		0.00772			2.37	20	
Zinc	10.5	0.400	"		10.5			0.162	20	
Selenium	ND	0.260	"		ND				20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

Total Metals by EPA 6020B - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0470 - EPA 3050B										
Matrix Spike (BHG0470-MS1)	**Source: 2407063-03RE1**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	28.4	0.200	mg/kg wet	38.5	1.48	70.1	75-125			QM-07
Barium	692	0.400	"	38.5	605	226	75-125			QM-05
Cadmium	1.92	0.200	"	1.92	0.150	91.9	75-125			
Copper	33.9	0.400	"	38.5	3.37	79.4	75-125			
Lead	21.3	0.200	"	19.2	2.83	96.2	75-125			
Nickel	32.0	0.400	"	38.5	2.00	78.0	75-125			
Silver	1.78	0.0200	"	1.92	0.00772	92.1	75-125			
Zinc	38.6	0.400	"	38.5	10.5	73.1	75-125			QM-07
Selenium	4.00	0.260	"	3.85	ND	104	75-125			
Matrix Spike Dup (BHG0470-MSD1)	**Source: 2407063-03RE1**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	30.0	0.200	mg/kg wet	38.5	1.48	74.2	75-125	5.39	25	QM-07
Barium	766	0.400	"	38.5	605	417	75-125	10.1	25	QM-07
Cadmium	2.08	0.200	"	1.92	0.150	100	75-125	8.23	25	
Copper	32.4	0.400	"	38.5	3.37	75.5	75-125	4.53	25	
Lead	21.3	0.200	"	19.2	2.83	95.8	75-125	0.293	25	
Nickel	30.7	0.400	"	38.5	2.00	74.7	75-125	4.00	25	QM-07
Silver	1.83	0.0200	"	1.92	0.00772	94.7	75-125	2.79	25	
Zinc	40.1	0.400	"	38.5	10.5	77.1	75-125	3.93	25	
Selenium	4.11	0.260	"	3.85	ND	107	75-125	2.57	25	
Post Spike (BHG0470-PS1)	**Source: 2407063-03RE1**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	86.4		ug/l	100	3.70	82.7	75-125			
Barium	1810		"	100	1510	299	75-125			QM-01
Cadmium	5.39		"	5.00	0.375	100	75-125			
Copper	90.9		"	100	8.42	82.5	75-125			
Lead	57.0		"	50.0	7.09	99.7	75-125			
Nickel	87.7		"	100	4.99	82.7	75-125			
Silver	4.97		"	5.00	0.0193	99.0	75-125			
Zinc	113		"	100	26.2	86.5	75-125			
Selenium	11.6		"	10.0	0.181	114	75-125			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

Hexavalent Chromium by EPA Method 7196 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0522 - 3060A_Mod										
Blank (BHG0522-BLK1)				Prepared & Analyzed: 07/19/24						
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BHG0522-BS1)				Prepared & Analyzed: 07/19/24						
Chromium, Hexavalent	26.2	0.30	mg/kg wet	25.0		105	80-120			
Duplicate (BHG0522-DUP1)	**Source: 2407195-21**			Prepared & Analyzed: 07/19/24						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BHG0522-MS1)	**Source: 2407195-21**			Prepared & Analyzed: 07/19/24						
Chromium, Hexavalent	27.4	0.30	mg/kg dry	25.7	ND	107	75-125			
Matrix Spike Dup (BHG0522-MSD1)	**Source: 2407195-21**			Prepared & Analyzed: 07/19/24						
Chromium, Hexavalent	27.0	0.30	mg/kg dry	25.7	ND	105	75-125	1.32	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0458 - General Preparation										
Blank (BHG0458-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BHG0458-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Calcium	4.60	0.0500	mg/L wet	5.00		92.1	70-130			
Magnesium	4.65	0.0500	"	5.00		93.0	70-130			
Sodium	4.36	0.0500	"	5.00		87.2	70-130			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0486 - General Preparation										
Duplicate (BHG0486-DUP1)		**Source: 2407202-01**		Prepared & Analyzed: 07/18/24						
% Solids	93.1		%		93.1			0.0470	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0465 - General Preparation										
Blank (BHG0465-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BHG0465-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	0.150	0.0100	mmhos/cm	0.150		100	95-105			
Duplicate (BHG0465-DUP1)		**Source: 2407198-01**		Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	0.143	0.0100	mmhos/cm		0.147			2.28	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0466 - General Preparation										
LCS (BHG0466-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
pH	9.08		pH Units	9.18		98.9	95-105			
Duplicate (BHG0466-DUP1)		**Source: 2407198-01**		Prepared: 07/17/24 Analyzed: 07/18/24						
pH	9.01		pH Units		9.11			1.10	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Chenoweth 1 Flowline Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/22/24 09:43

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
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

July 30, 2024

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

RE: Noble - Hanscome C21-19 Tank Battery
Work Order #2407183

Enclosed are the results of analyses for samples received by Summit Scientific on 07/15/24 18:27. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Natalie Tessier For Paul Shrewsbury
President

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PWV01-B@4'	2407183-01	Soil	07/15/24 09:45	07/15/24 18:27
PWV01-E@2.5'	2407183-03	Soil	07/15/24 09:55	07/15/24 18:27
PWV02-B@4'	2407183-06	Soil	07/15/24 10:15	07/15/24 18:27
PWV02-E@2.5'	2407183-08	Soil	07/15/24 10:25	07/15/24 18:27
AST01@0-6"	2407183-11	Soil	07/15/24 11:00	07/15/24 18:27
AST02@0-6"	2407183-12	Soil	07/15/24 11:05	07/15/24 18:27
SEP01-DL@3'	2407183-13	Soil	07/15/24 11:10	07/15/24 18:27
SEP01-FL@3'	2407183-14	Soil	07/15/24 11:15	07/15/24 18:27

Case Narrative

Rerun analyses were performed by client request on 7/22/24.
The rerun results included in this report are denoted with "RE#."

This is a revision of the report originally sent on 7/22/24 at 11:04 MT.

Summit Scientific

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

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2407183	

	Send Data To:	Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Hanscome C #21-19 Tank Battery
City/State/Zip: Broomfield/CO/ 80020		AFE#: UWRWE-A9078-ABN
Phone: (317) 445-0601	Project Name: Hanscome C #21-19 Tank Battery	PO/Billing Codes:
Sampler Name: Luke Moran	Project Number:	Contact: ~~Dan Peterson~~ Miguel Barron

				Preservative					Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		SAR, EC, pH by saturated paste
1	PWV01-B@4'	7/15/24	0945	3			3			X			X	X	X	X	X	X			
2	PWV01-N@2.5'	"	0950	1			"			"									X		
3	PWV01-E@2.5'	"	0955	"			"			"			X	X	X	X	X	X			
4	PWV01-S@2.5'	"	1000	"			"			"									X		
5	PWV01-W@2.5'	"	1005	"			"			"									X		
6	PWV02-B@4'	"	1015	"			"			"			X	X	X	X	X	X			
7	PWV02-N@2.5'	"	1020	"			"			"									X		
8	PWV02-E@2.5'	"	1025	"			"			"			X	X	X	X	X	X			
9	PWV02-S@2.5'	"	1030	"			"			"									X		
10	PWV02-W@2.5'	"	1035	"			"			"									X		
11	AST01@0-6"	"	1100	"			"			"			X	X	X	X	X	X			
12	AST02@0-6"	"	1105	"			"			"											
13	SEP01-DL@3'	"	1110	"			"			"											
14	SEP01-FL@3'	"	1115	"			"			"											
15																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
Luke Moran	7/15/24 1430	Tasman Lock Box	7/15/24 1430
Tasman Lock Box	7/15/24 1827		7/15/24 1827
Relinquished by:	Date/Time:	Received by:	Date/Time:

TAT Business Days	
Same Day	
1 Day	
2 Days	
3 Days	
Standard	X

Field DO	
Field EC	
Field ORP	
Field pH	
Field Temp.	
Field Turb.	

Notes:

Temperature Upon Receipt: 11.7 | Corrected Temperature: 0 | IR gun #: 1 | HNO3 lot #:

S2

Sample Receipt Checklist

S2 Work Order# 2407183

Client: Nobel Tasman Client Project ID: Handsome C#21-19 Tank Battery

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other [ ] Airbill #: [-]

Matrix (Check all that apply) Air [ ] Soil/Solid [ ] Water [ ] Other [ ]

Temp (°C) [11.7] Thermometer # [1]

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			ON ICE
If custody seals are present, are they intact? (1)	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+}, Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen		-		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	-			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	-			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_4, NaOH, HNO_3, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

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

AS
Custodian Printed Name

7/15/24
Date/Time

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-B@4'

2407183-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0363	*90.8 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0390	*97.4 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0381	*95.2 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.3	*82.1 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-B@4'

2407183-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/16/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0222	*66.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0227	*68.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.88**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-B@4'

2407183-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	**48.4**	0.400	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.40**	0.400	"	"	"	"	"	"	
Lead	**4.79**	0.200	"	"	"	"	"	"	
Nickel	**3.44**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**13.4**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**81.4**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**2.69**	0.0500	"	"	"	"	"	"	
Sodium	**1.60**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0476**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-B@4'

2407183-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**90.3**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.103**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.71**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-B@4'

2407183-01RE1 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzo (a) anthracene	ND	0.00500	mg/kg	1	BHG0621	07/23/24	07/23/24	EPA 8270D SIM	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-E@2.5'

2407183-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0353	*88.3 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0392	*98.1 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0376	*94.1 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	8.77	*70.2 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-E@2.5'

2407183-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/16/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0197	*59.2 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0204	*61.2 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-E@2.5'

2407183-03 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.88**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Barium	**57.0**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.40**	0.400	"	"	"	"	"	"	
Lead	**4.89**	0.200	"	"	"	"	"	"	
Nickel	**3.27**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**13.2**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**121**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**2.97**	0.0500	"	"	"	"	"	"	
Sodium	**1.87**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0459**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV01-E@2.5'

2407183-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.8**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.113**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.57**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-B@4'

2407183-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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	**3.0**	0.50	"	"	"	"	"	"	

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0347	*86.8 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0388	*96.9 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0365	*91.2 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	**270**	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.5	*83.9 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-B@4'

2407183-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/16/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0225	*67.4 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0187	*56.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-B@4'

2407183-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.56**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Barium	**37.9**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**2.94**	0.400	"	"	"	"	"	"	
Lead	**4.09**	0.200	"	"	"	"	"	"	
Nickel	**2.86**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**11.5**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**233**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**3.11**	0.0500	"	"	"	"	"	"	
Sodium	**2.25**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0401**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-B@4'

2407183-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**92.9**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.123**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.20**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-E@2.5'

2407183-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0347	*86.8 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0396	*99.0 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0400	*99.9 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.4	*91.3 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-E@2.5'

2407183-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/16/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0205	*61.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0226	*67.9 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-E@2.5'

2407183-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**2.72**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Barium	**43.7**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.30**	0.400	"	"	"	"	"	"	
Lead	**5.64**	0.200	"	"	"	"	"	"	
Nickel	**3.63**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**14.7**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**277**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**3.85**	0.0500	"	"	"	"	"	"	
Sodium	**1.20**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0196**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PWV02-E@2.5'

2407183-08 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**92.5**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.131**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.53**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST01@0-6"

2407183-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0342	*85.4 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0389	*97.2 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0382	*95.6 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.96	*79.7 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST01@0-6"

2407183-11 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/16/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0179	*53.7 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0180	*54.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST01@0-6"

2407183-11 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.94**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Barium	**94.5**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**4.26**	0.400	"	"	"	"	"	"	
Lead	**4.14**	0.200	"	"	"	"	"	"	
Nickel	**3.45**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**18.3**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**19.8**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**2.13**	0.0500	"	"	"	"	"	"	
Sodium	**0.815**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0465**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST01@0-6"

2407183-11 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**96.4**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.0682**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**5.45**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST02@0-6"

2407183-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0343	*85.7 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0394	*98.6 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0370	*92.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.24	*74.0 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST02@0-6"

2407183-12 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/17/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0189	*56.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0175	*52.6 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST02@0-6"

2407183-12 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**2.07**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Barium	**65.0**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.81**	0.400	"	"	"	"	"	"	
Lead	**5.01**	0.200	"	"	"	"	"	"	
Nickel	**3.48**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**15.8**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**107**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**2.65**	0.0500	"	"	"	"	"	"	
Sodium	**0.373**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.00973**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

AST02@0-6"

2407183-12 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**94.8**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.0360**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**6.90**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-DL@3'

2407183-13 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0354	*88.6 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0392	*97.9 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0369	*92.3 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.3	*90.7 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-DL@3'

2407183-13 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/17/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0152	*45.7 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0172	*51.6 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-DL@3'

2407183-13 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.94**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Barium	**40.9**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.30**	0.400	"	"	"	"	"	"	
Lead	**4.05**	0.200	"	"	"	"	"	"	
Nickel	**3.06**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**12.5**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**87.5**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**3.32**	0.0500	"	"	"	"	"	"	
Sodium	**2.07**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0591**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-DL@3'

2407183-13 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**94.7**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.104**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.62**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-FL@3'

2407183-14 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0428	07/16/24	07/18/24	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: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0356	*89.1 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0383	*95.8 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0374	*93.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0430	07/16/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.3	*82.0 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-FL@3'

2407183-14 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0412	07/16/24	07/17/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0137	*41.1 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0169	*50.6 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0417	07/16/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-FL@3'

2407183-14 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.75**	0.200	mg/kg dry	1	BHG0422	07/16/24	07/18/24	EPA 6020B	
Barium	**45.1**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.13**	0.400	"	"	"	"	"	"	
Lead	**4.32**	0.200	"	"	"	"	"	"	
Nickel	**3.22**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**13.9**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**142**	0.0500	mg/L dry	1	BHG0423	07/16/24	07/17/24	EPA 6020B	
Magnesium	**5.95**	0.0500	"	"	"	"	"	"	
Sodium	**4.83**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.108**	0.00100	units	1	BHG0491	07/18/24	07/18/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

SEP01-FL@3'

2407183-14 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**89.5**		%	1	BHG0418	07/16/24	07/16/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.131**	0.0100	mmhos/cm	1	BHG0433	07/16/24	07/17/24	EPA 120.1	

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

Date Sampled: **07/15/24 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.70**		pH Units	1	BHG0432	07/16/24	07/17/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0428 - EPA 5030 Soil MS										
Blank (BHG0428-BLK1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0388*		*"*	*0.0400*		*96.9*	*50-150*			
Surrogate: Toluene-d8	*0.0405*		*"*	*0.0400*		*101*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0397*		*"*	*0.0400*		*99.2*	*50-150*			
LCS (BHG0428-BS1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Benzene	0.149	0.0020	mg/kg	0.150		99.4	70-130			
Toluene	0.145	0.0050	"	0.150		96.9	70-130			
Ethylbenzene	0.150	0.0050	"	0.150		100	70-130			
m,p-Xylene	0.299	0.010	"	0.300		99.7	70-130			
o-Xylene	0.144	0.0050	"	0.150		95.8	70-130			
1,2,4-Trimethylbenzene	0.137	0.0050	"	0.150		91.3	70-130			
1,3,5-Trimethylbenzene	0.136	0.0050	"	0.150		90.7	70-130			
Naphthalene	0.136	0.0038	"	0.150		90.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0409*		*"*	*0.0400*		*102*	*50-150*			
Surrogate: Toluene-d8	*0.0412*		*"*	*0.0400*		*103*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0409*		*"*	*0.0400*		*102*	*50-150*			
Matrix Spike (BHG0428-MS1)		**Source: 2407133-01**		Prepared: 07/16/24 Analyzed: 07/17/24						
Benzene	0.111	0.0020	mg/kg	0.150	ND	74.0	70-130			
Toluene	0.0924	0.0050	"	0.150	ND	61.6	70-130			QM-05
Ethylbenzene	0.0603	0.0050	"	0.150	ND	40.2	70-130			QM-05
m,p-Xylene	0.119	0.010	"	0.300	ND	39.8	70-130			QM-05
o-Xylene	0.0953	0.0050	"	0.150	ND	63.5	70-130			QM-05
1,2,4-Trimethylbenzene	0.0273	0.0050	"	0.150	ND	18.2	70-130			QM-05
1,3,5-Trimethylbenzene	0.103	0.0050	"	0.150	ND	68.5	70-130			QM-05
Naphthalene	0.0397	0.0038	"	0.150	ND	26.5	70-130			QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0396*		*"*	*0.0400*		*98.9*	*50-150*			
Surrogate: Toluene-d8	*0.0401*		*"*	*0.0400*		*100*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0417*		*"*	*0.0400*		*104*	*50-150*			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0428 - EPA 5030 Soil MS										
Matrix Spike Dup (BHG0428-MSD1)	**Source: 2407133-01**			Prepared: 07/16/24 Analyzed: 07/17/24						
Benzene	0.112	0.0020	mg/kg	0.150	ND	75.0	70-130	1.37	30	
Toluene	0.0974	0.0050	"	0.150	ND	64.9	70-130	5.22	30	QM-05
Ethylbenzene	0.0612	0.0050	"	0.150	ND	40.8	70-130	1.48	30	QM-05
m,p-Xylene	0.131	0.010	"	0.300	ND	43.7	70-130	9.31	30	QM-05
o-Xylene	0.0988	0.0050	"	0.150	ND	65.8	70-130	3.56	30	QM-05
1,2,4-Trimethylbenzene	0.0316	0.0050	"	0.150	ND	21.0	70-130	14.6	30	QM-05
1,3,5-Trimethylbenzene	0.0994	0.0050	"	0.150	ND	66.3	70-130	3.26	30	QM-05
Naphthalene	0.0373	0.0038	"	0.150	ND	24.8	70-130	6.39	30	QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0376*		*"*	*0.0400*		*94.0*	*50-150*			
Surrogate: Toluene-d8	*0.0403*		*"*	*0.0400*		*101*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0413*		*"*	*0.0400*		*103*	*50-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0430 - EPA 3550A										
Blank (BHG0430-BLK1)				Prepared & Analyzed: 07/16/24						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*11.4*		*"*	*12.5*		*91.6*	*30-150*			
LCS (BHG0430-BS1)				Prepared & Analyzed: 07/16/24						
C10-C28 (DRO)	449	50	mg/kg	500		89.8	70-130			
Surrogate: o-Terphenyl	*11.2*		*"*	*12.5*		*89.5*	*30-150*			
Matrix Spike (BHG0430-MS1)	**Source: 2407156-01**			Prepared: 07/16/24 Analyzed: 07/17/24						
C10-C28 (DRO)	1430	50	mg/kg	500	1140	56.8	70-130			QM-02
Surrogate: o-Terphenyl	*10.2*		*"*	*12.5*		*81.3*	*30-150*			
Matrix Spike Dup (BHG0430-MSD1)	**Source: 2407156-01**			Prepared: 07/16/24 Analyzed: 07/17/24						
C10-C28 (DRO)	1190	50	mg/kg	500	1140	10.3	70-130	17.7	20	QM-02
Surrogate: o-Terphenyl	*10.5*		*"*	*12.5*		*84.4*	*30-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0412 - EPA 5030 Soil MS										
Blank (BHG0412-BLK1)				Prepared & Analyzed: 07/16/24						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0305*		*"*	*0.0333*		*91.5*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0253*		*"*	*0.0333*		*75.8*	*40-150*			
LCS (BHG0412-BS1)				Prepared & Analyzed: 07/16/24						
Acenaphthene	0.0211	0.00500	mg/kg	0.0333		63.2	31-137			
Anthracene	0.0214	0.00500	"	0.0333		64.2	30-120			
Benzo (a) anthracene	0.0241	0.00500	"	0.0333		72.3	30-120			
Benzo (a) pyrene	0.0204	0.00500	"	0.0333		61.1	30-120			
Benzo (b) fluoranthene	0.0213	0.00500	"	0.0333		63.8	30-120			
Benzo (k) fluoranthene	0.0211	0.00500	"	0.0333		63.2	30-120			
Chrysene	0.0231	0.00500	"	0.0333		69.4	30-120			
Dibenz (a,h) anthracene	0.0190	0.00500	"	0.0333		57.1	30-120			
Fluoranthene	0.0224	0.00500	"	0.0333		67.1	30-120			
Fluorene	0.0224	0.00500	"	0.0333		67.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0110	0.00500	"	0.0333		33.1	30-120			
Pyrene	0.0245	0.00500	"	0.0333		73.6	35-142			
1-Methylnaphthalene	0.0211	0.00500	"	0.0333		63.4	35-142			
2-Methylnaphthalene	0.0189	0.00500	"	0.0333		56.7	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0217*		*"*	*0.0333*		*65.0*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0235*		*"*	*0.0333*		*70.4*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0412 - EPA 5030 Soil MS										
Matrix Spike (BHG0412-MS1)	**Source: 2407165-01**			Prepared & Analyzed: 07/16/24						
Acenaphthene	0.0225	0.00500	mg/kg	0.0333	ND	67.4	31-137			
Anthracene	0.0237	0.00500	"	0.0333	ND	71.0	30-120			
Benzo (a) anthracene	0.0252	0.00500	"	0.0333	ND	75.5	30-120			
Benzo (a) pyrene	0.0217	0.00500	"	0.0333	ND	65.2	30-120			
Benzo (b) fluoranthene	0.0224	0.00500	"	0.0333	ND	67.3	30-120			
Benzo (k) fluoranthene	0.0219	0.00500	"	0.0333	ND	65.7	30-120			
Chrysene	0.0238	0.00500	"	0.0333	ND	71.4	30-120			
Dibenz (a,h) anthracene	0.0200	0.00500	"	0.0333	ND	60.1	30-120			
Fluoranthene	0.0238	0.00500	"	0.0333	ND	71.5	30-120			
Fluorene	0.0232	0.00500	"	0.0333	ND	69.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0214	0.00500	"	0.0333	ND	64.1	30-120			
Pyrene	0.0262	0.00500	"	0.0333	ND	78.7	35-142			
1-Methylnaphthalene	0.0242	0.00500	"	0.0333	ND	72.6	15-130			
2-Methylnaphthalene	0.0219	0.00500	"	0.0333	ND	65.7	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0222*		*"*	*0.0333*		*66.5*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0250*		*"*	*0.0333*		*74.9*	*40-150*			
Matrix Spike Dup (BHG0412-MSD1)	**Source: 2407165-01**			Prepared & Analyzed: 07/16/24						
Acenaphthene	0.0210	0.00500	mg/kg	0.0333	ND	63.0	31-137	6.82	30	
Anthracene	0.0211	0.00500	"	0.0333	ND	63.4	30-120	11.3	30	
Benzo (a) anthracene	0.0234	0.00500	"	0.0333	ND	70.2	30-120	7.31	30	
Benzo (a) pyrene	0.0198	0.00500	"	0.0333	ND	59.5	30-120	9.21	30	
Benzo (b) fluoranthene	0.0207	0.00500	"	0.0333	ND	62.0	30-120	8.19	30	
Benzo (k) fluoranthene	0.0197	0.00500	"	0.0333	ND	59.2	30-120	10.4	30	
Chrysene	0.0217	0.00500	"	0.0333	ND	65.0	30-120	9.50	30	
Dibenz (a,h) anthracene	0.0189	0.00500	"	0.0333	ND	56.6	30-120	6.03	30	
Fluoranthene	0.0215	0.00500	"	0.0333	ND	64.5	30-120	10.4	30	
Fluorene	0.0217	0.00500	"	0.0333	ND	65.0	30-120	7.04	30	
Indeno (1,2,3-cd) pyrene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	7.87	30	
Pyrene	0.0243	0.00500	"	0.0333	ND	72.9	35-142	7.68	30	
1-Methylnaphthalene	0.0212	0.00500	"	0.0333	ND	63.6	15-130	13.3	50	
2-Methylnaphthalene	0.0183	0.00500	"	0.0333	ND	55.0	15-130	17.8	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0197*		*"*	*0.0333*		*59.2*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0227*		*"*	*0.0333*		*68.0*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0621 - EPA 5030 Soil MS										
Blank (BHG0621-BLK1)				Prepared & Analyzed: 07/23/24						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0215*		*"*	*0.0333*		*64.5*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0201*		*"*	*0.0333*		*60.3*	*40-150*			
LCS (BHG0621-BS1)				Prepared & Analyzed: 07/23/24						
Acenaphthene	0.0202	0.00500	mg/kg	0.0333		60.6	31-137			
Anthracene	0.0214	0.00500	"	0.0333		64.1	30-120			
Benzo (a) anthracene	0.0255	0.00500	"	0.0333		76.4	30-120			
Benzo (a) pyrene	0.0230	0.00500	"	0.0333		69.0	30-120			
Benzo (b) fluoranthene	0.0331	0.00500	"	0.0333		99.4	30-120			
Benzo (k) fluoranthene	0.0334	0.00500	"	0.0333		100	30-120			
Chrysene	0.0231	0.00500	"	0.0333		69.4	30-120			
Dibenz (a,h) anthracene	0.0143	0.00500	"	0.0333		42.8	30-120			
Fluoranthene	0.0211	0.00500	"	0.0333		63.3	30-120			
Fluorene	0.0187	0.00500	"	0.0333		56.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0173	0.00500	"	0.0333		51.9	30-120			
Pyrene	0.0366	0.00500	"	0.0333		110	35-142			
1-Methylnaphthalene	0.0242	0.00500	"	0.0333		72.7	35-142			
2-Methylnaphthalene	0.0175	0.00500	"	0.0333		52.6	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0254*		*"*	*0.0333*		*76.2*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0218*		*"*	*0.0333*		*65.5*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0621 - EPA 5030 Soil MS										
Matrix Spike (BHG0621-MS1)	**Source: 2407278-01**			Prepared & Analyzed: 07/23/24						
Acenaphthene	0.0143	0.00500	mg/kg	0.0333	ND	42.8	31-137			
Anthracene	0.0157	0.00500	"	0.0333	ND	47.2	30-120			
Benzo (a) anthracene	0.0194	0.00500	"	0.0333	ND	58.3	30-120			
Benzo (a) pyrene	0.0169	0.00500	"	0.0333	ND	50.8	30-120			
Benzo (b) fluoranthene	0.0226	0.00500	"	0.0333	ND	67.9	30-120			
Benzo (k) fluoranthene	0.0222	0.00500	"	0.0333	ND	66.6	30-120			
Chrysene	0.0176	0.00500	"	0.0333	ND	52.7	30-120			
Dibenz (a,h) anthracene	0.0159	0.00500	"	0.0333	ND	47.8	30-120			
Fluoranthene	0.0165	0.00500	"	0.0333	ND	49.4	30-120			
Fluorene	0.0161	0.00500	"	0.0333	ND	48.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0158	0.00500	"	0.0333	ND	47.4	30-120			
Pyrene	0.0292	0.00500	"	0.0333	ND	87.6	35-142			
1-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.3	15-130			
2-Methylnaphthalene	0.0163	0.00500	"	0.0333	ND	49.0	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0202*		*"*	*0.0333*		*60.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0154*		*"*	*0.0333*		*46.2*	*40-150*			
Matrix Spike Dup (BHG0621-MSD1)	**Source: 2407278-01**			Prepared & Analyzed: 07/23/24						
Acenaphthene	0.0195	0.00500	mg/kg	0.0333	ND	58.5	31-137	31.0	30	QR-02
Anthracene	0.0145	0.00500	"	0.0333	ND	43.4	30-120	8.35	30	
Benzo (a) anthracene	0.0176	0.00500	"	0.0333	ND	52.8	30-120	9.81	30	
Benzo (a) pyrene	0.0157	0.00500	"	0.0333	ND	47.0	30-120	7.73	30	
Benzo (b) fluoranthene	0.0220	0.00500	"	0.0333	ND	66.0	30-120	2.80	30	
Benzo (k) fluoranthene	0.0217	0.00500	"	0.0333	ND	65.0	30-120	2.43	30	
Chrysene	0.0160	0.00500	"	0.0333	ND	48.1	30-120	9.23	30	
Dibenz (a,h) anthracene	0.0148	0.00500	"	0.0333	ND	44.5	30-120	7.12	30	
Fluoranthene	0.0138	0.00500	"	0.0333	ND	41.4	30-120	17.8	30	
Fluorene	0.0232	0.00500	"	0.0333	ND	69.7	30-120	36.0	30	QR-02
Indeno (1,2,3-cd) pyrene	0.0152	0.00500	"	0.0333	ND	45.5	30-120	3.89	30	
Pyrene	0.0258	0.00500	"	0.0333	ND	77.5	35-142	12.3	30	
1-Methylnaphthalene	0.0147	0.00500	"	0.0333	ND	44.0	15-130	27.8	50	
2-Methylnaphthalene	0.0139	0.00500	"	0.0333	ND	41.7	15-130	16.1	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0165*		*"*	*0.0333*		*49.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0144*		*"*	*0.0333*		*43.3*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0417 - EPA 3050B										
Blank (BHG0417-BLK1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Boron	ND	2.00	mg/L							
LCS (BHG0417-BS1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Boron	5.10	2.00	mg/L	5.00		102	80-120			
Duplicate (BHG0417-DUP1)	**Source: 2407179-01**			Prepared: 07/16/24 Analyzed: 07/17/24						
Boron	0.151	2.00	mg/L		0.178			16.1	20	
Matrix Spike (BHG0417-MS1)	**Source: 2407179-01**			Prepared: 07/16/24 Analyzed: 07/17/24						
Boron	5.25	2.00	mg/L	5.04	0.178	101	75-125			
Matrix Spike Dup (BHG0417-MSD1)	**Source: 2407179-01**			Prepared: 07/16/24 Analyzed: 07/17/24						
Boron	5.65	2.00	mg/L	5.04	0.178	109	75-125	7.31	25	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0422 - EPA 3050B										
Blank (BHG0422-BLK1)				Prepared: 07/16/24 Analyzed: 07/18/24						
Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							
LCS (BHG0422-BS1)				Prepared: 07/16/24 Analyzed: 07/18/24						
Arsenic	35.9	0.200	mg/kg wet	37.9		94.9	80-120			
Barium	36.4	0.400	"	37.9		96.2	80-120			
Cadmium	1.75	0.200	"	1.89		92.3	80-120			
Copper	39.0	0.400	"	37.9		103	80-120			
Lead	18.1	0.200	"	18.9		95.8	80-120			
Nickel	39.0	0.400	"	37.9		103	80-120			
Silver	1.77	0.0200	"	1.89		93.7	80-120			
Zinc	37.7	0.400	"	37.9		99.4	80-120			
Selenium	3.55	0.260	"	3.79		93.8	80-120			
Duplicate (BHG0422-DUP1)		**Source: 2407179-01**		Prepared: 07/16/24 Analyzed: 07/18/24						
Arsenic	2.60	0.200	mg/kg dry		1.37			61.8	20	QR-02
Barium	24.4	0.400	"		22.2			9.58	20	
Cadmium	0.0923	0.200	"		0.0721			24.5	20	QR-01
Copper	3.22	0.400	"		2.59			21.6	20	QR-01
Lead	2.98	0.200	"		2.40			21.5	20	QR-02
Nickel	3.21	0.400	"		2.39			29.3	20	QR-01
Silver	0.00990	0.0200	"		0.0105			6.25	20	
Zinc	10.3	0.400	"		8.61			17.5	20	
Selenium	ND	0.260	"		ND				20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0422 - EPA 3050B										
Matrix Spike (BHG0422-MS1)	**Source: 2407179-01**			Prepared: 07/16/24 Analyzed: 07/18/24						
Arsenic	38.7	0.200	mg/kg dry	40.2	1.37	92.8	75-125			
Barium	56.3	0.400	"	40.2	22.2	84.9	75-125			
Cadmium	1.96	0.200	"	2.01	0.0721	93.9	75-125			
Copper	34.0	0.400	"	40.2	2.59	78.1	75-125			
Lead	21.3	0.200	"	20.1	2.40	93.8	75-125			
Nickel	33.8	0.400	"	40.2	2.39	78.2	75-125			
Silver	1.85	0.0200	"	2.01	0.0105	91.5	75-125			
Zinc	39.4	0.400	"	40.2	8.61	76.7	75-125			
Selenium	3.49	0.260	"	4.02	ND	86.9	75-125			
Matrix Spike Dup (BHG0422-MSD1)	**Source: 2407179-01**			Prepared: 07/16/24 Analyzed: 07/18/24						
Arsenic	37.8	0.200	mg/kg dry	38.4	1.37	94.7	75-125	2.46	25	
Barium	54.4	0.400	"	38.4	22.2	83.8	75-125	3.55	25	
Cadmium	1.90	0.200	"	1.92	0.0721	95.3	75-125	3.01	25	
Copper	31.5	0.400	"	38.4	2.59	75.3	75-125	7.65	25	
Lead	21.4	0.200	"	19.2	2.40	98.7	75-125	0.433	25	
Nickel	31.2	0.400	"	38.4	2.39	75.0	75-125	8.06	25	
Silver	1.80	0.0200	"	1.92	0.0105	93.3	75-125	2.60	25	
Zinc	36.9	0.400	"	38.4	8.61	73.7	75-125	6.63	25	QM-07
Selenium	3.39	0.260	"	3.84	ND	88.3	75-125	2.96	25	
Post Spike (BHG0422-PS1)	**Source: 2407179-01**			Prepared: 07/16/24 Analyzed: 07/18/24						
Arsenic	102		ug/l	100	3.34	98.9	75-125			
Barium	152		"	100	53.8	97.9	75-125			
Cadmium	5.06		"	5.00	0.175	97.6	75-125			
Copper	90.4		"	100	6.29	84.1	75-125			
Lead	55.8		"	50.0	5.83	99.9	75-125			
Nickel	90.0		"	100	5.80	84.2	75-125			
Silver	5.00		"	5.00	0.0256	99.5	75-125			
Zinc	104		"	100	20.9	82.6	75-125			
Selenium	9.35		"	10.0	0.157	91.9	75-125			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

Hexavalent Chromium by EPA Method 7196 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0444 - 3060A_Mod										
Blank (BHG0444-BLK1)				Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BHG0444-BS1)				Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	25.2	0.30	mg/kg wet	25.0		101	80-120			
Duplicate (BHG0444-DUP1)	**Source: 2407183-01**			Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BHG0444-MS1)	**Source: 2407183-01**			Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	27.7	0.30	mg/kg dry	27.7	ND	100	75-125			
Matrix Spike Dup (BHG0444-MSD1)	**Source: 2407183-01**			Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	27.1	0.30	mg/kg dry	27.7	ND	97.8	75-125	2.22	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0423 - General Preparation										
Blank (BHG0423-BLK1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BHG0423-BS1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Calcium	5.63	0.0500	mg/L wet	5.00		113	70-130			
Magnesium	5.02	0.0500	"	5.00		100	70-130			
Sodium	4.80	0.0500	"	5.00		95.9	70-130			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0418 - General Preparation										
Duplicate (BHG0418-DUP1)		**Source: 2407176-01**		Prepared & Analyzed: 07/16/24						
% Solids	91.6		%		93.0			1.59	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0433 - General Preparation										
Blank (BHG0433-BLK1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BHG0433-BS1)				Prepared: 07/16/24 Analyzed: 07/17/24						
Specific Conductance (EC)	0.152	0.0100	mmhos/cm	0.150		102	95-105			
Duplicate (BHG0433-DUP1)		**Source: 2407179-01**		Prepared: 07/16/24 Analyzed: 07/17/24						
Specific Conductance (EC)	0.146	0.0100	mmhos/cm		0.148			0.680	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0432 - General Preparation										
LCS (BHG0432-BS1)				Prepared: 07/16/24 Analyzed: 07/17/24						
pH	9.15		pH Units	9.18		99.7	95-105			
Duplicate (BHG0432-DUP1)		**Source: 2407179-01**		Prepared: 07/16/24 Analyzed: 07/17/24						
pH	8.92		pH Units		8.99			0.782	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Tank Battery Project Number: UWRWE-A4078-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 08:03

Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
QM-02	The RPD and/or percent recovery for this QC sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
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

July 30, 2024

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

RE: Noble - Hanscome C21-18 Flowline
Work Order #2407198

Enclosed are the results of analyses for samples received by Summit Scientific on 07/16/24 17:41. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Natalie Tessier For Paul Shrewsbury
President

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-01@4'	2407198-01	Soil	07/16/24 09:00	07/16/24 17:41
FL01-04@3'	2407198-02	Soil	07/16/24 09:15	07/16/24 17:41
FL01-05@3'	2407198-03	Soil	07/16/24 09:20	07/16/24 17:41
BKG01@3'	2407198-04	Soil	07/16/24 11:25	07/16/24 17:41
BKG01@4'	2407198-05	Soil	07/16/24 11:30	07/16/24 17:41

Case Narrative

This revised report has been reissued per client request on 7/30/24.

This is a revision of the report originally sent on 7/22/24 at 11:10 MT.

Summit Scientific

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

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2407198	

	Send Data To:	Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Hanscome C21-18 Flowline
City/State/Zip: Broomfield/CO/ 80020		AFE#: WWRWE-B4121-ABN
Phone: (317) 445-0601	Project Name: Hanscome C21-18 Flowline	PO/Billing Codes:
Sampler Name: Luke Moran	Project Number:	Contact: ~~Dan Peterson~~ Miguel Barron

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		SAR, EC, pH by saturated paste
1	FL01-01@4'	7/16/24	0900	3			3			X			X	X	X	X	X	X			
2	FL01-04@3'	"	0915	1			1			"			1	1	1	1	1	1			
3	FL01-05@3'	"	0920	1			1			"			1	1	1	1	1	1			
4	BKG01@3'	"	1125	1			1			"			X				X	X			
5	BKG01@4'	"	1130	1			1			"			1				1	1			
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
Luke Moran	7/16/24 1530	Tasman Lock Box	7/16/24 1530
Tasman Lock Box	7/16/24 1741	[signature]	7/16/24 1741
Relinquished by:	Date/Time:	Received by:	Date/Time:

TAT Business Days	
Same Day	
1 Day	
2 Days	
3 Days	
Standard	X

Field DO	
Field EC	
Field ORP	
Field pH	
Field Temp.	
Field Turb.	

Notes:

Temperature Upon Receipt: 10.1 | Corrected Temperature: 0 | IR gun #: | HNO3 lot #:

S2

Sample Receipt Checklist

S2 Work Order# 2407198

Client: Nine Tasman Client Project ID: Hanscome C21-18 Flowline

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

Matrix (Check all that apply) Air [ ] Soil/Solid [ ] Water [ ] Other [ ]

Temp (°C) 10.1 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	—			ON ICE
If custody seals are present, are they intact? (1)	—			
Are samples due within 48 hours present?		—		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+}, Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen		—		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	—			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	—			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_4, NaOH, HNO_3, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

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

AS
Custodian Printed Name

7/16/24
Date/Time

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-01@4'

2407198-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/20/24	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: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0382	*95.5 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0414	*104 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0393	*98.3 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.79	*62.4 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-01@4'

2407198-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0442	07/17/24	07/18/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0202	*60.7 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0117	*35.1 %*	*40-150*		"	"	"	"	*S-04*

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-01@4'

2407198-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**2.20**	0.200	mg/kg dry	1	BHG0468	07/17/24	07/18/24	EPA 6020B	
Barium	**62.9**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**4.94**	0.400	"	"	"	"	"	"	
Lead	**7.93**	0.200	"	"	"	"	"	"	
Nickel	**2.72**	0.400	"	"	"	"	"	"	
Silver	**0.0281**	0.0200	"	"	"	"	"	"	
Zinc	**11.7**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**188**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**7.11**	0.0500	"	"	"	"	"	"	
Sodium	**5.96**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.116**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-01@4'

2407198-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**85.7**		%	1	BHG0447	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.147**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**9.11**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-04@3'

2407198-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/20/24	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: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0401	*100 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0412	*103 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0392	*98.0 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.8	*94.6 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-04@3'

2407198-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	**0.00534**	0.00500	mg/kg	1	BHG0442	07/17/24	07/18/24	EPA 8270D SIM	
Anthracene	**0.0116**	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	**0.0215**	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	**0.0126**	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.0186**	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.00569**	0.00500	"	"	"	"	"	"	
Chrysene	**0.0199**	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	**0.0403**	0.00500	"	"	"	"	"	"	
Fluorene	**0.00572**	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.0273**	0.00500	"	"	"	"	"	"	
Pyrene	**0.0739**	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0231	*69.4 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0136	*40.9 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.62**	0.200	mg/kg dry	1	BHG0468	07/17/24	07/18/24	EPA 6020B	

Summit Scientific

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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-04@3'

2407198-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	**39.9**	0.400	mg/kg dry	1	BHG0468	07/17/24	07/18/24	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**4.55**	0.400	"	"	"	"	"	"	
Lead	**3.97**	0.200	"	"	"	"	"	"	
Nickel	**3.02**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**19.3**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**22.2**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**4.37**	0.0500	"	"	"	"	"	"	
Sodium	**14.4**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.731**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-04@3'

2407198-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**97.5**		%	1	BHG0447	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.391**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.77**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-05@3'

2407198-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/20/24	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: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0378	*94.4 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0424	*106 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0386	*96.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.3	*82.2 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-05@3'

2407198-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0442	07/17/24	07/18/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0222	*66.5 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0124	*37.2 %*	*40-150*		"	"	"	"	*S-04*

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-05@3'

2407198-03 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.36**	0.179	mg/kg dry	1	BHG0468	07/17/24	07/18/24	EPA 6020B	
Barium	**37.3**	0.357	"	"	"	"	"	"	
Cadmium	ND	0.179	"	"	"	"	"	"	
Copper	**2.92**	0.357	"	"	"	"	"	"	
Lead	**3.57**	0.179	"	"	"	"	"	"	
Nickel	**2.93**	0.357	"	"	"	"	"	"	
Silver	**0.0180**	0.0179	"	"	"	"	"	"	
Zinc	**13.0**	0.357	"	"	"	"	"	"	
Selenium	ND	0.232	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**123**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/19/24	EPA 6020B	
Magnesium	**24.6**	0.0500	"	"	"	"	"	"	
Sodium	**0.923**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0199**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

FL01-05@3'

2407198-03 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.4**		%	1	BHG0447	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.115**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.91**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

BKG01@3'

2407198-04 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.53**	0.200	mg/kg dry	1	BHG0468	07/17/24	07/18/24	EPA 6020B	
Barium	**39.6**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**2.36**	0.400	"	"	"	"	"	"	
Lead	**5.33**	0.200	"	"	"	"	"	"	
Nickel	**1.07**	0.400	"	"	"	"	"	"	
Silver	**0.0207**	0.0200	"	"	"	"	"	"	
Zinc	**5.32**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**39.8**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**14.5**	0.0500	"	"	"	"	"	"	
Sodium	**113**	0.0500	"	"	"	"	"	"	

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

BKG01@3'

2407198-04 (Soil)

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Calculated Analysis

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**3.90**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**91.9**		%	1	BHG0447	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**1.14**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.90**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

BKG01@4'

2407198-05 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/17/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.99**	0.200	mg/kg dry	1	BHG0468	07/17/24	07/18/24	EPA 6020B	
Barium	**46.8**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**2.41**	0.400	"	"	"	"	"	"	
Lead	**5.53**	0.200	"	"	"	"	"	"	
Nickel	**1.49**	0.400	"	"	"	"	"	"	
Silver	**0.0235**	0.0200	"	"	"	"	"	"	
Zinc	**6.00**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0444	07/17/24	07/17/24	EPA 7196A	

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

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**39.9**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**15.2**	0.0500	"	"	"	"	"	"	
Sodium	**95.4**	0.0500	"	"	"	"	"	"	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

BKG01@4'

2407198-05 (Soil)

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Calculated Analysis

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**3.26**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**91.9**		%	1	BHG0447	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.979**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.47**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0449 - EPA 5030 Soil MS										
Blank (BHG0449-BLK1)				Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0441*		*"*	*0.0400*		*110*	*50-150*			
Surrogate: Toluene-d8	*0.0387*		*"*	*0.0400*		*96.7*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0408*		*"*	*0.0400*		*102*	*50-150*			
LCS (BHG0449-BS1)				Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0821	0.0020	mg/kg	0.100		82.1	70-130			
Toluene	0.0938	0.0050	"	0.100		93.8	70-130			
Ethylbenzene	0.0893	0.0050	"	0.100		89.3	70-130			
m,p-Xylene	0.183	0.010	"	0.200		91.7	70-130			
o-Xylene	0.0959	0.0050	"	0.100		95.9	70-130			
1,2,4-Trimethylbenzene	0.0842	0.0050	"	0.100		84.2	70-130			
1,3,5-Trimethylbenzene	0.0852	0.0050	"	0.100		85.2	70-130			
Naphthalene	0.0779	0.0038	"	0.100		77.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0404*		*"*	*0.0400*		*101*	*50-150*			
Surrogate: Toluene-d8	*0.0401*		*"*	*0.0400*		*100*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0371*		*"*	*0.0400*		*92.7*	*50-150*			
Matrix Spike (BHG0449-MS1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0787	0.0020	mg/kg	0.100	ND	78.7	70-130			
Toluene	0.0913	0.0050	"	0.100	ND	91.3	70-130			
Ethylbenzene	0.0761	0.0050	"	0.100	ND	76.1	70-130			
m,p-Xylene	0.156	0.010	"	0.200	ND	78.2	70-130			
o-Xylene	0.0804	0.0050	"	0.100	ND	80.4	70-130			
1,2,4-Trimethylbenzene	0.0688	0.0050	"	0.100	ND	68.8	70-130			QM-05
1,3,5-Trimethylbenzene	0.0702	0.0050	"	0.100	ND	70.2	70-130			
Naphthalene	0.0676	0.0038	"	0.100	ND	67.6	70-130			QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0448*		*"*	*0.0400*		*112*	*50-150*			
Surrogate: Toluene-d8	*0.0436*		*"*	*0.0400*		*109*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0374*		*"*	*0.0400*		*93.4*	*50-150*			

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0449 - EPA 5030 Soil MS										
Matrix Spike Dup (BHG0449-MSD1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0683	0.0020	mg/kg	0.100	ND	68.3	70-130	14.2	30	QM-05
Toluene	0.0805	0.0050	"	0.100	ND	80.5	70-130	12.6	30	
Ethylbenzene	0.0703	0.0050	"	0.100	ND	70.3	70-130	7.95	30	
m,p-Xylene	0.143	0.010	"	0.200	ND	71.7	70-130	8.69	30	
o-Xylene	0.0749	0.0050	"	0.100	ND	74.9	70-130	7.07	30	
1,2,4-Trimethylbenzene	0.0627	0.0050	"	0.100	ND	62.7	70-130	9.35	30	QM-05
1,3,5-Trimethylbenzene	0.0649	0.0050	"	0.100	ND	64.9	70-130	7.82	30	QM-05
Naphthalene	0.0584	0.0038	"	0.100	ND	58.4	70-130	14.6	30	QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0426*		*"*	*0.0400*		*106*	*50-150*			
Surrogate: Toluene-d8	*0.0409*		*"*	*0.0400*		*102*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0372*		*"*	*0.0400*		*92.9*	*50-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0452 - EPA 3550A										
Blank (BHG0452-BLK1)				Prepared & Analyzed: 07/17/24						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*12.7*		*"*	*12.5*		*102*	*30-150*			
LCS (BHG0452-BS1)				Prepared & Analyzed: 07/17/24						
C10-C28 (DRO)	430	50	mg/kg	500		86.0	70-130			
Surrogate: o-Terphenyl	*11.1*		*"*	*12.5*		*88.6*	*30-150*			
Matrix Spike (BHG0452-MS1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/18/24						
C10-C28 (DRO)	454	50	mg/kg	500	5.22	89.7	70-130			
Surrogate: o-Terphenyl	*9.51*		*"*	*12.5*		*76.1*	*30-150*			
Matrix Spike Dup (BHG0452-MSD1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/18/24						
C10-C28 (DRO)	523	50	mg/kg	500	5.22	104	70-130	14.2	20	
Surrogate: o-Terphenyl	*9.42*		*"*	*12.5*		*75.3*	*30-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0442 - EPA 5030 Soil MS										
Blank (BHG0442-BLK1)				Prepared & Analyzed: 07/17/24						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0292*		*"*	*0.0333*		*87.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0257*		*"*	*0.0333*		*77.2*	*40-150*			
LCS (BHG0442-BS1)				Prepared & Analyzed: 07/17/24						
Acenaphthene	0.0181	0.00500	mg/kg	0.0333		54.4	31-137			
Anthracene	0.0174	0.00500	"	0.0333		52.1	30-120			
Benzo (a) anthracene	0.0182	0.00500	"	0.0333		54.5	30-120			
Benzo (a) pyrene	0.0164	0.00500	"	0.0333		49.1	30-120			
Benzo (b) fluoranthene	0.0170	0.00500	"	0.0333		51.0	30-120			
Benzo (k) fluoranthene	0.0180	0.00500	"	0.0333		54.1	30-120			
Chrysene	0.0182	0.00500	"	0.0333		54.7	30-120			
Dibenz (a,h) anthracene	0.0162	0.00500	"	0.0333		48.7	30-120			
Fluoranthene	0.0177	0.00500	"	0.0333		53.1	30-120			
Fluorene	0.0179	0.00500	"	0.0333		53.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0232	0.00500	"	0.0333		69.7	30-120			
Pyrene	0.0218	0.00500	"	0.0333		65.5	35-142			
1-Methylnaphthalene	0.0229	0.00500	"	0.0333		68.8	35-142			
2-Methylnaphthalene	0.0220	0.00500	"	0.0333		66.0	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0221*		*"*	*0.0333*		*66.3*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0185*		*"*	*0.0333*		*55.4*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0442 - EPA 5030 Soil MS										
Matrix Spike (BHG0442-MS1)	**Source: 2407198-01**			Prepared & Analyzed: 07/17/24						
Acenaphthene	0.0149	0.00500	mg/kg	0.0333	ND	44.8	31-137			
Anthracene	0.0146	0.00500	"	0.0333	ND	43.8	30-120			
Benzo (a) anthracene	0.0160	0.00500	"	0.0333	ND	48.0	30-120			
Benzo (a) pyrene	0.0146	0.00500	"	0.0333	ND	43.9	30-120			
Benzo (b) fluoranthene	0.0136	0.00500	"	0.0333	ND	40.8	30-120			
Benzo (k) fluoranthene	0.0158	0.00500	"	0.0333	ND	47.4	30-120			
Chrysene	0.0157	0.00500	"	0.0333	ND	47.1	30-120			
Dibenz (a,h) anthracene	0.0148	0.00500	"	0.0333	ND	44.3	30-120			
Fluoranthene	0.0140	0.00500	"	0.0333	ND	42.1	30-120			
Fluorene	0.0149	0.00500	"	0.0333	ND	44.7	30-120			
Indeno (1,2,3-cd) pyrene	0.0181	0.00500	"	0.0333	ND	54.4	30-120			
Pyrene	0.0145	0.00500	"	0.0333	ND	43.4	35-142			
1-Methylnaphthalene	0.0148	0.00500	"	0.0333	ND	44.4	15-130			
2-Methylnaphthalene	0.0137	0.00500	"	0.0333	ND	41.1	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0138*		*"*	*0.0333*		*41.3*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0148*		*"*	*0.0333*		*44.5*	*40-150*			
Matrix Spike Dup (BHG0442-MSD1)	**Source: 2407198-01**			Prepared & Analyzed: 07/17/24						
Acenaphthene	0.0164	0.00500	mg/kg	0.0333	ND	49.2	31-137	9.42	30	
Anthracene	0.0158	0.00500	"	0.0333	ND	47.5	30-120	8.04	30	
Benzo (a) anthracene	0.0170	0.00500	"	0.0333	ND	50.9	30-120	5.92	30	
Benzo (a) pyrene	0.0146	0.00500	"	0.0333	ND	43.7	30-120	0.433	30	
Benzo (b) fluoranthene	0.0138	0.00500	"	0.0333	ND	41.3	30-120	1.24	30	
Benzo (k) fluoranthene	0.0142	0.00500	"	0.0333	ND	42.5	30-120	10.8	30	
Chrysene	0.0161	0.00500	"	0.0333	ND	48.2	30-120	2.28	30	
Dibenz (a,h) anthracene	0.0161	0.00500	"	0.0333	ND	48.3	30-120	8.74	30	
Fluoranthene	0.0154	0.00500	"	0.0333	ND	46.1	30-120	9.11	30	
Fluorene	0.0164	0.00500	"	0.0333	ND	49.2	30-120	9.67	30	
Indeno (1,2,3-cd) pyrene	0.0176	0.00500	"	0.0333	ND	52.8	30-120	2.99	30	
Pyrene	0.0189	0.00500	"	0.0333	ND	56.7	35-142	26.6	30	
1-Methylnaphthalene	0.0178	0.00500	"	0.0333	ND	53.5	15-130	18.6	50	
2-Methylnaphthalene	0.0176	0.00500	"	0.0333	ND	52.7	15-130	24.9	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0186*		*"*	*0.0333*		*55.8*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0162*		*"*	*0.0333*		*48.5*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0621 - EPA 5030 Soil MS										
Blank (BHG0621-BLK1)				Prepared & Analyzed: 07/23/24						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0215*		*"*	*0.0333*		*64.5*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0201*		*"*	*0.0333*		*60.3*	*40-150*			
LCS (BHG0621-BS1)				Prepared & Analyzed: 07/23/24						
Acenaphthene	0.0202	0.00500	mg/kg	0.0333		60.6	31-137			
Anthracene	0.0214	0.00500	"	0.0333		64.1	30-120			
Benzo (a) anthracene	0.0255	0.00500	"	0.0333		76.4	30-120			
Benzo (a) pyrene	0.0230	0.00500	"	0.0333		69.0	30-120			
Benzo (b) fluoranthene	0.0331	0.00500	"	0.0333		99.4	30-120			
Benzo (k) fluoranthene	0.0334	0.00500	"	0.0333		100	30-120			
Chrysene	0.0231	0.00500	"	0.0333		69.4	30-120			
Dibenz (a,h) anthracene	0.0143	0.00500	"	0.0333		42.8	30-120			
Fluoranthene	0.0211	0.00500	"	0.0333		63.3	30-120			
Fluorene	0.0187	0.00500	"	0.0333		56.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0173	0.00500	"	0.0333		51.9	30-120			
Pyrene	0.0366	0.00500	"	0.0333		110	35-142			
1-Methylnaphthalene	0.0242	0.00500	"	0.0333		72.7	35-142			
2-Methylnaphthalene	0.0175	0.00500	"	0.0333		52.6	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0254*		*"*	*0.0333*		*76.2*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0218*		*"*	*0.0333*		*65.5*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0621 - EPA 5030 Soil MS										
Matrix Spike (BHG0621-MS1)	**Source: 2407278-01**			Prepared & Analyzed: 07/23/24						
Acenaphthene	0.0143	0.00500	mg/kg	0.0333	ND	42.8	31-137			
Anthracene	0.0157	0.00500	"	0.0333	ND	47.2	30-120			
Benzo (a) anthracene	0.0194	0.00500	"	0.0333	ND	58.3	30-120			
Benzo (a) pyrene	0.0169	0.00500	"	0.0333	ND	50.8	30-120			
Benzo (b) fluoranthene	0.0226	0.00500	"	0.0333	ND	67.9	30-120			
Benzo (k) fluoranthene	0.0222	0.00500	"	0.0333	ND	66.6	30-120			
Chrysene	0.0176	0.00500	"	0.0333	ND	52.7	30-120			
Dibenz (a,h) anthracene	0.0159	0.00500	"	0.0333	ND	47.8	30-120			
Fluoranthene	0.0165	0.00500	"	0.0333	ND	49.4	30-120			
Fluorene	0.0161	0.00500	"	0.0333	ND	48.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0158	0.00500	"	0.0333	ND	47.4	30-120			
Pyrene	0.0292	0.00500	"	0.0333	ND	87.6	35-142			
1-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.3	15-130			
2-Methylnaphthalene	0.0163	0.00500	"	0.0333	ND	49.0	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0202*		*"*	*0.0333*		*60.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0154*		*"*	*0.0333*		*46.2*	*40-150*			
Matrix Spike Dup (BHG0621-MSD1)	**Source: 2407278-01**			Prepared & Analyzed: 07/23/24						
Acenaphthene	0.0195	0.00500	mg/kg	0.0333	ND	58.5	31-137	31.0	30	QR-02
Anthracene	0.0145	0.00500	"	0.0333	ND	43.4	30-120	8.35	30	
Benzo (a) anthracene	0.0176	0.00500	"	0.0333	ND	52.8	30-120	9.81	30	
Benzo (a) pyrene	0.0157	0.00500	"	0.0333	ND	47.0	30-120	7.73	30	
Benzo (b) fluoranthene	0.0220	0.00500	"	0.0333	ND	66.0	30-120	2.80	30	
Benzo (k) fluoranthene	0.0217	0.00500	"	0.0333	ND	65.0	30-120	2.43	30	
Chrysene	0.0160	0.00500	"	0.0333	ND	48.1	30-120	9.23	30	
Dibenz (a,h) anthracene	0.0148	0.00500	"	0.0333	ND	44.5	30-120	7.12	30	
Fluoranthene	0.0138	0.00500	"	0.0333	ND	41.4	30-120	17.8	30	
Fluorene	0.0232	0.00500	"	0.0333	ND	69.7	30-120	36.0	30	QR-02
Indeno (1,2,3-cd) pyrene	0.0152	0.00500	"	0.0333	ND	45.5	30-120	3.89	30	
Pyrene	0.0258	0.00500	"	0.0333	ND	77.5	35-142	12.3	30	
1-Methylnaphthalene	0.0147	0.00500	"	0.0333	ND	44.0	15-130	27.8	50	
2-Methylnaphthalene	0.0139	0.00500	"	0.0333	ND	41.7	15-130	16.1	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0165*		*"*	*0.0333*		*49.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0144*		*"*	*0.0333*		*43.3*	*40-150*			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0462 - EPA 3050B										
Blank (BHG0462-BLK1)				Prepared & Analyzed: 07/17/24						
Boron	ND	2.00	mg/L							
LCS (BHG0462-BS1)				Prepared & Analyzed: 07/17/24						
Boron	5.09	2.00	mg/L	5.00		102	80-120			
Duplicate (BHG0462-DUP1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	0.178	2.00	mg/L		0.215			18.6	20	
Matrix Spike (BHG0462-MS1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	5.42	2.00	mg/L	5.02	0.215	104	75-125			
Matrix Spike Dup (BHG0462-MSD1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	5.68	2.00	mg/L	5.02	0.215	109	75-125	4.66	25	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0468 - EPA 3050B										
Blank (BHG0468-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	ND	0.181	mg/kg wet							
Barium	ND	0.362	"							
Cadmium	ND	0.181	"							
Copper	ND	0.362	"							
Lead	ND	0.181	"							
Nickel	ND	0.362	"							
Silver	ND	0.0181	"							
Zinc	ND	0.362	"							
Selenium	ND	0.236	"							
LCS (BHG0468-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	36.3	0.200	mg/kg wet	37.6		96.7	80-120			
Barium	45.6	0.400	"	37.6		121	80-120			QM-07
Cadmium	1.74	0.200	"	1.88		92.7	80-120			
Copper	37.8	0.400	"	37.6		100	80-120			
Lead	18.1	0.200	"	18.8		96.5	80-120			
Nickel	38.0	0.400	"	37.6		101	80-120			
Silver	1.78	0.0200	"	1.88		94.7	80-120			
Zinc	36.2	0.400	"	37.6		96.3	80-120			
Selenium	3.52	0.260	"	3.76		93.6	80-120			
Duplicate (BHG0468-DUP1)	**Source: 2405048-25**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	3.76	0.200	mg/kg dry		3.56			5.47	20	
Barium	17.1	0.400	"		17.0			0.816	20	
Cadmium	0.143	0.200	"		0.147			2.49	20	
Copper	7.68	0.400	"		7.59			1.23	20	
Lead	10.8	0.200	"		11.5			6.33	20	
Nickel	6.41	0.400	"		6.43			0.331	20	
Silver	0.0226	0.0200	"		0.0190			17.4	20	
Zinc	27.5	0.400	"		27.6			0.380	20	
Selenium	ND	0.260	"		ND				20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0468 - EPA 3050B										
Matrix Spike (BHG0468-MS1)	**Source: 2405048-25**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	39.8	0.200	mg/kg dry	44.2	3.56	82.1	75-125			
Barium	52.7	0.400	"	44.2	17.0	80.7	75-125			
Cadmium	2.19	0.200	"	2.21	0.147	92.6	75-125			
Copper	25.5	0.400	"	44.2	7.59	40.6	75-125			QM-05
Lead	28.3	0.200	"	22.1	11.5	76.3	75-125			
Nickel	24.3	0.400	"	44.2	6.43	40.5	75-125			QM-05
Silver	2.10	0.0200	"	2.21	0.0190	94.3	75-125			
Zinc	42.8	0.400	"	44.2	27.6	34.5	75-125			QM-05
Selenium	3.17	0.260	"	4.42	ND	71.8	75-125			QM-07
Matrix Spike Dup (BHG0468-MSD1)	**Source: 2405048-25**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	40.0	0.200	mg/kg dry	43.5	3.56	83.7	75-125	0.336	25	
Barium	51.7	0.400	"	43.5	17.0	79.6	75-125	1.95	25	
Cadmium	2.13	0.200	"	2.18	0.147	91.2	75-125	2.84	25	
Copper	25.9	0.400	"	43.5	7.59	42.0	75-125	1.34	25	QM-05
Lead	29.1	0.200	"	21.8	11.5	80.9	75-125	2.58	25	
Nickel	24.3	0.400	"	43.5	6.43	41.1	75-125	0.0386	25	QM-05
Silver	2.05	0.0200	"	2.18	0.0190	93.4	75-125	2.48	25	
Zinc	42.9	0.400	"	43.5	27.6	35.1	75-125	0.101	25	QM-05
Selenium	3.07	0.260	"	4.35	ND	70.6	75-125	3.28	25	QM-07
Post Spike (BHG0468-PS1)	**Source: 2405048-25**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	105		ug/l	100	7.74	97.2	75-125			
Barium	124		"	100	37.0	86.7	75-125			
Cadmium	5.25		"	5.00	0.320	98.6	75-125			
Copper	62.3		"	100	16.5	45.8	75-125			QM-01
Lead	71.2		"	50.0	25.0	92.3	75-125			
Nickel	59.9		"	100	14.0	45.9	75-125			QM-01
Silver	5.06		"	5.00	0.0413	100	75-125			
Zinc	105		"	100	60.0	45.2	75-125			QM-01
Selenium	8.62		"	10.0	0.267	83.5	75-125			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

Hexavalent Chromium by EPA Method 7196 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0444 - 3060A_Mod										
Blank (BHG0444-BLK1)				Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BHG0444-BS1)				Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	25.2	0.30	mg/kg wet	25.0		101	80-120			
Duplicate (BHG0444-DUP1)	**Source: 2407183-01**			Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BHG0444-MS1)	**Source: 2407183-01**			Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	27.7	0.30	mg/kg dry	27.7	ND	100	75-125			
Matrix Spike Dup (BHG0444-MSD1)	**Source: 2407183-01**			Prepared & Analyzed: 07/17/24						
Chromium, Hexavalent	27.1	0.30	mg/kg dry	27.7	ND	97.8	75-125	2.22	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0458 - General Preparation										
Blank (BHG0458-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BHG0458-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Calcium	4.60	0.0500	mg/L wet	5.00		92.1	70-130			
Magnesium	4.65	0.0500	"	5.00		93.0	70-130			
Sodium	4.36	0.0500	"	5.00		87.2	70-130			

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0447 - General Preparation										
Duplicate (BHG0447-DUP1)		**Source: 2407195-01**		Prepared & Analyzed: 07/17/24						
% Solids	91.4		%		92.0			0.652	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0465 - General Preparation										
Blank (BHG0465-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BHG0465-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	0.150	0.0100	mmhos/cm	0.150		100	95-105			
Duplicate (BHG0465-DUP1)		**Source: 2407198-01**		Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	0.143	0.0100	mmhos/cm		0.147			2.28	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0466 - General Preparation										
LCS (BHG0466-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
pH	9.08		pH Units	9.18		98.9	95-105			
Duplicate (BHG0466-DUP1)		**Source: 2407198-01**		Prepared: 07/17/24 Analyzed: 07/18/24						
pH	9.01		pH Units		9.11			1.10	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-18 Flowline Project Number: UWRWE-A4121-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 07:58

Notes and Definitions

S-04	A sample matrix effect prevented complete surrogate recovery.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
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

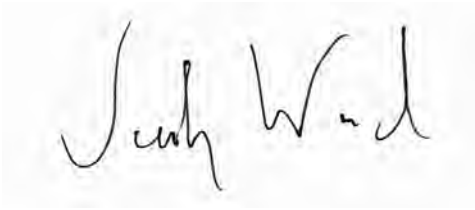
July 30, 2024

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

RE: Noble - Hanscome C21-19 Flowline
Work Order #2407203

Enclosed are the results of analyses for samples received by Summit Scientific on 07/16/24 17:41. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jacob Wood For Paul Shrewsbury
President

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-01@3'	2407203-01	Soil	07/16/24 12:30	07/16/24 17:41
FL01-03@3'	2407203-02	Soil	07/16/24 12:00	07/16/24 17:41
FL01-04@3'	2407203-03	Soil	07/16/24 12:05	07/16/24 17:41
FL01-05@3'	2407203-04	Soil	07/16/24 12:10	07/16/24 17:41
BKG01@3'	2407203-05	Soil	07/16/24 12:50	07/16/24 17:41

Case Narrative

Rerun analyses were performed by client request on 7/22/2024.
The rerun results included in this report are denoted with "RE#."

This is a revision of the report originally sent on 7/22/2024 at 09:48 MT.

Summit Scientific

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

SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2407203	

	Send Data To:	Send Invoice To:
Client: Noble/Tasman	Project Manager: Jake Whritenour	Company: Chevron
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	Project Name/Location: Hanscome C21-19 Flowline
City/State/Zip: Broomfield/CO/ 80020		AFE#: UWRWE-A4073-ABN
Phone: (317) 445-0601	Project Name: Hanscome C21-19 Flowline	PO/Billing Codes:
Sampler Name: Luke Moran	Project Number:	Contact: ~~Dan Peterson~~ Miguel Barron

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	Metals - 915	VOC - 915	TPH - 915	PAH - 915	SAR, EC, pH	Boron - HWS	HOLD		SAR, EC, pH by saturated paste
1	FL01-01@3'	7/16/24	1230	3			3			X			X	X	X	X	X	X			
2	FL01-03@3'	"	1200	"			"			"			"	"	"	"	"	"			
3	FL01-04@3'	"	1205	"			"			"			"	"	"	"	"	"			
4	FL01-05@3'	"	1210	"			"			"			"	"	"	"	"	"			
5	BKG01@3'	"	1250	1			1			X			X				X	X			
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time:	Received by: **Tasman Lock Box**	Date/Time:
Luke Moran	7/16/24 1530		7/16/24 1536
Relinquished by:	Date/Time:	Received by:	Date/Time:
Tasman Lock Box	7/16/24 1741		7/16/24 1741
Relinquished by:	Date/Time:	Received by:	Date/Time:

TAT Business Days	
Same Day	
1 Day	
2 Days	
3 Days	
Standard	X

Field DO	
Field EC	
Field ORP	
Field pH	
Field Temp.	
Field Turb.	

Notes:

Temperature Upon Receipt: 10.1 | Corrected Temperature: 8 | IR gun #: | HNO3 lot #:

S2

Sample Receipt Checklist

S2 Work Order# 2407203

Client: Northgate Environmental Client Project ID: Hanscome C21-19 Flowline

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

[ ] [-] [ ] [ ] [ ]

Matrix (Check all that apply) Air [ ] Soil/Solid [ ] Water [ ] Other [ ]

Temp (°C) [0.1] Thermometer # [1]

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			an2CE
If custody seals are present, are they intact? (1)	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+}, Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen		-		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	-			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	-			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_4, NaOH, HNO_3, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
(1) If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS
Custodian Printed Name

7/16/24
Date/Time

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-01@3'

2407203-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/21/24	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: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0303	*75.8 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0401	*100 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0383	*95.8 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 12:30**

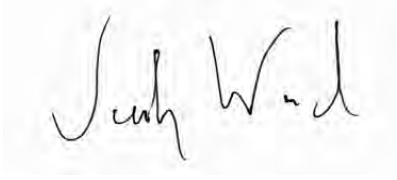
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/18/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	9.46	*75.6 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific



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

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-01@3'

2407203-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0489	07/18/24	07/18/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0186	*55.8 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0136	*40.7 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 12:30**

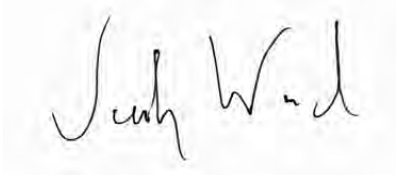
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/18/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific



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

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-01@3'

2407203-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.77**	0.200	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Barium	**83.0**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**9.65**	0.400	"	"	"	"	"	"	
Lead	**14.3**	0.200	"	"	"	"	"	"	
Nickel	**4.71**	0.400	"	"	"	"	"	"	
Silver	**0.0377**	0.0200	"	"	"	"	"	"	
Zinc	**18.6**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0513	07/18/24	07/18/24	EPA 7196A	

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

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**42.2**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**4.33**	0.0500	"	"	"	"	"	"	
Sodium	**7.03**	0.0500	"	"	"	"	"	"	

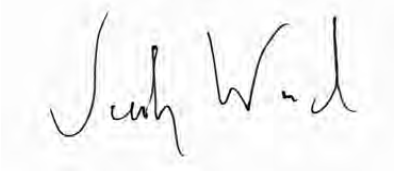
Calculated Analysis

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.276**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific



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

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-01@3'

2407203-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**81.9**		%	1	BHG0441	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

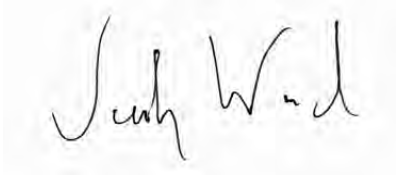
Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.151**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.82**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-03@3'

2407203-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/21/24	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: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0314	*78.5 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0393	*98.2 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0393	*98.3 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 12:00**

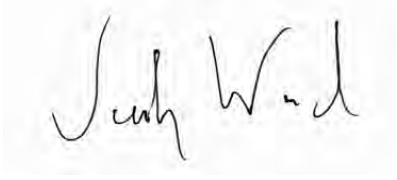
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.1	*80.9 %*	*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 - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-03@3'

2407203-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHG0489	07/18/24	07/18/24	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	**0.00668**	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0268	*80.4 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0214	*64.1 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 12:00**

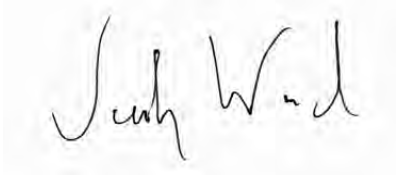
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/18/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific



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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-03@3'

2407203-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.32**	0.200	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Barium	**50.1**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.76**	0.400	"	"	"	"	"	"	
Lead	**5.30**	0.200	"	"	"	"	"	"	
Nickel	**3.81**	0.400	"	"	"	"	"	"	
Silver	**0.0297**	0.0200	"	"	"	"	"	"	
Zinc	**15.2**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0513	07/18/24	07/18/24	EPA 7196A	

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

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**19.7**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**3.49**	0.0500	"	"	"	"	"	"	
Sodium	**2.48**	0.0500	"	"	"	"	"	"	

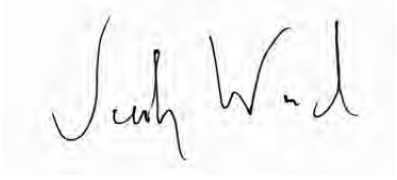
Calculated Analysis

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.135**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Summit Scientific



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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-03@3'

2407203-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**97.0**		%	1	BHG0441	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

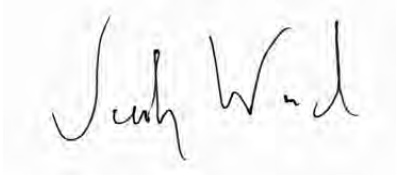
Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.102**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.36**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-04@3'

2407203-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/21/24	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: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0383	*95.8 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0394	*98.5 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	*97.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 12:05**

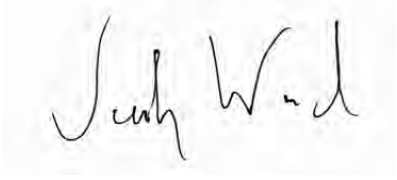
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.9	*87.3 %*	*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 - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-04@3'

2407203-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	**0.0475**	0.00500	mg/kg	1	BHG0489	07/18/24	07/18/24	EPA 8270D SIM	
Anthracene	**0.107**	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	**0.204**	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	**0.128**	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.196**	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.0714**	0.00500	"	"	"	"	"	"	
Chrysene	**0.208**	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.0231**	0.00500	"	"	"	"	"	"	
Fluoranthene	**0.510**	0.00500	"	"	"	"	"	"	
Fluorene	**0.0547**	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.0766**	0.00500	"	"	"	"	"	"	
Pyrene	**0.453**	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	**0.00577**	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	**0.00558**	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0219	*65.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0213	*63.9 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 12:05**

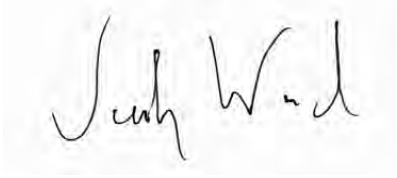
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/18/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.57**	0.200	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	

Summit Scientific



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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-04@3'

2407203-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	**46.4**	0.400	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.58**	0.400	"	"	"	"	"	"	
Lead	**5.18**	0.200	"	"	"	"	"	"	
Nickel	**3.62**	0.400	"	"	"	"	"	"	
Silver	**0.0286**	0.0200	"	"	"	"	"	"	
Zinc	**15.9**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0513	07/18/24	07/18/24	EPA 7196A	

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

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**36.4**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**4.53**	0.0500	"	"	"	"	"	"	
Sodium	**5.20**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/16/24 12:05**

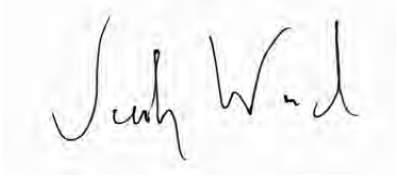
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.216**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific



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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-04@3'

2407203-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**97.1**		%	1	BHG0441	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

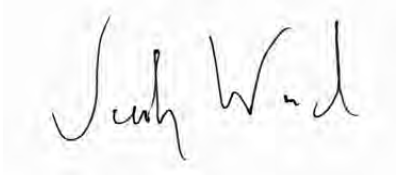
Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.340**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.75**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-05@3'

2407203-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHG0449	07/17/24	07/21/24	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: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0322	*80.4 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0418	*104 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0389	*97.2 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/24 12:10**

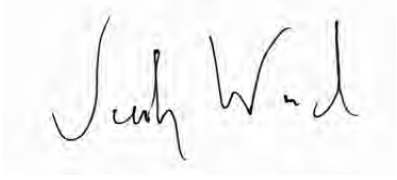
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHG0452	07/17/24	07/19/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.5	*91.8 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific



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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-05@3'

2407203-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	**0.0105**	0.00500	mg/kg	1	BHG0489	07/18/24	07/18/24	EPA 8270D SIM	
Anthracene	**0.0123**	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	**0.00990**	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.0135**	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	**0.0149**	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.00630**	0.00500	"	"	"	"	"	"	
Fluoranthene	**0.0378**	0.00500	"	"	"	"	"	"	
Fluorene	**0.0105**	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.0102**	0.00500	"	"	"	"	"	"	
Pyrene	**0.0312**	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0239	*71.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0240	*72.1 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/18/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.23**	0.200	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Barium	**39.6**	0.400	"	"	"	"	"	"	

Summit Scientific

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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-05@3'

2407203-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Cadmium	ND	0.200	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Copper	**3.06**	0.400	"	"	"	"	"	"	
Lead	**4.09**	0.200	"	"	"	"	"	"	
Nickel	**2.97**	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	**12.4**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0513	07/18/24	07/18/24	EPA 7196A	

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

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**45.6**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**3.88**	0.0500	"	"	"	"	"	"	
Sodium	**5.16**	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/16/24 12:10**

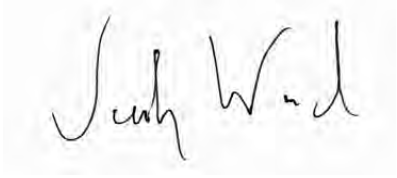
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.197**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**98.1**		%	1	BHG0441	07/17/24	07/17/24	Calculation	

Summit Scientific



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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-05@3'

2407203-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

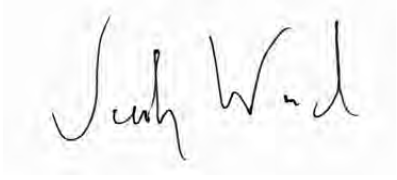
Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.221**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.50**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

FL01-05@3'

2407203-04RE1 (Soil)

Summit Scientific

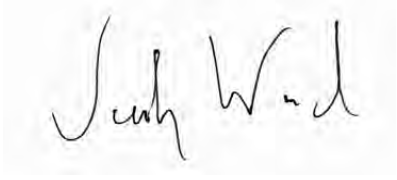
PAH by EPA Method 8270D SIM

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzo (a) anthracene	**0.00632**	0.00500	mg/kg	1	BHG0669	07/24/24	07/24/24	EPA 8270D SIM	

Date Sampled: **07/16/24 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0167	*50.1 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0203	*60.8 %*	*40-150*		"	"	"	"	



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

BKG01@3'

2407203-05 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHG0462	07/17/24	07/18/24	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**1.71**	0.200	mg/kg dry	1	BHG0470	07/17/24	07/18/24	EPA 6020B	
Barium	**65.4**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	**3.50**	0.400	"	"	"	"	"	"	
Lead	**5.27**	0.200	"	"	"	"	"	"	
Nickel	**4.38**	0.400	"	"	"	"	"	"	
Silver	**0.0318**	0.0200	"	"	"	"	"	"	
Zinc	**16.1**	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHG0513	07/18/24	07/18/24	EPA 7196A	

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

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**92.6**	0.0500	mg/L dry	1	BHG0458	07/17/24	07/18/24	EPA 6020B	
Magnesium	**6.54**	0.0500	"	"	"	"	"	"	
Sodium	**15.2**	0.0500	"	"	"	"	"	"	

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BKG01@3'

2407203-05 (Soil)

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Calculated Analysis

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.412**	0.00100	units	1	BHG0574	07/22/24	07/22/24	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**89.8**		%	1	BHG0441	07/17/24	07/17/24	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.274**	0.0100	mmhos/cm	1	BHG0465	07/17/24	07/18/24	EPA 120.1	

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

Date Sampled: **07/16/24 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.62**		pH Units	1	BHG0466	07/17/24	07/18/24	EPA 9045D	

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0449 - EPA 5030 Soil MS										
Blank (BHG0449-BLK1)				Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0441*		*"*	*0.0400*		*110*	*50-150*			
Surrogate: Toluene-d8	*0.0387*		*"*	*0.0400*		*96.7*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0408*		*"*	*0.0400*		*102*	*50-150*			
LCS (BHG0449-BS1)				Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0821	0.0020	mg/kg	0.100		82.1	70-130			
Toluene	0.0938	0.0050	"	0.100		93.8	70-130			
Ethylbenzene	0.0893	0.0050	"	0.100		89.3	70-130			
m,p-Xylene	0.183	0.010	"	0.200		91.7	70-130			
o-Xylene	0.0959	0.0050	"	0.100		95.9	70-130			
1,2,4-Trimethylbenzene	0.0842	0.0050	"	0.100		84.2	70-130			
1,3,5-Trimethylbenzene	0.0852	0.0050	"	0.100		85.2	70-130			
Naphthalene	0.0779	0.0038	"	0.100		77.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0404*		*"*	*0.0400*		*101*	*50-150*			
Surrogate: Toluene-d8	*0.0401*		*"*	*0.0400*		*100*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0371*		*"*	*0.0400*		*92.7*	*50-150*			
Matrix Spike (BHG0449-MS1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0787	0.0020	mg/kg	0.100	ND	78.7	70-130			
Toluene	0.0913	0.0050	"	0.100	ND	91.3	70-130			
Ethylbenzene	0.0761	0.0050	"	0.100	ND	76.1	70-130			
m,p-Xylene	0.156	0.010	"	0.200	ND	78.2	70-130			
o-Xylene	0.0804	0.0050	"	0.100	ND	80.4	70-130			
1,2,4-Trimethylbenzene	0.0688	0.0050	"	0.100	ND	68.8	70-130			QM-05
1,3,5-Trimethylbenzene	0.0702	0.0050	"	0.100	ND	70.2	70-130			
Naphthalene	0.0676	0.0038	"	0.100	ND	67.6	70-130			QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0448*		*"*	*0.0400*		*112*	*50-150*			
Surrogate: Toluene-d8	*0.0436*		*"*	*0.0400*		*109*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0374*		*"*	*0.0400*		*93.4*	*50-150*			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0449 - EPA 5030 Soil MS										
Matrix Spike Dup (BHG0449-MSD1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/20/24						
Benzene	0.0683	0.0020	mg/kg	0.100	ND	68.3	70-130	14.2	30	QM-05
Toluene	0.0805	0.0050	"	0.100	ND	80.5	70-130	12.6	30	
Ethylbenzene	0.0703	0.0050	"	0.100	ND	70.3	70-130	7.95	30	
m,p-Xylene	0.143	0.010	"	0.200	ND	71.7	70-130	8.69	30	
o-Xylene	0.0749	0.0050	"	0.100	ND	74.9	70-130	7.07	30	
1,2,4-Trimethylbenzene	0.0627	0.0050	"	0.100	ND	62.7	70-130	9.35	30	QM-05
1,3,5-Trimethylbenzene	0.0649	0.0050	"	0.100	ND	64.9	70-130	7.82	30	QM-05
Naphthalene	0.0584	0.0038	"	0.100	ND	58.4	70-130	14.6	30	QM-05
Surrogate: 1,2-Dichloroethane-d4	*0.0426*		"	*0.0400*		*106*	*50-150*			
Surrogate: Toluene-d8	*0.0409*		"	*0.0400*		*102*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0372*		"	*0.0400*		*92.9*	*50-150*			

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Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0452 - EPA 3550A										
Blank (BHG0452-BLK1)				Prepared & Analyzed: 07/17/24						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*12.7*		*"*	*12.5*		*102*	*30-150*			
LCS (BHG0452-BS1)				Prepared & Analyzed: 07/17/24						
C10-C28 (DRO)	430	50	mg/kg	500		86.0	70-130			
Surrogate: o-Terphenyl	*11.1*		*"*	*12.5*		*88.6*	*30-150*			
Matrix Spike (BHG0452-MS1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/18/24						
C10-C28 (DRO)	454	50	mg/kg	500	5.22	89.7	70-130			
Surrogate: o-Terphenyl	*9.51*		*"*	*12.5*		*76.1*	*30-150*			
Matrix Spike Dup (BHG0452-MSD1)	**Source: 2407187-01**			Prepared: 07/17/24 Analyzed: 07/18/24						
C10-C28 (DRO)	523	50	mg/kg	500	5.22	104	70-130	14.2	20	
Surrogate: o-Terphenyl	*9.42*		*"*	*12.5*		*75.3*	*30-150*			

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PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0489 - EPA 5030 Soil MS										
Blank (BHG0489-BLK1)				Prepared & Analyzed: 07/18/24						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0340*		*"*	*0.0333*		*102*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0253*		*"*	*0.0333*		*75.8*	*40-150*			
LCS (BHG0489-BS1)				Prepared & Analyzed: 07/18/24						
Acenaphthene	0.0240	0.00500	mg/kg	0.0333		71.9	31-137			
Anthracene	0.0251	0.00500	"	0.0333		75.2	30-120			
Benzo (a) anthracene	0.0256	0.00500	"	0.0333		76.7	30-120			
Benzo (a) pyrene	0.0243	0.00500	"	0.0333		73.0	30-120			
Benzo (b) fluoranthene	0.0239	0.00500	"	0.0333		71.8	30-120			
Benzo (k) fluoranthene	0.0235	0.00500	"	0.0333		70.4	30-120			
Chrysene	0.0240	0.00500	"	0.0333		72.1	30-120			
Dibenz (a,h) anthracene	0.0262	0.00500	"	0.0333		78.7	30-120			
Fluoranthene	0.0236	0.00500	"	0.0333		70.8	30-120			
Fluorene	0.0241	0.00500	"	0.0333		72.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0218	0.00500	"	0.0333		65.4	30-120			
Pyrene	0.0250	0.00500	"	0.0333		75.1	35-142			
1-Methylnaphthalene	0.0322	0.00500	"	0.0333		96.6	35-142			
2-Methylnaphthalene	0.0298	0.00500	"	0.0333		89.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0322*		*"*	*0.0333*		*96.5*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0247*		*"*	*0.0333*		*74.1*	*40-150*			

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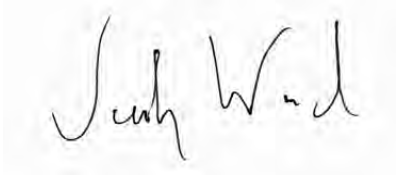

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PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0489 - EPA 5030 Soil MS										
Matrix Spike (BHG0489-MS1)	**Source: 2407203-01**			Prepared & Analyzed: 07/18/24						
Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.3	31-137			
Anthracene	0.0181	0.00500	"	0.0333	ND	54.3	30-120			
Benzo (a) anthracene	0.0181	0.00500	"	0.0333	ND	54.3	30-120			
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.3	30-120			
Benzo (b) fluoranthene	0.0168	0.00500	"	0.0333	ND	50.4	30-120			
Benzo (k) fluoranthene	0.0161	0.00500	"	0.0333	ND	48.4	30-120			
Chrysene	0.0169	0.00500	"	0.0333	ND	50.8	30-120			
Dibenz (a,h) anthracene	0.0182	0.00500	"	0.0333	ND	54.5	30-120			
Fluoranthene	0.0168	0.00500	"	0.0333	ND	50.4	30-120			
Fluorene	0.0171	0.00500	"	0.0333	ND	51.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0185	0.00500	"	0.0333	ND	55.5	30-120			
Pyrene	0.0168	0.00500	"	0.0333	ND	50.3	35-142			
1-Methylnaphthalene	0.0278	0.00500	"	0.0333	ND	83.3	15-130			
2-Methylnaphthalene	0.0242	0.00500	"	0.0333	ND	72.5	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0280*		*"*	*0.0333*		*83.9*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0173*		*"*	*0.0333*		*51.8*	*40-150*			
Matrix Spike Dup (BHG0489-MSD1)	**Source: 2407203-01**			Prepared & Analyzed: 07/18/24						
Acenaphthene	0.0145	0.00500	mg/kg	0.0333	ND	43.4	31-137	20.3	30	
Anthracene	0.0146	0.00500	"	0.0333	ND	43.7	30-120	21.5	30	
Benzo (a) anthracene	0.0138	0.00500	"	0.0333	ND	41.4	30-120	27.0	30	
Benzo (a) pyrene	0.0147	0.00500	"	0.0333	ND	44.1	30-120	15.2	30	
Benzo (b) fluoranthene	0.0148	0.00500	"	0.0333	ND	44.3	30-120	12.9	30	
Benzo (k) fluoranthene	0.0148	0.00500	"	0.0333	ND	44.3	30-120	8.77	30	
Chrysene	0.0144	0.00500	"	0.0333	ND	43.2	30-120	16.1	30	
Dibenz (a,h) anthracene	0.0141	0.00500	"	0.0333	ND	42.3	30-120	25.3	30	
Fluoranthene	0.0141	0.00500	"	0.0333	ND	42.4	30-120	17.3	30	
Fluorene	0.0218	0.00500	"	0.0333	ND	65.4	30-120	24.0	30	
Indeno (1,2,3-cd) pyrene	0.0161	0.00500	"	0.0333	ND	48.3	30-120	13.9	30	
Pyrene	0.0152	0.00500	"	0.0333	ND	45.7	35-142	9.69	30	
1-Methylnaphthalene	0.0150	0.00500	"	0.0333	ND	45.1	15-130	59.4	50	QR-02
2-Methylnaphthalene	0.0137	0.00500	"	0.0333	ND	41.2	15-130	55.1	50	QR-02
Surrogate: 2-Methylnaphthalene-d10	*0.0145*		*"*	*0.0333*		*43.4*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0166*		*"*	*0.0333*		*49.8*	*40-150*			

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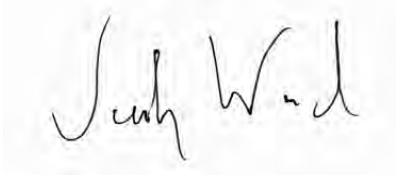
PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0669 - EPA 5030 Soil MS										
Blank (BHG0669-BLK1)				Prepared & Analyzed: 07/24/24						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0160*		*"*	*0.0333*		*48.0*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0195*		*"*	*0.0333*		*58.6*	*40-150*			
LCS (BHG0669-BS1)				Prepared & Analyzed: 07/24/24						
Acenaphthene	0.0184	0.00500	mg/kg	0.0333		55.3	31-137			
Anthracene	0.0194	0.00500	"	0.0333		58.2	30-120			
Benzo (a) anthracene	0.0221	0.00500	"	0.0333		66.3	30-120			
Benzo (a) pyrene	0.0163	0.00500	"	0.0333		48.8	30-120			
Benzo (b) fluoranthene	0.0140	0.00500	"	0.0333		41.9	30-120			
Benzo (k) fluoranthene	0.0146	0.00500	"	0.0333		43.7	30-120			
Chrysene	0.0188	0.00500	"	0.0333		56.3	30-120			
Dibenz (a,h) anthracene	0.0189	0.00500	"	0.0333		56.8	30-120			
Fluoranthene	0.0196	0.00500	"	0.0333		58.9	30-120			
Fluorene	0.0194	0.00500	"	0.0333		58.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0206	0.00500	"	0.0333		61.9	30-120			
Pyrene	0.0249	0.00500	"	0.0333		74.6	35-142			
1-Methylnaphthalene	0.0183	0.00500	"	0.0333		54.9	35-142			
2-Methylnaphthalene	0.0182	0.00500	"	0.0333		54.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0179*		*"*	*0.0333*		*53.8*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0209*		*"*	*0.0333*		*62.6*	*40-150*			

Summit Scientific



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S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0669 - EPA 5030 Soil MS										
Matrix Spike (BHG0669-MS1)	**Source: 2407302-01**			Prepared & Analyzed: 07/24/24						
Acenaphthene	0.0167	0.00500	mg/kg	0.0333	ND	50.1	31-137			
Anthracene	0.0197	0.00500	"	0.0333	ND	59.2	30-120			
Benzo (a) anthracene	0.0227	0.00500	"	0.0333	ND	68.2	30-120			
Benzo (a) pyrene	0.0148	0.00500	"	0.0333	ND	44.5	30-120			
Benzo (b) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.5	30-120			
Benzo (k) fluoranthene	0.0166	0.00500	"	0.0333	ND	49.9	30-120			
Chrysene	0.0184	0.00500	"	0.0333	ND	55.2	30-120			
Dibenz (a,h) anthracene	0.0148	0.00500	"	0.0333	ND	44.5	30-120			
Fluoranthene	0.0202	0.00500	"	0.0333	ND	60.5	30-120			
Fluorene	0.0197	0.00500	"	0.0333	ND	59.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0200	0.00500	"	0.0333	ND	60.1	30-120			
Pyrene	0.0232	0.00500	"	0.0333	ND	69.5	35-142			
1-Methylnaphthalene	0.0183	0.00500	"	0.0333	ND	54.9	15-130			
2-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.2	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0160*		*"*	*0.0333*		*47.9*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0207*		*"*	*0.0333*		*62.0*	*40-150*			
Matrix Spike Dup (BHG0669-MSD1)	**Source: 2407302-01**			Prepared & Analyzed: 07/24/24						
Acenaphthene	0.0150	0.00500	mg/kg	0.0333	ND	45.0	31-137	10.7	30	
Anthracene	0.0183	0.00500	"	0.0333	ND	54.8	30-120	7.73	30	
Benzo (a) anthracene	0.0216	0.00500	"	0.0333	ND	64.7	30-120	5.25	30	
Benzo (a) pyrene	0.0134	0.00500	"	0.0333	ND	40.3	30-120	9.80	30	
Benzo (b) fluoranthene	0.0158	0.00500	"	0.0333	ND	47.4	30-120	8.12	30	
Benzo (k) fluoranthene	0.0198	0.00500	"	0.0333	ND	59.5	30-120	17.5	30	
Chrysene	0.0174	0.00500	"	0.0333	ND	52.2	30-120	5.64	30	
Dibenz (a,h) anthracene	0.0189	0.00500	"	0.0333	ND	56.6	30-120	24.1	30	
Fluoranthene	0.0190	0.00500	"	0.0333	ND	57.0	30-120	5.90	30	
Fluorene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	0.482	30	
Indeno (1,2,3-cd) pyrene	0.0157	0.00500	"	0.0333	ND	47.1	30-120	24.3	30	
Pyrene	0.0190	0.00500	"	0.0333	ND	57.0	35-142	19.7	30	
1-Methylnaphthalene	0.0174	0.00500	"	0.0333	ND	52.3	15-130	4.90	50	
2-Methylnaphthalene	0.0191	0.00500	"	0.0333	ND	57.4	15-130	1.35	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0146*		*"*	*0.0333*		*43.8*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0192*		*"*	*0.0333*		*57.7*	*40-150*			

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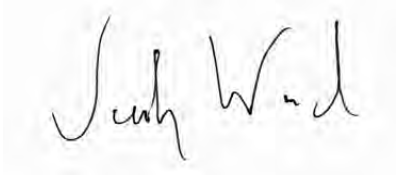

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0462 - EPA 3050B										
Blank (BHG0462-BLK1)				Prepared & Analyzed: 07/17/24						
Boron	ND	2.00	mg/L							
LCS (BHG0462-BS1)				Prepared & Analyzed: 07/17/24						
Boron	5.09	2.00	mg/L	5.00		102	80-120			
Duplicate (BHG0462-DUP1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	0.178	2.00	mg/L		0.215			18.6	20	
Matrix Spike (BHG0462-MS1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	5.42	2.00	mg/L	5.02	0.215	104	75-125			
Matrix Spike Dup (BHG0462-MSD1)	**Source: 2407195-22**			Prepared & Analyzed: 07/17/24						
Boron	5.68	2.00	mg/L	5.02	0.215	109	75-125	4.66	25	

S2

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0470 - EPA 3050B										
Blank (BHG0470-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	ND	0.181	mg/kg wet							
Barium	ND	0.362	"							
Cadmium	ND	0.181	"							
Copper	ND	0.362	"							
Lead	ND	0.181	"							
Nickel	ND	0.362	"							
Silver	ND	0.0181	"							
Zinc	ND	0.362	"							
Selenium	ND	0.236	"							
LCS (BHG0470-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	34.4	0.200	mg/kg wet	37.3		92.2	80-120			
Barium	44.9	0.400	"	37.3		120	80-120			
Cadmium	1.77	0.200	"	1.87		94.9	80-120			
Copper	37.5	0.400	"	37.3		100	80-120			
Lead	18.4	0.200	"	18.7		98.6	80-120			
Nickel	37.4	0.400	"	37.3		100	80-120			
Silver	1.81	0.0200	"	1.87		97.2	80-120			
Zinc	35.4	0.400	"	37.3		95.0	80-120			
Selenium	4.36	0.260	"	3.73		117	80-120			
Duplicate (BHG0470-DUP1)		**Source: 2407063-03RE1**		Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	1.42	0.200	mg/kg wet		1.48			4.04	20	
Barium	591	0.400	"		605			2.38	20	
Cadmium	0.141	0.200	"		0.150			6.28	20	
Copper	3.55	0.400	"		3.37			5.15	20	
Lead	2.85	0.200	"		2.83			0.614	20	
Nickel	2.08	0.400	"		2.00			4.13	20	
Silver	0.00754	0.0200	"		0.00772			2.37	20	
Zinc	10.5	0.400	"		10.5			0.162	20	
Selenium	ND	0.260	"		ND				20	

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0470 - EPA 3050B										
Matrix Spike (BHG0470-MS1)	**Source: 2407063-03RE1**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	28.4	0.200	mg/kg wet	38.5	1.48	70.1	75-125			QM-07
Barium	692	0.400	"	38.5	605	226	75-125			QM-05
Cadmium	1.92	0.200	"	1.92	0.150	91.9	75-125			
Copper	33.9	0.400	"	38.5	3.37	79.4	75-125			
Lead	21.3	0.200	"	19.2	2.83	96.2	75-125			
Nickel	32.0	0.400	"	38.5	2.00	78.0	75-125			
Silver	1.78	0.0200	"	1.92	0.00772	92.1	75-125			
Zinc	38.6	0.400	"	38.5	10.5	73.1	75-125			QM-07
Selenium	4.00	0.260	"	3.85	ND	104	75-125			
Matrix Spike Dup (BHG0470-MSD1)	**Source: 2407063-03RE1**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	30.0	0.200	mg/kg wet	38.5	1.48	74.2	75-125	5.39	25	QM-07
Barium	766	0.400	"	38.5	605	417	75-125	10.1	25	QM-07
Cadmium	2.08	0.200	"	1.92	0.150	100	75-125	8.23	25	
Copper	32.4	0.400	"	38.5	3.37	75.5	75-125	4.53	25	
Lead	21.3	0.200	"	19.2	2.83	95.8	75-125	0.293	25	
Nickel	30.7	0.400	"	38.5	2.00	74.7	75-125	4.00	25	QM-07
Silver	1.83	0.0200	"	1.92	0.00772	94.7	75-125	2.79	25	
Zinc	40.1	0.400	"	38.5	10.5	77.1	75-125	3.93	25	
Selenium	4.11	0.260	"	3.85	ND	107	75-125	2.57	25	
Post Spike (BHG0470-PS1)	**Source: 2407063-03RE1**			Prepared: 07/17/24 Analyzed: 07/18/24						
Arsenic	86.4		ug/l	100	3.70	82.7	75-125			
Barium	1810		"	100	1510	299	75-125			QM-01
Cadmium	5.39		"	5.00	0.375	100	75-125			
Copper	90.9		"	100	8.42	82.5	75-125			
Lead	57.0		"	50.0	7.09	99.7	75-125			
Nickel	87.7		"	100	4.99	82.7	75-125			
Silver	4.97		"	5.00	0.0193	99.0	75-125			
Zinc	113		"	100	26.2	86.5	75-125			
Selenium	11.6		"	10.0	0.181	114	75-125			

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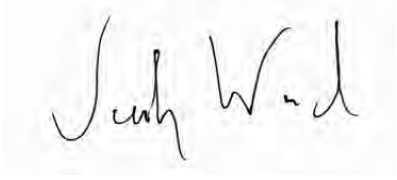

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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

Hexavalent Chromium by EPA Method 7196 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0513 - 3060A_Mod										
Blank (BHG0513-BLK1)				Prepared & Analyzed: 07/18/24						
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BHG0513-BS1)				Prepared & Analyzed: 07/18/24						
Chromium, Hexavalent	26.0	0.30	mg/kg wet	25.0		104	80-120			
Duplicate (BHG0513-DUP1)	**Source: 2407203-01**			Prepared & Analyzed: 07/18/24						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BHG0513-MS1)	**Source: 2407203-01**			Prepared & Analyzed: 07/18/24						
Chromium, Hexavalent	30.3	0.30	mg/kg dry	30.5	ND	99.4	75-125			
Matrix Spike Dup (BHG0513-MSD1)	**Source: 2407203-01**			Prepared & Analyzed: 07/18/24						
Chromium, Hexavalent	30.8	0.30	mg/kg dry	30.5	ND	101	75-125	1.60	20	

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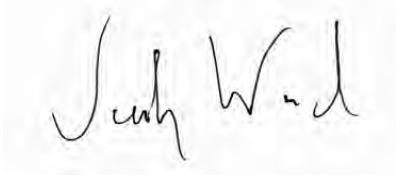
Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0458 - General Preparation										
Blank (BHG0458-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BHG0458-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Calcium	4.60	0.0500	mg/L wet	5.00		92.1	70-130			
Magnesium	4.65	0.0500	"	5.00		93.0	70-130			
Sodium	4.36	0.0500	"	5.00		87.2	70-130			

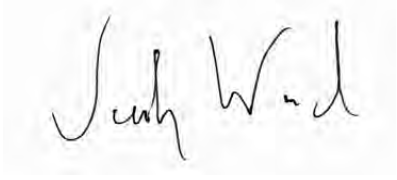


Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0441 - General Preparation										
Duplicate (BHG0441-DUP1)		**Source: 2405019-02**		Prepared & Analyzed: 07/17/24						
% Solids	88.9		%		88.3			0.646	20	



Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0465 - General Preparation										
Blank (BHG0465-BLK1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BHG0465-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	0.150	0.0100	mmhos/cm	0.150		100	95-105			
Duplicate (BHG0465-DUP1)		**Source: 2407198-01**		Prepared: 07/17/24 Analyzed: 07/18/24						
Specific Conductance (EC)	0.143	0.0100	mmhos/cm		0.147			2.28	20	

Summit Scientific

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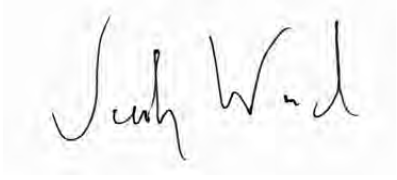
Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BHG0466 - General Preparation										
LCS (BHG0466-BS1)				Prepared: 07/17/24 Analyzed: 07/18/24						
pH	9.08		pH Units	9.18		98.9	95-105			
Duplicate (BHG0466-DUP1)		**Source: 2407198-01**		Prepared: 07/17/24 Analyzed: 07/18/24						
pH	9.01		pH Units		9.11			1.10	20	

Summit Scientific



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Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Hanscome C21-19 Flowline Project Number: UWRWE-A4073-ABN Project Manager: Jacob Whritenour	**Reported:** 07/30/24 09:11

Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
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