Tank Battery Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure		Partially Buried Vault Closure

Site Name & COGCC Facility Number: Guttersen State DD08-11,13	*Date:* 9/13/22	*Remediation Project #:* 23988
Associated Wells:	*Age of Site:*	*Number of Photos Attached:* 11
Location: *(GPS coordinates of southeaster berm)* 40.233012, -104.458695		*Estimated Facility Size (acres):*

General Condition of Site: *(General observations regarding housekeeping, corrosion, waste management, etc.)*

Good, no visible sign of erosion and corrosion

USCS Soil Type: Well Graded Sand - SW	*Estimated Depth to Groundwater:* >7'

Hydrocarbon Impacted Soils / Spills: *(Note estimated size and if impact appears to be surficial or extends to an unknown depth)*

None Observed

Salt Crusted Soils or Impacted Vegetation: *(Note estimated size and if impact appears to be surficial or extends to an unknown depth)*

None Observed

Tanks

Tank Contents									
Size (barrels)									
Age									
Construction Material	Steele	Steele							
Tank type (AST/PBV, etc.)	PBV	AST							
Visual Integrity of Tank	Good	Good							
Condition of tank footprint	Good	Good							
PID Readings									
Soil impacts present at valves or hatches?	None observed	None observed							
PID Readings	0.4 -1.8	1.3							
Sample taken? Location/ Sample ID#	yes, see below	yes, see below							
Photo Number(s)									

Other observations regarding tanks:
Samples taken on all 4 sidewalls and base of excavation (SS01-04@2.5', FS01@7') Sample taken at base of AST, AST01@0.5'

Separators

Separator size									
Vertical or Horizontal	Horizontal								
Age									
Soil impacts observed? If yes	None observed								
PID Readings	0.3, 0.6								
Sample taken? Location/ Sample ID#	yes, see below								
Photo Number(s)									

Other observations regarding separators:
Samples taken at Flowline and Dumpline ends of seperator (SEP01-FL@2' &SEP01-DL@2')

Third Party Equipment

Type									
Age									

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 12, 2022

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

RE: Noble - Guttersen State DD08-11, 13

Work Order #2209261

Enclosed are the results of analyses for samples received by Summit Scientific on 09/13/22 17:32. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mikayla Axtell For Paul Shrewsbury
President

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@7'	2209261-01	Soil	09/13/22 10:00	09/13/22 17:32
SS01@2.5'	2209261-02	Soil	09/13/22 10:05	09/13/22 17:32
SS02@2.5'	2209261-03	Soil	09/13/22 10:10	09/13/22 17:32
SS03@2.5'	2209261-04	Soil	09/13/22 10:15	09/13/22 17:32
SS04@2.5'	2209261-05	Soil	09/13/22 10:20	09/13/22 17:32
AST01@0.5'	2209261-06	Soil	09/13/22 10:25	09/13/22 17:32
SEP01-FL@2'	2209261-07	Soil	09/13/22 10:35	09/13/22 17:32
SEP01-DL@2'	2209261-08	Soil	09/13/22 10:40	09/13/22 17:32

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.

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S_2

2209261

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

Page 1 of 1

Client: Noble / Tasman
Address: 6855 W. 119th Ave
City/State/Zip: Broomfield/ CO/ 80020
Phone: 503-915-3046
Sampler Name: Martin Medeiros

Project Manager: Jacob Whritenour Invoice: Cole Moore
E-Mail: Jwhritenour@tasman-geo.com
Project Name: Guttersen State DD08-11.13
Project Number: UWRWE-A2261-ABN

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	VOC-915	TPH-915	PAH-915	pH, EC, SAR	Boron-HWS	Hold			
1	FS01@7'	09/13/22	10:00	3			X			X			X	X	X	X	X				
2	SS01@2.5'	↓	10:05	↓			↓			↓			↓	↓	↓	↓	↓				
3	SS02@2.5'	↓	10:10	↓			↓			↓			↓	↓	↓	↓	↓	X			
4	SS03@2.5'	↓	10:15	↓			↓			↓			↓	↓	↓	↓	↓	X			
5	SS04@2.5'	↓	10:20	↓			↓			↓			↓	↓	↓	↓	↓	X			
6	AST01@0.5'	↓	10:25	↓			↓			↓			↓	↓	↓	↓	↓				
7	SEP01-FL@2'	↓	10:35	↓			↓			↓			↓	↓	↓	↓	↓				
8	SEP01-DL@2'	↓	10:40	↓			↓			↓			↓	↓	↓	↓	↓				
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
Martin Medeiros	09/13/22 14:30	Tasman's Lock Box	
Relinquished by: Tasman's Lock Box	Date/Time: 91322 1732	Received by:	Date/Time: 91322 1732
Relinquished by:	Date/Time:	Received by:	Date/Time:

Turn Around Time (Check)
Same Day ___ 72 hours ___
24 hours ___ Standard X
48 hours ___

Sample Integrity:
Temperature Upon Receipt: 10.1
Samples Intact: (Yes) No

Notes:

S2

Sample Receipt Checklist

S2 Work Order# 2209261

Client: Noble/Tasman Client Project ID: Guttersen State DD 08-11,13

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.**

CS

Custodian Printed Name

9.13.22 19:00

Date/Time

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

FS01@7'
2209261-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFI0338	09/14/22	09/15/22	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: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*118 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFI0342	09/14/22	09/15/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:00**

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

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

FS01@7'
2209261-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFI0395	09/16/22	09/17/22	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	**0.0102**	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	**0.00706**	0.00500	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*54.0 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*64.1 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0439**	0.0100	mg/L	1	BFI0480	09/20/22	09/21/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/22 10:00**

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 - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

FS01@7'

2209261-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	**4.01**	0.223	mg/kg dry	1	BFI0760	09/29/22	10/04/22	EPA 6020B
Barium	**89.2**	0.447	"	"	"	"	"	"
Cadmium	ND	0.223	"	"	"	"	"	"
Copper	**6.18**	0.447	"	"	"	"	"	"
Lead	**5.16**	0.223	"	"	"	"	"	"
Nickel	**7.78**	0.447	"	"	"	"	"	"
Selenium	**0.686**	0.290	"	"	"	"	"	"
Silver	ND	0.0223	"	"	"	"	"	"
Zinc	**23.4**	0.447	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFI0695	09/27/22	09/27/22	EPA 7196A	

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

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**31.0**	0.0559	mg/L dry	1	BFI0469	09/19/22	09/22/22	EPA 6020B	
Magnesium	**8.81**	0.0559	"	"	"	"	"	"	
Sodium	**13.9**	0.0559	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.567**	0.00100	units	1	BFI0593	09/22/22	09/22/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

FS01@7'

2209261-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**89.5**		%	1	BFI0424	09/16/22	09/19/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.302**	0.0100	mmhos/cm	1	BFI0553	09/21/22	09/21/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.11**		pH Units	1	BFI0554	09/21/22	09/22/22	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS01@2.5'
2209261-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFI0338	09/14/22	09/15/22	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: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFI0342	09/14/22	09/15/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:05**

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

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS01@2.5'

2209261-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFI0395	09/16/22	09/17/22	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: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*57.3 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*67.3 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0363**	0.0100	mg/L	1	BFI0480	09/20/22	09/21/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/22 10:05**

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 - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS01@2.5'

2209261-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	**0.585**	0.212	mg/kg dry	1	BFJ0123	10/06/22	10/09/22	EPA 6020B
Barium	**33.5**	0.424	"	"	"	"	"	"
Cadmium	ND	0.212	"	"	"	"	"	"
Copper	**2.95**	0.424	"	"	"	"	"	"
Lead	**3.98**	0.212	"	"	"	"	"	"
Nickel	**2.36**	0.424	"	"	"	"	"	"
Selenium	ND	0.276	"	"	"	"	"	"
Silver	ND	0.0212	"	"	"	"	"	"
Zinc	**10.9**	0.424	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0136	10/06/22	10/06/22	EPA 7196A	

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

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**19.4**	0.0530	mg/L dry	1	BFI0469	09/19/22	09/22/22	EPA 6020B	
Magnesium	**6.31**	0.0530	"	"	"	"	"	"	
Sodium	**3.32**	0.0530	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.167**	0.00100	units	1	BFI0593	09/22/22	09/22/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS01@2.5'

2209261-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**94.3**		%	1	BFI0424	09/16/22	09/19/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.217**	0.0100	mmhos/cm	1	BFI0553	09/21/22	09/21/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.15**		pH Units	1	BFI0554	09/21/22	09/22/22	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS02@2.5'
2209261-03 (Soil)

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Volatile Organic Compounds by EPA Method 8260B **I-04**

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFJ0105	10/05/22	10/05/22	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: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*99.4 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88.0 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015 **I-04**

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0106	10/05/22	10/05/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*64.8 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM **I-04**

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS02@2.5'

2209261-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM — I-04

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0153	10/07/22	10/07/22	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: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*49.7 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*75.3 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0510**	0.0100	mg/L	1	BFJ0125	10/06/22	10/08/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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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.

SS02@2.5'
2209261-03 (Soil)

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Total Metals by EPA 6020B

Arsenic	**0.571**	0.213	mg/kg dry	1	BFJ0123	10/06/22	10/09/22	EPA 6020B
Barium	**35.2**	0.427	"	"	"	"	"	"
Cadmium	ND	0.213	"	"	"	"	"	"
Copper	**2.76**	0.427	"	"	"	"	"	"
Lead	**3.73**	0.213	"	"	"	"	"	"
Nickel	**2.34**	0.427	"	"	"	"	"	"
Selenium	ND	0.277	"	"	"	"	"	"
Silver	ND	0.0213	"	"	"	"	"	"
Zinc	**10.1**	0.427	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0136	10/06/22	10/06/22	EPA 7196A	

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

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**24.1**	0.0533	mg/L dry	1	BFJ0132	10/06/22	10/10/22	EPA 6020B	
Magnesium	**6.56**	0.0533	"	"	"	"	"	"	
Sodium	**1.70**	0.0533	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.0792**	0.00100	units	1	BFJ0296	10/12/22	10/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS02@2.5'

2209261-03 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.8**		%	1	BFJ0129	10/06/22	10/10/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.308**	0.0100	mmhos/cm	1	BFJ0143	10/06/22	10/12/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**6.50**		pH Units	1	BFJ0142	10/06/22	10/12/22	EPA 9045D	I-04

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS03@2.5'
2209261-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B **I-04**

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFJ0105	10/05/22	10/05/22	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: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90.6 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015 **I-04**

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0106	10/05/22	10/05/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*94.0 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM **I-04**

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS03@2.5'

2209261-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM **I-04**

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0153	10/07/22	10/07/22	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: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*46.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*76.8 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0673**	0.0100	mg/L	1	BFJ0125	10/06/22	10/08/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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SS03@2.5'
2209261-04 (Soil)

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Total Metals by EPA 6020B

Arsenic	**0.673**	0.221	mg/kg dry	1	BFJ0123	10/06/22	10/09/22	EPA 6020B
Barium	**50.7**	0.442	"	"	"	"	"	"
Cadmium	ND	0.221	"	"	"	"	"	"
Copper	**3.27**	0.442	"	"	"	"	"	"
Lead	**4.58**	0.221	"	"	"	"	"	"
Nickel	**3.24**	0.442	"	"	"	"	"	"
Selenium	ND	0.287	"	"	"	"	"	"
Silver	ND	0.0221	"	"	"	"	"	"
Zinc	**13.3**	0.442	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0136	10/06/22	10/06/22	EPA 7196A	

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

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**10.2**	0.0552	mg/L dry	1	BFJ0132	10/06/22	10/10/22	EPA 6020B	
Magnesium	**3.10**	0.0552	"	"	"	"	"	"	
Sodium	**1.54**	0.0552	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.108**	0.00100	units	1	BFJ0296	10/12/22	10/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS03@2.5'

2209261-04 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**90.6**		%	1	BFJ0129	10/06/22	10/10/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.0752**	0.0100	mmhos/cm	1	BFJ0143	10/06/22	10/12/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**6.97**		pH Units	1	BFJ0142	10/06/22	10/12/22	EPA 9045D	I-04

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS04@2.5'

2209261-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B **I-04**

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFJ0105	10/05/22	10/05/22	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: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*98.3 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015 **I-04**

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFJ0106	10/05/22	10/05/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*76.5 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM **I-04**

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS04@2.5'

2209261-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

I-04

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFJ0153	10/07/22	10/07/22	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: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*44.9 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*71.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0525**	0.0100	mg/L	1	BFJ0125	10/06/22	10/08/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

SS04@2.5'
2209261-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	**0.510**	0.213	mg/kg dry	1	BFJ0123	10/06/22	10/09/22	EPA 6020B
Barium	**28.0**	0.426	"	"	"	"	"	"
Cadmium	ND	0.213	"	"	"	"	"	"
Copper	**2.54**	0.426	"	"	"	"	"	"
Lead	**3.55**	0.213	"	"	"	"	"	"
Nickel	**2.06**	0.426	"	"	"	"	"	"
Selenium	ND	0.277	"	"	"	"	"	"
Silver	ND	0.0213	"	"	"	"	"	"
Zinc	**8.70**	0.426	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0136	10/06/22	10/06/22	EPA 7196A	

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

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**8.20**	0.0533	mg/L dry	1	BFJ0132	10/06/22	10/10/22	EPA 6020B	
Magnesium	**2.64**	0.0533	"	"	"	"	"	"	
Sodium	**1.48**	0.0533	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.115**	0.00100	units	1	BFJ0296	10/12/22	10/12/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SS04@2.5'

2209261-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.9**		%	1	BFJ0129	10/06/22	10/10/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.0741**	0.0100	mmhos/cm	1	BFJ0143	10/06/22	10/12/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**6.40**		pH Units	1	BFJ0142	10/06/22	10/12/22	EPA 9045D	I-04

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

AST01@0.5'
2209261-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFI0338	09/14/22	09/15/22	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: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFI0342	09/14/22	09/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:25**

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

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

AST01@0.5'
2209261-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFI0395	09/16/22	09/17/22	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: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*63.3 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*65.3 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0208**	0.0100	mg/L	1	BFI0480	09/20/22	09/21/22	EPA 6020B	

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

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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AST01@0.5'
2209261-06 (Soil)

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

Calcium	**61.1**	0.0521	mg/L dry	1	BFI0469	09/19/22	09/22/22	EPA 6020B
Magnesium	**15.7**	0.0521	"	"	"	"	"	"
Sodium	**4.48**	0.0521	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.132**	0.00100	units	1	BFI0593	09/22/22	09/22/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**96.0**		%	1	BFI0424	09/16/22	09/19/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.657**	0.0100	mmhos/cm	1	BFI0553	09/21/22	09/21/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.57**		pH Units	1	BFI0554	09/21/22	09/22/22	EPA 9045D	

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SEP01-FL@2'

2209261-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFI0338	09/14/22	09/15/22	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: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*88.6 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFI0342	09/14/22	09/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*95.8 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SEP01-FL@2'
2209261-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFI0395	09/16/22	09/17/22	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: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*52.8 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*62.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	0.0100	mg/L	1	BFI0480	09/20/22	09/21/22	EPA 6020B	

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

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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SEP01-FL@2'

2209261-07 (Soil)

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

Calcium	**11.9**	0.0533	mg/L dry	1	BFI0469	09/19/22	09/22/22	EPA 6020B
Magnesium	**2.68**	0.0533	"	"	"	"	"	"
Sodium	**2.98**	0.0533	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.203**	0.00100	units	1	BFI0593	09/22/22	09/22/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**93.9**		%	1	BFI0424	09/16/22	09/19/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.167**	0.0100	mmhos/cm	1	BFI0553	09/21/22	09/21/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**6.08**		pH Units	1	BFI0554	09/21/22	09/22/22	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SEP01-DL@2'
2209261-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFI0338	09/14/22	09/15/22	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: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*109 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFI0342	09/14/22	09/16/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*81.4 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

SEP01-DL@2'
2209261-08 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFI0395	09/16/22	09/17/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	**0.00939**	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	**0.00586**	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.00935**	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	**0.0155**	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	**0.0189**	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	**0.0182**	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*63.5 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*63.6 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0415**	0.0100	mg/L	1	BFI0480	09/20/22	09/21/22	EPA 6020B	

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

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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SEP01-DL@2'

2209261-08 (Soil)

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

Calcium	**91.5**	0.0598	mg/L dry	1	BFI0469	09/19/22	09/22/22	EPA 6020B
Magnesium	**22.4**	0.0598	"	"	"	"	"	"
Sodium	**18.6**	0.0598	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.452**	0.00100	units	1	BFI0593	09/22/22	09/22/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**83.6**		%	1	BFI0424	09/16/22	09/19/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**1.20**	0.0100	mmhos/cm	1	BFI0553	09/21/22	09/21/22	EPA 120.1	

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

Date Sampled: **09/13/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**5.78**		pH Units	1	BFI0554	09/21/22	09/22/22	EPA 9045D	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

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 BFI0338 - EPA 5030 Soil MS										
Blank (BFI0338-BLK1)				Prepared & Analyzed: 09/14/22						
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	*0.0458*		*"*	*0.0400*		*114*	*50-150*			
Surrogate: Toluene-d8	*0.0408*		*"*	*0.0400*		*102*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0421*		*"*	*0.0400*		*105*	*50-150*			
LCS (BFI0338-BS1)				Prepared & Analyzed: 09/14/22						
Benzene	0.157	0.0020	mg/kg	0.125		126	70-130			
Toluene	0.150	0.0050	"	0.125		120	70-130			
Ethylbenzene	0.145	0.0050	"	0.125		116	70-130			
m,p-Xylene	0.281	0.010	"	0.250		113	70-130			
o-Xylene	0.126	0.0050	"	0.125		101	70-130			
1,2,4-Trimethylbenzene	0.137	0.0050	"	0.125		110	70-130			
1,3,5-Trimethylbenzene	0.138	0.0050	"	0.125		110	70-130			
Naphthalene	0.104	0.0038	"	0.125		83.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0473*		*"*	*0.0400*		*118*	*50-150*			
Surrogate: Toluene-d8	*0.0427*		*"*	*0.0400*		*107*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0410*		*"*	*0.0400*		*102*	*50-150*			
Matrix Spike (BFI0338-MS1)		**Source: 2209230-01**		Prepared & Analyzed: 09/14/22						
Benzene	0.161	0.0020	mg/kg	0.125	0.00321	126	70-130			
Toluene	0.157	0.0050	"	0.125	ND	125	70-130			
Ethylbenzene	0.152	0.0050	"	0.125	ND	122	70-130			
m,p-Xylene	0.300	0.010	"	0.250	ND	120	70-130			
o-Xylene	0.133	0.0050	"	0.125	ND	106	70-130			
1,2,4-Trimethylbenzene	0.148	0.0050	"	0.125	ND	118	70-130			
1,3,5-Trimethylbenzene	0.147	0.0050	"	0.125	ND	118	70-130			
Naphthalene	0.130	0.0038	"	0.125	0.00795	97.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0469*		*"*	*0.0400*		*117*	*50-150*			
Surrogate: Toluene-d8	*0.0415*		*"*	*0.0400*		*104*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0415*		*"*	*0.0400*		*104*	*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.

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 BFI0338 - EPA 5030 Soil MS										
Matrix Spike Dup (BFI0338-MSD1)		**Source: 2209230-01**		Prepared & Analyzed: 09/14/22						
Benzene	0.156	0.0020	mg/kg	0.125	0.00321	122	70-130	2.82	30	
Toluene	0.151	0.0050	"	0.125	ND	121	70-130	3.49	30	
Ethylbenzene	0.147	0.0050	"	0.125	ND	118	70-130	3.37	30	
m,p-Xylene	0.289	0.010	"	0.250	ND	116	70-130	3.47	30	
o-Xylene	0.126	0.0050	"	0.125	ND	101	70-130	5.09	30	
1,2,4-Trimethylbenzene	0.140	0.0050	"	0.125	ND	112	70-130	5.06	30	
1,3,5-Trimethylbenzene	0.141	0.0050	"	0.125	ND	113	70-130	4.29	30	
Naphthalene	0.125	0.0038	"	0.125	0.00795	93.8	70-130	4.01	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0460*		*"*	*0.0400*		*115*	*50-150*			
Surrogate: Toluene-d8	*0.0424*		*"*	*0.0400*		*106*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0404*		*"*	*0.0400*		*101*	*50-150*			

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 BFI0342 - EPA 3550A										
Blank (BFI0342-BLK1)				Prepared: 09/14/22 Analyzed: 09/15/22						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
LCS (BFI0342-BS1)				Prepared: 09/14/22 Analyzed: 09/15/22						
C10-C28 (DRO)	534	50	mg/kg	500		107	70-130			
Matrix Spike (BFI0342-MS1)		**Source: 2209230-01**		Prepared: 09/14/22 Analyzed: 09/15/22						
C10-C28 (DRO)	412	50	mg/kg	500	10.8	80.2	70-130			
Matrix Spike Dup (BFI0342-MSD1)		**Source: 2209230-01**		Prepared: 09/14/22 Analyzed: 09/15/22						
C10-C28 (DRO)	392	50	mg/kg	500	10.8	76.2	70-130	4.97	20	
Batch BFJ0106 - EPA 3550A										
Blank (BFJ0106-BLK1)				Prepared & Analyzed: 10/05/22						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
LCS (BFJ0106-BS1)				Prepared & Analyzed: 10/05/22						
C10-C28 (DRO)	379	50	mg/kg	500		75.7	70-130			
Matrix Spike (BFJ0106-MS1)		**Source: 2210032-02**		Prepared & Analyzed: 10/05/22						
C10-C28 (DRO)	443	50	mg/kg	500	17.4	85.2	70-130			
Matrix Spike Dup (BFJ0106-MSD1)		**Source: 2210032-02**		Prepared & Analyzed: 10/05/22						
C10-C28 (DRO)	437	50	mg/kg	500	17.4	83.9	70-130	1.50	20	

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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 BFI0395 - EPA 5030 Soil MS										
Blank (BFI0395-BLK1)				Prepared & Analyzed: 09/16/22						
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	*0.0241*		*"*	*0.0333*		*72.2*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0321*		*"*	*0.0333*		*96.4*	*40-150*			
LCS (BFI0395-BS1)				Prepared & Analyzed: 09/16/22						
Acenaphthene	0.0321	0.00500	mg/kg	0.0333		96.2	31-137			
Anthracene	0.0328	0.00500	"	0.0333		98.3	30-120			
Benzo (a) anthracene	0.0278	0.00500	"	0.0333		83.4	30-120			
Benzo (a) pyrene	0.0269	0.00500	"	0.0333		80.6	30-120			
Benzo (b) fluoranthene	0.0296	0.00500	"	0.0333		88.9	30-120			
Benzo (k) fluoranthene	0.0339	0.00500	"	0.0333		102	30-120			
Chrysene	0.0395	0.00500	"	0.0333		119	30-120			
Dibenz (a,h) anthracene	0.0246	0.00500	"	0.0333		73.9	30-120			
Fluoranthene	0.0315	0.00500	"	0.0333		94.6	30-120			
Fluorene	0.0313	0.00500	"	0.0333		93.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0140	0.00500	"	0.0333		42.0	30-120			
Pyrene	0.0369	0.00500	"	0.0333		111	35-142			
1-Methylnaphthalene	0.0211	0.00500	"	0.0333		63.2	35-142			
2-Methylnaphthalene	0.0301	0.00500	"	0.0333		90.4	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0294*		*"*	*0.0333*		*88.1*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0331*		*"*	*0.0333*		*99.2*	*40-150*			

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 BFI0395 - EPA 5030 Soil MS										
Matrix Spike (BFI0395-MS1)		**Source: 2209260-01**		Prepared & Analyzed: 09/16/22						
Acenaphthene	0.0205	0.00500	mg/kg	0.0333	ND	61.4	31-137			
Anthracene	0.0235	0.00500	"	0.0333	ND	70.4	30-120			
Benzo (a) anthracene	0.0320	0.00500	"	0.0333	0.00436	83.0	30-120			
Benzo (a) pyrene	0.0223	0.00500	"	0.0333	ND	66.8	30-120			
Benzo (b) fluoranthene	0.0228	0.00500	"	0.0333	0.00335	58.2	30-120			
Benzo (k) fluoranthene	0.0206	0.00500	"	0.0333	ND	61.8	30-120			
Chrysene	0.0244	0.00500	"	0.0333	0.00229	66.3	30-120			
Dibenz (a,h) anthracene	0.0165	0.00500	"	0.0333	ND	49.4	30-120			
Fluoranthene	0.0304	0.00500	"	0.0333	0.00651	71.7	30-120			
Fluorene	0.0203	0.00500	"	0.0333	ND	61.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0201	0.00500	"	0.0333	ND	60.4	30-120			
Pyrene	0.0330	0.00500	"	0.0333	0.00557	82.4	35-142			
1-Methylnaphthalene	0.0197	0.00500	"	0.0333	ND	59.2	15-130			
2-Methylnaphthalene	0.0275	0.00500	"	0.0333	ND	82.5	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0199*		*"*	*0.0333*		*59.7*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0252*		*"*	*0.0333*		*75.6*	*40-150*			
Matrix Spike Dup (BFI0395-MSD1)		**Source: 2209260-01**		Prepared & Analyzed: 09/16/22						
Acenaphthene	0.0193	0.00500	mg/kg	0.0333	ND	58.0	31-137	5.63	30	
Anthracene	0.0250	0.00500	"	0.0333	ND	75.0	30-120	6.29	30	
Benzo (a) anthracene	0.0366	0.00500	"	0.0333	0.00436	96.7	30-120	13.3	30	
Benzo (a) pyrene	0.0223	0.00500	"	0.0333	ND	66.9	30-120	0.218	30	
Benzo (b) fluoranthene	0.0243	0.00500	"	0.0333	0.00335	62.9	30-120	6.57	30	
Benzo (k) fluoranthene	0.0188	0.00500	"	0.0333	ND	56.5	30-120	9.01	30	
Chrysene	0.0271	0.00500	"	0.0333	0.00229	74.5	30-120	10.6	30	
Dibenz (a,h) anthracene	0.0153	0.00500	"	0.0333	ND	45.8	30-120	7.65	30	
Fluoranthene	0.0357	0.00500	"	0.0333	0.00651	87.5	30-120	15.9	30	
Fluorene	0.0201	0.00500	"	0.0333	ND	60.2	30-120	1.36	30	
Indeno (1,2,3-cd) pyrene	0.0197	0.00500	"	0.0333	ND	59.1	30-120	2.08	30	
Pyrene	0.0333	0.00500	"	0.0333	0.00557	83.3	35-142	0.917	30	
1-Methylnaphthalene	0.0190	0.00500	"	0.0333	ND	57.1	15-130	3.59	50	
2-Methylnaphthalene	0.0218	0.00500	"	0.0333	ND	65.5	15-130	22.9	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0178*		*"*	*0.0333*		*53.4*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0223*		*"*	*0.0333*		*66.9*	*40-150*			

PAH by EPA Method 8270D SIM - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFJ0153 - EPA 5030 Soil MS										
Blank (BFJ0153-BLK1)				Prepared & Analyzed: 10/07/22						
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	*0.0165*		*"*	*0.0333*		*49.5*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0367*		*"*	*0.0333*		*110*	*40-150*			
LCS (BFJ0153-BS1)				Prepared & Analyzed: 10/07/22						
Acenaphthene	0.0319	0.00500	mg/kg	0.0333		95.8	31-137			
Anthracene	0.0315	0.00500	"	0.0333		94.5	30-120			
Benzo (a) anthracene	0.0265	0.00500	"	0.0333		79.5	30-120			
Benzo (a) pyrene	0.0253	0.00500	"	0.0333		75.8	30-120			
Benzo (b) fluoranthene	0.0332	0.00500	"	0.0333		99.6	30-120			
Benzo (k) fluoranthene	0.0356	0.00500	"	0.0333		107	30-120			
Chrysene	0.0342	0.00500	"	0.0333		103	30-120			
Dibenz (a,h) anthracene	0.0196	0.00500	"	0.0333		58.8	30-120			
Fluoranthene	0.0320	0.00500	"	0.0333		95.9	30-120			
Fluorene	0.0331	0.00500	"	0.0333		99.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0295	0.00500	"	0.0333		88.5	30-120			
Pyrene	0.0371	0.00500	"	0.0333		111	35-142			
1-Methylnaphthalene	0.0293	0.00500	"	0.0333		88.0	35-142			
2-Methylnaphthalene	0.0218	0.00500	"	0.0333		65.4	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0323*		*"*	*0.0333*		*96.9*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0296*		*"*	*0.0333*		*88.8*	*40-150*			

PAH by EPA Method 8270D SIM - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFJ0153 - EPA 5030 Soil MS										
Matrix Spike (BFJ0153-MS1)		**Source: 2210056-01**		Prepared & Analyzed: 10/07/22						
Acenaphthene	0.0235	0.00500	mg/kg	0.0333	ND	70.4	31-137			
Anthracene	0.0216	0.00500	"	0.0333	ND	64.9	30-120			
Benzo (a) anthracene	0.0229	0.00500	"	0.0333	ND	68.6	30-120			
Benzo (a) pyrene	0.0177	0.00500	"	0.0333	ND	53.2	30-120			
Benzo (b) fluoranthene	0.0215	0.00500	"	0.0333	ND	64.4	30-120			
Benzo (k) fluoranthene	0.0212	0.00500	"	0.0333	ND	63.5	30-120			
Chrysene	0.0235	0.00500	"	0.0333	ND	70.6	30-120			
Dibenz (a,h) anthracene	0.0127	0.00500	"	0.0333	ND	38.0	30-120			
Fluoranthene	0.0230	0.00500	"	0.0333	ND	69.0	30-120			
Fluorene	0.0231	0.00500	"	0.0333	ND	69.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0184	0.00500	"	0.0333	ND	55.2	30-120			
Pyrene	0.0251	0.00500	"	0.0333	ND	75.3	35-142			
1-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.2	15-130			
2-Methylnaphthalene	0.0169	0.00500	"	0.0333	ND	50.8	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0221*		*"*	*0.0333*		*66.2*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0230*		*"*	*0.0333*		*69.0*	*40-150*			
Matrix Spike Dup (BFJ0153-MSD1)		**Source: 2210056-01**		Prepared & Analyzed: 10/07/22						
Acenaphthene	0.0231	0.00500	mg/kg	0.0333	ND	69.2	31-137	1.78	30	
Anthracene	0.0213	0.00500	"	0.0333	ND	64.0	30-120	1.41	30	
Benzo (a) anthracene	0.0224	0.00500	"	0.0333	ND	67.2	30-120	2.06	30	
Benzo (a) pyrene	0.0174	0.00500	"	0.0333	ND	52.3	30-120	1.61	30	
Benzo (b) fluoranthene	0.0204	0.00500	"	0.0333	ND	61.1	30-120	5.12	30	
Benzo (k) fluoranthene	0.0201	0.00500	"	0.0333	ND	60.4	30-120	4.99	30	
Chrysene	0.0231	0.00500	"	0.0333	ND	69.3	30-120	1.83	30	
Dibenz (a,h) anthracene	0.0128	0.00500	"	0.0333	ND	38.5	30-120	1.35	30	
Fluoranthene	0.0222	0.00500	"	0.0333	ND	66.7	30-120	3.37	30	
Fluorene	0.0223	0.00500	"	0.0333	ND	66.8	30-120	3.82	30	
Indeno (1,2,3-cd) pyrene	0.0186	0.00500	"	0.0333	ND	55.8	30-120	0.928	30	
Pyrene	0.0237	0.00500	"	0.0333	ND	71.2	35-142	5.50	30	
1-Methylnaphthalene	0.0203	0.00500	"	0.0333	ND	60.8	15-130	4.30	50	
2-Methylnaphthalene	0.0164	0.00500	"	0.0333	ND	49.1	15-130	3.37	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0220*		*"*	*0.0333*		*66.0*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0231*		*"*	*0.0333*		*69.2*	*40-150*			

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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 BFI0480 - EPA 3050B										
Blank (BFI0480-BLK1)				Prepared: 09/20/22 Analyzed: 09/21/22						
Boron	ND	0.0100	mg/L							
LCS (BFI0480-BS1)				Prepared: 09/20/22 Analyzed: 09/21/22						
Boron	5.59	0.0100	mg/L	5.00		112	80-120			
Duplicate (BFI0480-DUP1)		**Source: 2208358-17**		Prepared: 09/20/22 Analyzed: 09/21/22						
Boron	0.138	0.0100	mg/L		0.137			0.936	20	
Matrix Spike (BFI0480-MS1)		**Source: 2208358-17**		Prepared: 09/20/22 Analyzed: 09/21/22						
Boron	6.02	0.0100	mg/L	5.00	0.137	118	75-125			
Matrix Spike Dup (BFI0480-MSD1)		**Source: 2208358-17**		Prepared: 09/20/22 Analyzed: 09/21/22						
Boron	5.31	0.0100	mg/L	5.00	0.137	103	75-125	12.6	25	
Batch BFJ0125 - EPA 3050B										
Blank (BFJ0125-BLK1)				Prepared: 10/06/22 Analyzed: 10/08/22						
Boron	ND	0.0100	mg/L							
LCS (BFJ0125-BS1)				Prepared: 10/06/22 Analyzed: 10/08/22						
Boron	4.61	0.0100	mg/L	5.00		92.3	80-120			
Duplicate (BFJ0125-DUP1)		**Source: 2209261-03**		Prepared: 10/06/22 Analyzed: 10/08/22						
Boron	0.0438	0.0100	mg/L		0.0510			15.3	20	
Matrix Spike (BFJ0125-MS1)		**Source: 2209261-03**		Prepared: 10/06/22 Analyzed: 10/08/22						
Boron	4.57	0.0100	mg/L	5.00	0.0510	90.5	75-125			

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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 BFJ0125 - EPA 3050B										
Matrix Spike Dup (BFJ0125-MSD1)		**Source: 2209261-03**		Prepared: 10/06/22 Analyzed: 10/08/22						
Boron	4.18	0.0100	mg/L	5.00	0.0510	82.5	75-125	9.08	25	

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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 BFI0760 - EPA 3050B										
Blank (BFI0760-BLK1)				Prepared: 09/29/22 Analyzed: 10/04/22						
Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Selenium	ND	0.260	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
LCS (BFI0760-BS1)				Prepared: 09/29/22 Analyzed: 10/04/22						
Arsenic	45.1	0.200	mg/kg wet	40.0		113	80-120			
Barium	47.3	0.400	"	40.0		118	80-120			
Cadmium	2.33	0.200	"	2.00		117	80-120			
Copper	46.1	0.400	"	40.0		115	80-120			
Lead	23.1	0.200	"	20.0		115	80-120			
Nickel	45.1	0.400	"	40.0		113	80-120			
Selenium	4.48	0.260	"	4.00		112	80-120			
Silver	2.27	0.0200	"	2.00		113	80-120			
Zinc	45.2	0.400	"	40.0		113	80-120			
Duplicate (BFI0760-DUP1)		**Source: 2209073-01**		Prepared: 09/29/22 Analyzed: 10/04/22						
Arsenic	8.15	0.272	mg/kg dry		7.92			2.86	20	
Barium	205	0.544	"		198			3.20	20	
Cadmium	0.441	0.272	"		0.432			2.05	20	
Copper	27.7	0.544	"		27.1			2.15	20	
Lead	17.3	0.272	"		17.2			0.349	20	
Nickel	20.7	0.544	"		20.1			2.89	20	
Selenium	2.84	0.354	"		2.74			3.73	20	
Silver	0.110	0.0272	"		0.108			1.07	20	
Zinc	106	0.544	"		103			2.68	20	

Tasman Geosciences 6855 W. 119th Ave. Broomfield CO, 80020	Project: Noble - Guttersen State DD08-11, 13 Project Number: UWRWE-A2261-ABN Project Manager: Jacob Whritenour	**Reported:** 10/12/22 11:33

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 BFI0760 - EPA 3050B										
Matrix Spike (BFI0760-MS1)		**Source: 2209073-01**		Prepared: 09/29/22 Analyzed: 10/04/22						
Arsenic	69.0	0.272	mg/kg dry	54.4	7.92	112	75-125			
Barium	266	0.544	"	54.4	198	125	75-125			
Cadmium	3.51	0.272	"	2.72	0.432	113	75-125			
Copper	86.1	0.544	"	54.4	27.1	108	75-125			
Lead	44.0	0.272	"	27.2	17.2	98.3	75-125			
Nickel	78.9	0.544	"	54.4	20.1	108	75-125			
Selenium	7.78	0.354	"	5.44	2.74	92.7	75-125			
Silver	3.08	0.0272	"	2.72	0.108	109	75-125			
Zinc	166	0.544	"	54.4	103	115	75-125			
Matrix Spike Dup (BFI0760-MSD1)		**Source: 2209073-01**		Prepared: 09/29/22 Analyzed: 10/04/22						
Arsenic	68.8	0.272	mg/kg dry	54.4	7.92	112	75-125	0.240	25	
Barium	269	0.544	"	54.4	198	130	75-125	1.16	25	QM-05
Cadmium	3.53	0.272	"	2.72	0.432	114	75-125	0.488	25	
Copper	87.6	0.544	"	54.4	27.1	111	75-125	1.73	25	
Lead	44.4	0.272	"	27.2	17.2	99.8	75-125	0.922	25	
Nickel	78.5	0.544	"	54.4	20.1	107	75-125	0.626	25	
Selenium	8.48	0.354	"	5.44	2.74	105	75-125	8.57	25	
Silver	3.10	0.0272	"	2.72	0.108	110	75-125	0.875	25	
Zinc	164	0.544	"	54.4	103	112	75-125	1.02	25	
Batch BFJ0123 - EPA 3050B										
Blank (BFJ0123-BLK1)				Prepared: 10/06/22 Analyzed: 10/09/22						
Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Selenium	ND	0.260	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							

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 BFJ0123 - EPA 3050B										
LCS (BFJ0123-BS1)				Prepared: 10/06/22 Analyzed: 10/09/22						
Arsenic	40.4	0.200	mg/kg wet	40.0		101	80-120			
Barium	42.1	0.400	"	40.0		105	80-120			
Cadmium	2.05	0.200	"	2.00		103	80-120			
Copper	41.6	0.400	"	40.0		104	80-120			
Lead	20.8	0.200	"	20.0		104	80-120			
Nickel	40.4	0.400	"	40.0		101	80-120			
Selenium	4.06	0.260	"	4.00		101	80-120			
Silver	2.07	0.0200	"	2.00		103	80-120			
Zinc	40.3	0.400	"	40.0		101	80-120			
Duplicate (BFJ0123-DUP1)		**Source: 2209261-02**		Prepared: 10/06/22 Analyzed: 10/09/22						
Arsenic	0.596	0.212	mg/kg dry		0.585			1.87	20	
Barium	33.8	0.424	"		33.5			0.840	20	
Cadmium	0.114	0.212	"		0.118			3.30	20	
Copper	2.96	0.424	"		2.95			0.545	20	
Lead	4.00	0.212	"		3.98			0.531	20	
Nickel	2.38	0.424	"		2.36			0.555	20	
Selenium	ND	0.276	"		ND				20	
Silver	0.0182	0.0212	"		0.0170			7.23	20	
Zinc	11.1	0.424	"		10.9			1.99	20	
Matrix Spike (BFJ0123-MS1)		**Source: 2209261-02**		Prepared: 10/06/22 Analyzed: 10/09/22						
Arsenic	35.1	0.212	mg/kg dry	42.4	0.585	81.5	75-125			
Barium	77.1	0.424	"	42.4	33.5	103	75-125			
Cadmium	2.25	0.212	"	2.12	0.118	101	75-125			
Copper	38.9	0.424	"	42.4	2.95	84.8	75-125			
Lead	25.7	0.212	"	21.2	3.98	102	75-125			
Nickel	37.4	0.424	"	42.4	2.36	82.6	75-125			
Selenium	4.26	0.276	"	4.24	ND	100	75-125			
Silver	2.09	0.0212	"	2.12	0.0170	97.7	75-125			
Zinc	46.7	0.424	"	42.4	10.9	84.4	75-125			

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 BFJ0123 - EPA 3050B										
Matrix Spike Dup (BFJ0123-MSD1)		**Source: 2209261-02**		Prepared: 10/06/22 Analyzed: 10/09/22						
Arsenic	35.2	0.212	mg/kg dry	42.4	0.585	81.7	75-125	0.281	25	
Barium	78.2	0.424	"	42.4	33.5	105	75-125	1.39	25	
Cadmium	2.30	0.212	"	2.12	0.118	103	75-125	2.12	25	
Copper	39.8	0.424	"	42.4	2.95	87.0	75-125	2.33	25	
Lead	26.1	0.212	"	21.2	3.98	104	75-125	1.50	25	
Nickel	38.1	0.424	"	42.4	2.36	84.2	75-125	1.81	25	
Selenium	4.33	0.276	"	4.24	ND	102	75-125	1.74	25	
Silver	2.11	0.0212	"	2.12	0.0170	98.8	75-125	1.19	25	
Zinc	47.4	0.424	"	42.4	10.9	86.2	75-125	1.59	25	

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 BFI0695 - 3060A_Mod										
Blank (BFI0695-BLK1)				Prepared & Analyzed: 09/27/22						
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BFI0695-BS1)				Prepared & Analyzed: 09/27/22						
Chromium, Hexavalent	25.6	0.30	mg/kg wet	25.0		102	80-120			
Duplicate (BFI0695-DUP1)		**Source: 2209261-01**		Prepared & Analyzed: 09/27/22						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BFI0695-MS1)		**Source: 2209261-01**		Prepared & Analyzed: 09/27/22						
Chromium, Hexavalent	31.5	0.30	mg/kg dry	27.9	ND	113	75-125			
Matrix Spike Dup (BFI0695-MSD1)		**Source: 2209261-01**		Prepared & Analyzed: 09/27/22						
Chromium, Hexavalent	29.7	0.30	mg/kg dry	27.9	ND	106	75-125	5.84	20	
Batch BFJ0136 - 3060A_Mod										
Blank (BFJ0136-BLK1)				Prepared & Analyzed: 10/06/22						
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BFJ0136-BS1)				Prepared & Analyzed: 10/06/22						
Chromium, Hexavalent	26.6	0.30	mg/kg wet	25.0		107	80-120			
Duplicate (BFJ0136-DUP1)		**Source: 2209261-02**		Prepared & Analyzed: 10/06/22						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BFJ0136-MS1)		**Source: 2209261-02**		Prepared & Analyzed: 10/06/22						
Chromium, Hexavalent	31.0	0.30	mg/kg dry	26.5	ND	117	75-125			

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 BFJ0136 - 3060A_Mod										
Matrix Spike Dup (BFJ0136-MSD1)		**Source: 2209261-02**		Prepared & Analyzed: 10/06/22						
Chromium, Hexavalent	31.0	0.30	mg/kg dry	26.5	ND	117	75-125	0.171	20	

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 BFI0469 - General Preparation										
Blank (BFI0469-BLK1)				Prepared: 09/19/22 Analyzed: 09/22/22						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BFI0469-BS1)				Prepared: 09/19/22 Analyzed: 09/22/22						
Calcium	6.10	0.0500	mg/L wet	5.00		122	70-130			
Magnesium	5.91	0.0500	"	5.00		118	70-130			
Sodium	5.67	0.0500	"	5.00		113	70-130			
Batch BFJ0132 - General Preparation										
Blank (BFJ0132-BLK1)				Prepared: 10/06/22 Analyzed: 10/10/22						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BFJ0132-BS1)				Prepared: 10/06/22 Analyzed: 10/10/22						
Calcium	5.68	0.0500	mg/L wet	5.00		114	70-130			
Magnesium	5.39	0.0500	"	5.00		108	70-130			
Sodium	5.43	0.0500	"	5.00		109	70-130			

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 BFI0424 - General Preparation										
Duplicate (BFI0424-DUP1)		**Source: 2209241-01**		Prepared: 09/16/22 Analyzed: 09/19/22						
% Solids	95.6		%		96.0			0.483	20	
Batch BFJ0129 - General Preparation										
Duplicate (BFJ0129-DUP1)		**Source: 2209261-03**		Prepared: 10/06/22 Analyzed: 10/10/22						
% Solids	93.8		%		93.8			0.00748	20	

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 BFI0553 - General Preparation										
Blank (BFI0553-BLK1)				Prepared & Analyzed: 09/21/22						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BFI0553-BS1)				Prepared & Analyzed: 09/21/22						
Specific Conductance (EC)	0.156	0.0100	mmhos/cm	0.150		104	95-105			
Duplicate (BFI0553-DUP1)		**Source: 2209241-01**		Prepared & Analyzed: 09/21/22						
Specific Conductance (EC)	0.559	0.0100	mmhos/cm		0.559			0.00	20	
Batch BFJ0143 - General Preparation										
Blank (BFJ0143-BLK1)				Prepared: 10/06/22 Analyzed: 10/12/22						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BFJ0143-BS1)				Prepared: 10/06/22 Analyzed: 10/12/22						
Specific Conductance (EC)	0.153	0.0100	mmhos/cm	0.150		102	95-105			
Duplicate (BFJ0143-DUP1)		**Source: 2209261-03**		Prepared: 10/06/22 Analyzed: 10/12/22						
Specific Conductance (EC)	0.312	0.0100	mmhos/cm		0.308			1.42	20	

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 BFI0554 - General Preparation										
LCS (BFI0554-BS1)				Prepared: 09/21/22 Analyzed: 09/22/22						
pH	9.03		pH Units	9.18		98.4	95-105			
Duplicate (BFI0554-DUP1)		**Source: 2209241-01**		Prepared: 09/21/22 Analyzed: 09/22/22						
pH	8.40		pH Units		8.46			0.712	20	
Batch BFJ0142 - General Preparation										
LCS (BFJ0142-BS1)				Prepared: 10/06/22 Analyzed: 10/12/22						
pH	9.11		pH Units	9.18		99.2	95-105			
Duplicate (BFJ0142-DUP1)		**Source: 2209261-03**		Prepared: 10/06/22 Analyzed: 10/12/22						
pH	6.54		pH Units		6.50			0.613	20	

Notes and Definitions

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.
I-04	Sample was analyzed out of recomended holding time per clients request.
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