

# **THIRD QUARTER 2022 SITE MONITORING DATA**

**FRANK 1, 12-02, 7-4**

**ECMC REMEDIATION # 20156**

Prepared for:



2115 117th Avenue  
Greeley, CO 80631

Prepared by:



6855 W. 119<sup>th</sup> Ave  
Broomfield, CO 80020

**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FRANK 1, 12-02, 7-4 FACILITY**



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.) <sup>(1)</sup>	Depth to LNAPL (ft.) <sup>(1)</sup>	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	06/02/22	4606.74	18.55	6.62	ND	ND	4598.50
BH01	09/12/22	4606.74	18.58	6.03	ND	ND	4599.09
BH02	06/02/22	4606.81	17.60	6.77	ND	ND	4598.49
BH02	09/12/22	4606.81	18.42	7.18	ND	ND	4598.08
BH03	06/02/22	4606.96	18.33	6.88	ND	ND	4598.52
BH03	09/12/22	4606.96	18.43	6.33	ND	ND	4599.07
BH04	06/02/22	4606.75	18.37	7.29	ND	ND	4597.60
BH04	09/12/22	4606.75	18.19	5.75	ND	ND	4599.14
BH05	06/02/22	4606.47	17.96	6.26	ND	ND	4598.54
BH05	09/12/22	4606.47	18.18	5.68	ND	ND	4599.12

**Notes:**

<sup>(1)</sup> Depth to water measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

\* Groundwater elevation is corrected for product thickness (when present) using the following calculation:

Groundwater elevation = (TOC Elevation - Measured Depth to Water)+(LNAPL Thickness in Well x LNAPL Relative Density)

LNAPL relative density was estimated to be 0.75

**Definitions:**

ft. = Feet  
 AMSL = Above mean sea level  
 BTOC = Below top of casing  
 BGS = Below ground surface  
 LNAPL = Light non-aqueous phase liquid  
 ND = No LNAPL detected

TABLE 2  
GROUNDWATER ANALYTICAL DATA  
NOBLE ENERGY, INC. - FRANK 1, 12-02, 7-4 FACILITY



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	1-M (µg/L)	2-M (µg/L)	TDS (mg/L)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
ECMC Standard <sup>(1)</sup>		5	560	700	1,400	140	67	67	1.1 <sup>(3)</sup>	3.6 <sup>(3)</sup>	<1.25 x Background	250 or <1.25 x Background	250 or <1.25 x Background
BH01	06/02/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,600	206	555
BH01	09/12/22	2.9	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.935	<0.500	1,500	124	823
BH02	06/02/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,910	255	596
BH02	09/12/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.989	0.556	1,760	168	737
BH03	06/02/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,540	213	489
BH03	09/12/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	1,410	115	591
BH04 <sup>(2)</sup>	06/02/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	868	178	197
BH04 <sup>(2)</sup>	09/12/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	1,600	166	840
BH05	06/02/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	2,280	344	779
BH05	09/12/22	<1.0	<1.0	<1.0	<2.0	4.0	<1.0	<1.0	<b>3.22</b>	<0.500	1,700	192	874

**Notes:**

<sup>(1)</sup> Groundwater standards referenced from 2 CCR 404-1, Table 915-1 (January 15, 2021).

<sup>(2)</sup> Monitoring well used for inorganic background levels.

<sup>(3)</sup> Groundwater standards referenced from USEPA Regional Screening Level (RSL) Resident Tapwater Table (TR=1E-06, HQ=0.1) November 2022.

**Definitions:**

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

ECMC = Energy and Carbon Management Commission

mg/L = Milligrams per liter

NA = Not analyzed

µg/L = Micrograms per liter

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

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

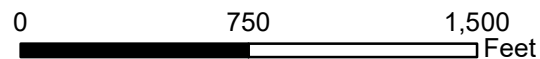
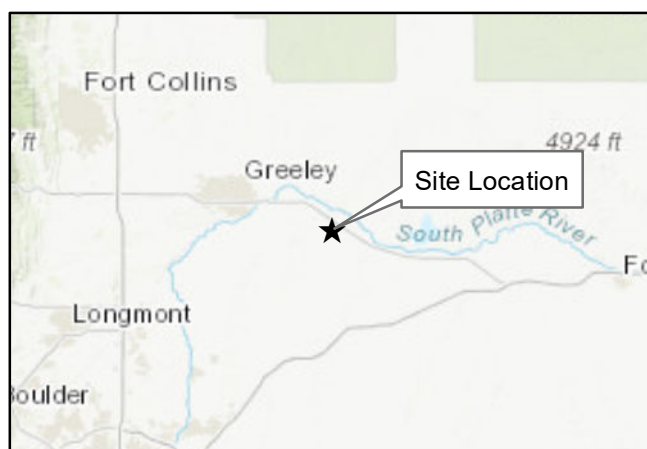
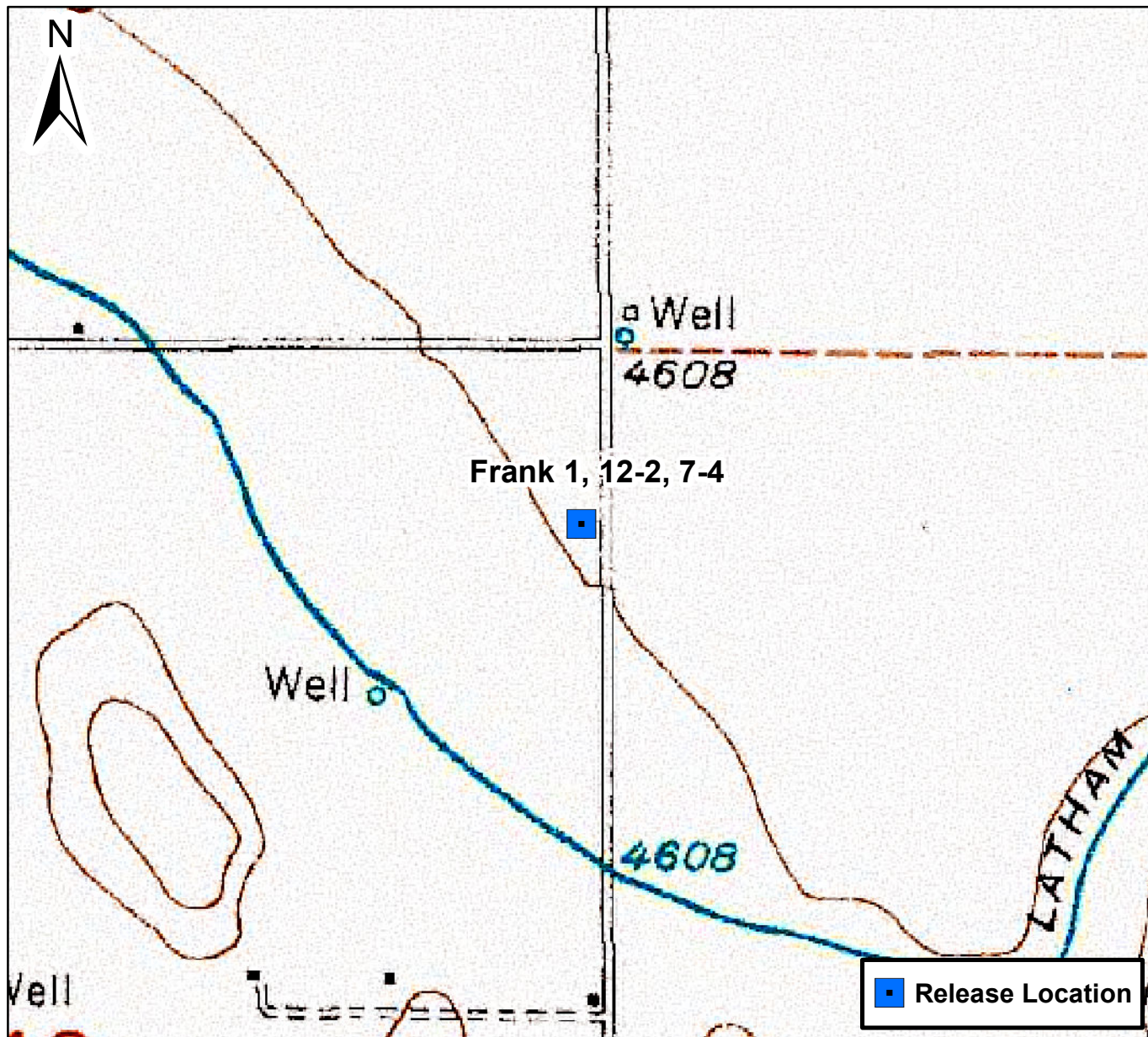
1-M = 1-Methylnaphthalene

2-M = 2-Methylnaphthalene

TDS = Total Dissolved Solids

**Highlighted results are equal to or exceed the ECMC Table 915-1 regulatory standard**

**Bold results indicate an exceedance of ECMC regulatory standards and greater than 1.25x background concentrations.**

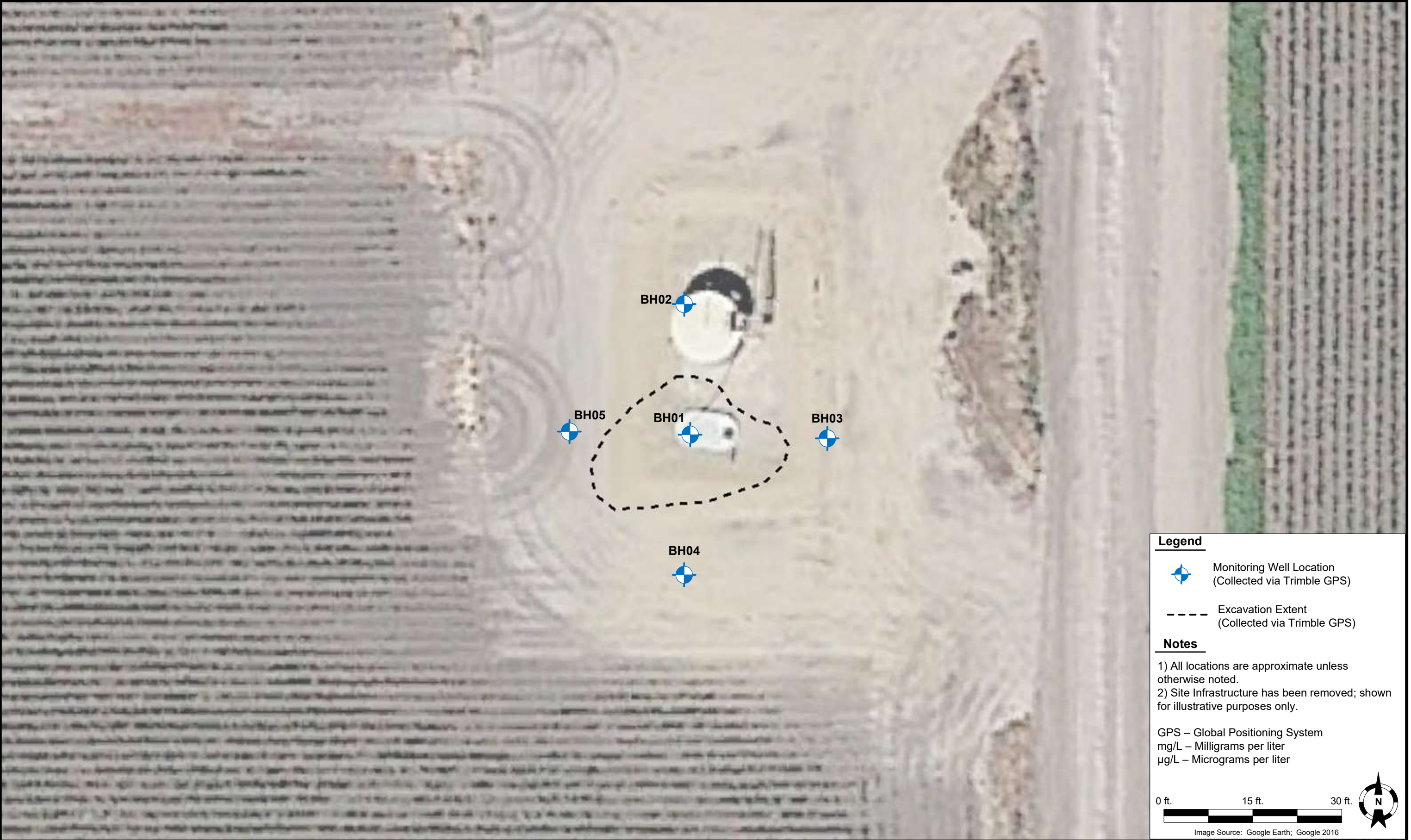



## Figure 1

Site Location Map  
 Frank 1, 12-2, 7-4  
 NENE S12 T4N R64W  
 Weld County, Colorado

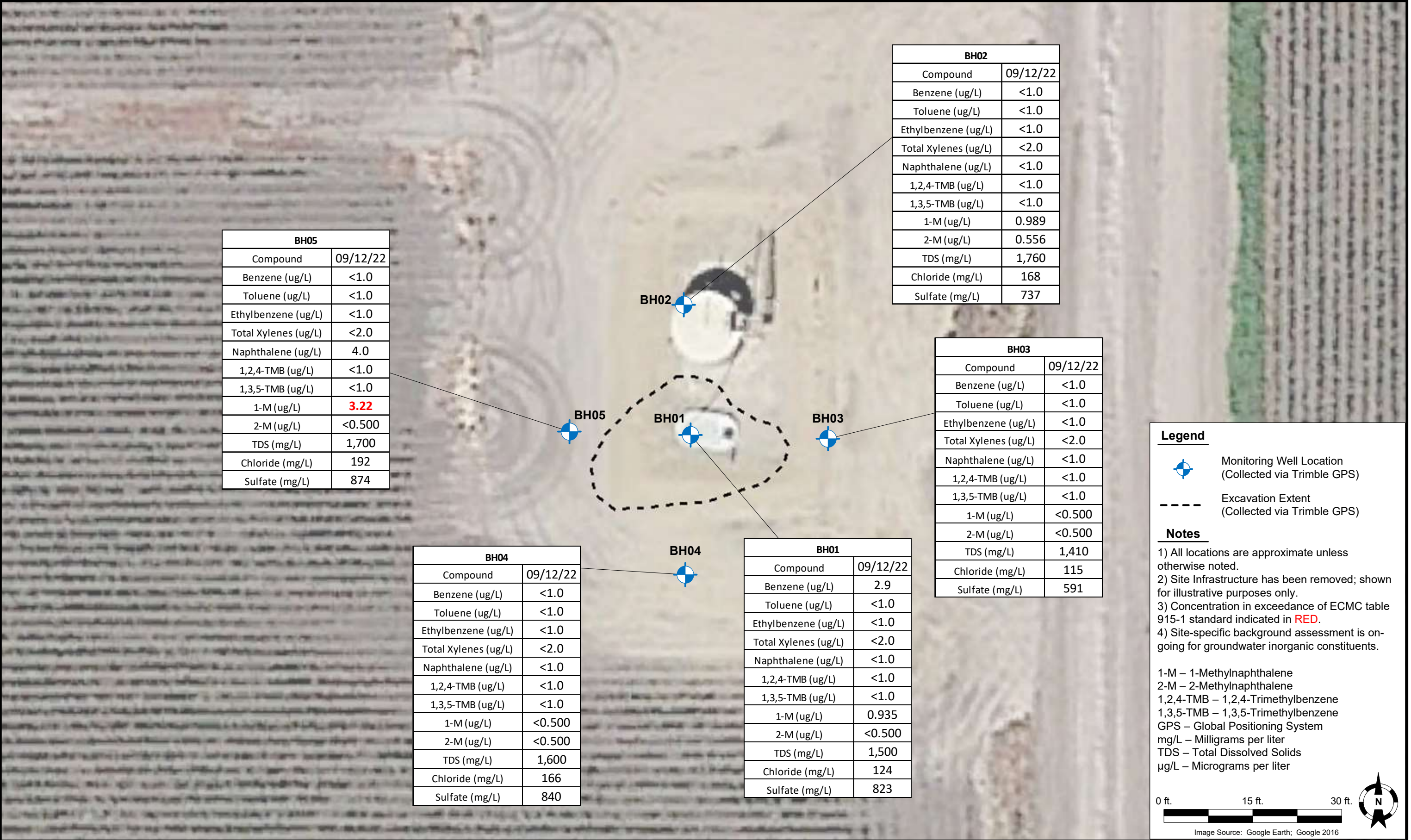






DATE:	03/27/2023	<div><div>Tasman, Inc. 6855 W 119<sup>th</sup> Ave. Broomfield, CO 80020</div></div>	Noble Energy, Inc. – DJ Basin Frank 1, 12-02, 7-4 Facility NENE, Section 12, Township 4 North, Range 64 West Weld County, Colorado	Site Overview Map	FIGURE 2
DESIGNED BY:	JW				
DRAWN BY:	HM				





# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 20, 2022

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Frank 1,12-02,7-4

Work Order #2209225

Enclosed are the results of analyses for samples received by Summit Scientific on 09/12/22 17:03. 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 - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2209225-01	Water	09/12/22 12:45	09/12/22 17:03
BH02	2209225-02	Water	09/12/22 12:24	09/12/22 17:03
BH03	2209225-03	Water	09/12/22 12:10	09/12/22 17:03
BH04	2209225-04	Water	09/12/22 12:10	09/12/22 17:03
BH05	2209225-05	Water	09/12/22 12:30	09/12/22 17:03

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

S<sub>2</sub>

2209225

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

Page | of |

Client: Noble / Tasman

Project Manager: Jacob Whritenour

Address: 6855 W. 119th Ave

E-Mail: [jwhritenour@tasman-geo.com](mailto:jwhritenour@tasman-geo.com)

City/State/Zip: Broomfield/ CO/ 80020

Phone: 503-915-3046

Project Name: Frank 1, 12-2, 7-4

Sampler Name: Martin Medeiros

Project Number:

					Preservative				Matrix				Analysis Requested						Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	8260B BTEX	Naphthalene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	TDS, chlorides, sulfides	1-M, 2-M	
1	BH01	9/12/22	12:45	5	3		2		X				X	X	X	X	X	X	
2	BH02		12:24																
3	BH03		12:10																
4	BH04		12:10																
5	BH05		12:30																
6																			
7																			
8																			
9																			
10																			

Relinquished by: <i>Martin Medeiros</i> Date/Time: 9/12/22 14:30 Martin Medeiros	Received by: <i>Tasman's Lock Box</i> Date/Time: 9/12/22 1703	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: <u>5.3</u> Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:
Relinquished by: <i>Tasman's Lock Box</i> Date/Time: 9/12/22 1703	Received by: <i>[Signature]</i> Date/Time: 9/12/22 1703		
Relinquished by: Date/Time:	Received by: Date/Time:		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order#

2209225

Client: Noble FrismanClient Project ID: Frank 1,12-2,7-4

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

Airbill #:

☐ ☐ ☐ ☐ ☐

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☒

Other

☐

Temp (°C)

5.3

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

Custodian Printed Name

Date/Time

9.12.22

19:00



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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH01**  
**2209225-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/12/22 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>2.9</b>	1.0		ug/l	1	BF10306	09/13/22	09/14/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **09/12/22 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		137 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %		21-167		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/12/22 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>1-Methylnaphthalene</b>	<b>0.935</b>	0.500		ug/l	1	BF10346	09/14/22	09/16/22	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **09/12/22 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10		55.5 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		55.6 %		40-150		"	"	"	"	

**Anions by EPA Method 300.0**

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 - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH01**  
**2209225-01 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **09/12/22 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>124</b>	12.0		mg/L	200	BF10413	09/16/22	09/16/22	EPA 300.0	
<b>Sulfate</b>	<b>823</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **09/12/22 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1500</b>	10.0		mg/L	1	BF10404	09/16/22	09/16/22	SM2540C	

Summit Scientific

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH02**  
**2209225-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/12/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BF10306	09/13/22	09/14/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	21-167		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/12/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	<b>0.989</b>	0.500	ug/l	1	BF10346	09/14/22	09/16/22	EPA 8270D SIM	
2-Methylnaphthalene	<b>0.556</b>	0.500	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:24**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		63.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		63.1 %	40-150		"	"	"	"	

**Anions by EPA Method 300.0**

Summit Scientific

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH02**  
**2209225-02 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **09/12/22 12:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>168</b>	12.0		mg/L	200	BF10413	09/16/22	09/16/22	EPA 300.0	
<b>Sulfate</b>	<b>737</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **09/12/22 12:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1760</b>	10.0		mg/L	1	BF10404	09/16/22	09/16/22	SM2540C	

Summit Scientific

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH03**  
**2209225-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BF10306	09/13/22	09/14/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BF10346	09/14/22	09/16/22	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		66.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		69.9 %	40-150		"	"	"	"	

**Anions by EPA Method 300.0**

Summit Scientific

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH03**  
**2209225-03 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>115</b>	12.0		mg/L	200	BF10413	09/16/22	09/16/22	EPA 300.0	
<b>Sulfate</b>	<b>591</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1410</b>	10.0		mg/L	1	BF10404	09/16/22	09/16/22	SM2540C	

Summit Scientific

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH04**  
**2209225-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BF10306	09/13/22	09/14/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.5 %	21-167		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BF10346	09/14/22	09/16/22	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		59.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		54.6 %	40-150		"	"	"	"	

**Anions by EPA Method 300.0**

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH04**  
**2209225-04 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>166</b>	12.0		mg/L	200	BF10413	09/16/22	09/16/22	EPA 300.0	
<b>Sulfate</b>	<b>840</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **09/12/22 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1600</b>	10.0		mg/L	1	BF10404	09/16/22	09/16/22	SM2540C	

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6855 W. 119th Ave.  
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Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH05**  
**2209225-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/12/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BF10306	09/13/22	09/14/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>4.0</b>	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.5 %	21-167		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/12/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>1-Methylnaphthalene</b>	<b>3.22</b>	0.500	ug/l	1	BF10346	09/14/22	09/16/22	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **09/12/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		57.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		57.7 %	40-150		"	"	"	"	

**Anions by EPA Method 300.0**

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6855 W. 119th Ave.  
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Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**BH05**  
**2209225-05 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

Date Sampled: **09/12/22 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>192</b>	12.0		mg/L	200	BF10413	09/16/22	09/16/22	EPA 300.0	
<b>Sulfate</b>	<b>874</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **09/12/22 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1700</b>	10.0		mg/L	1	BF10404	09/16/22	09/16/22	SM2540C	

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BF10306 - EPA 5030 Water MS

##### Blank (BF10306-BLK1)

Prepared: 09/13/22 Analyzed: 09/14/22

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.0		"	13.3		89.9	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	12.4		"	13.3		93.4	21-167			

##### LCS (BF10306-BS1)

Prepared: 09/13/22 Analyzed: 09/14/22

Benzene	39.5	1.0	ug/l	41.7		94.8	51-132			
Toluene	28.3	1.0	"	41.7		68.0	51-138			
Ethylbenzene	46.5	1.0	"	41.7		112	58-146			
m,p-Xylene	95.6	2.0	"	83.3		115	57-144			
o-Xylene	45.9	1.0	"	41.7		110	53-146			
Naphthalene	44.6	1.0	"	41.7		107	70-130			
1,2,4-Trimethylbenzene	48.8	1.0	"	41.7		117	70-130			
1,3,5-Trimethylbenzene	48.0	1.0	"	41.7		115	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.3		100	23-173			
Surrogate: Toluene-d8	9.25		"	13.3		69.4	20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.5	21-167			

##### Matrix Spike (BF10306-MS1)

Source: 2209206-02

Prepared: 09/13/22 Analyzed: 09/14/22

Benzene	41.7	1.0	ug/l	41.7	ND	100	34-141			
Toluene	41.4	1.0	"	41.7	ND	99.4	27-151			
Ethylbenzene	47.4	1.0	"	41.7	ND	114	29-160			
m,p-Xylene	96.5	2.0	"	83.3	ND	116	20-166			
o-Xylene	46.5	1.0	"	41.7	ND	112	33-159			
Naphthalene	48.4	1.0	"	41.7	ND	116	70-130			
1,2,4-Trimethylbenzene	50.6	1.0	"	41.7	ND	121	70-130			
1,3,5-Trimethylbenzene	49.7	1.0	"	41.7	ND	119	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.3		105	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	15.1		"	13.3		113	21-167			

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Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

### Batch BFI0306 - EPA 5030 Water MS

Matrix Spike Dup (BFI0306-MSD1)	Source: 2209206-02			Prepared: 09/13/22 Analyzed: 09/14/22						
Benzene	39.9	1.0	ug/l	41.7	ND	95.7	34-141	4.41	30	
Toluene	40.2	1.0	"	41.7	ND	96.5	27-151	2.97	30	
Ethylbenzene	47.8	1.0	"	41.7	ND	115	29-160	1.03	30	
m,p-Xylene	97.9	2.0	"	83.3	ND	117	20-166	1.40	30	
o-Xylene	46.9	1.0	"	41.7	ND	113	33-159	0.921	30	
Naphthalene	42.8	1.0	"	41.7	ND	103	70-130	12.3	30	
1,2,4-Trimethylbenzene	50.2	1.0	"	41.7	ND	121	70-130	0.793	30	
1,3,5-Trimethylbenzene	49.7	1.0	"	41.7	ND	119	70-130	0.101	30	
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.3		106	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	21-167			

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BFI0346 - EPA 5030 Water MS

##### Blank (BFI0346-BLK1)

Prepared: 09/14/22 Analyzed: 09/16/22

Acenaphthene	ND	0.500	ug/l							
Acenaphthylene	ND	0.200	"							
Anthracene	ND	0.200	"							
Benzo (a) anthracene	ND	0.100	"							
Benzo (b) fluoranthene	ND	0.200	"							
Benzo (k) fluoranthene	ND	0.200	"							
Benzo (g,h,i) perylene	ND	0.200	"							
Benzo (a) pyrene	ND	0.200	"							
Chrysene	ND	0.200	"							
Dibenz (a,h) anthracene	ND	0.200	"							
Fluoranthene	ND	2.00	"							
Fluorene	ND	0.200	"							
Indeno (1,2,3-cd) pyrene	ND	0.300	"							
Phenanthrene	ND	0.500	"							
Pyrene	ND	1.00	"							
1-Methylnaphthalene	ND	0.500	"							
2-Methylnaphthalene	ND	0.500	"							
Surrogate: 2-Methylnaphthalene-d10	2.16		"	2.00		108	40-150			
Surrogate: Fluoranthene-d10	1.73		"	2.00		86.3	40-150			

##### LCS (BFI0346-BS1)

Prepared: 09/14/22 Analyzed: 09/16/22

Acenaphthene	2.02	0.500	ug/l	2.00		101	30-120			
Acenaphthylene	1.97	0.200	"	2.00		98.4	30-120			
Anthracene	2.02	0.200	"	2.00		101	30-120			
Benzo (a) anthracene	1.65	0.100	"	2.00		82.4	30-120			
Benzo (b) fluoranthene	1.79	0.200	"	2.00		89.5	30-120			
Benzo (k) fluoranthene	2.33	0.200	"	2.00		117	30-120			
Benzo (g,h,i) perylene	1.84	0.200	"	2.00		91.8	30-120			
Benzo (a) pyrene	1.71	0.200	"	2.00		85.4	30-120			
Chrysene	2.10	0.200	"	2.00		105	30-120			
Dibenz (a,h) anthracene	1.86	0.200	"	2.00		93.0	30-120			
Fluoranthene	1.96	2.00	"	2.00		97.9	30-120			
Fluorene	1.95	0.200	"	2.00		97.3	30-120			
Indeno (1,2,3-cd) pyrene	1.57	0.300	"	2.00		78.6	30-120			
Phenanthrene	2.04	0.500	"	2.00		102	30-120			
Pyrene	1.84	1.00	"	2.00		92.1	30-120			
1-Methylnaphthalene	1.82	0.500	"	2.00		91.2	30-120			
2-Methylnaphthalene	1.66	0.500	"	2.00		83.0	0-200			

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BFI0346 - EPA 5030 Water MS

##### LCS (BFI0346-BS1)

Prepared: 09/14/22 Analyzed: 09/16/22

Surrogate: 2-Methylnaphthalene-d10	1.93		ug/l	2.00		96.4	40-150			
Surrogate: Fluoranthene-d10	1.95		"	2.00		97.4	40-150			

##### LCS Dup (BFI0346-BSD1)

Prepared: 09/14/22 Analyzed: 09/16/22

Acenaphthene	1.82	0.500	ug/l	2.00		91.2	30-120	10.1	30	
Acenaphthylene	1.89	0.200	"	2.00		94.3	30-120	4.27	30	
Anthracene	1.82	0.200	"	2.00		90.8	30-120	10.4	30	
Benzo (a) anthracene	1.58	0.100	"	2.00		79.0	30-120	4.23	30	
Benzo (b) fluoranthene	1.73	0.200	"	2.00		86.5	30-120	3.35	30	
Benzo (k) fluoranthene	2.20	0.200	"	2.00		110	30-120	5.68	30	
Benzo (g,h,i) perylene	1.78	0.200	"	2.00		88.9	30-120	3.28	30	
Benzo (a) pyrene	1.63	0.200	"	2.00		81.5	30-120	4.61	30	
Chrysene	1.97	0.200	"	2.00		98.4	30-120	6.22	30	
Dibenz (a,h) anthracene	1.82	0.200	"	2.00		90.9	30-120	2.30	30	
Fluoranthene	1.80	2.00	"	2.00		89.8	30-120	8.68	30	
Fluorene	1.78	0.200	"	2.00		89.1	30-120	8.86	30	
Indeno (1,2,3-cd) pyrene	1.53	0.300	"	2.00		76.4	30-120	2.77	30	
Phenanthrene	1.98	0.500	"	2.00		98.8	30-120	2.98	30	
Pyrene	1.74	1.00	"	2.00		87.2	30-120	5.46	30	
1-Methylnaphthalene	1.72	0.500	"	2.00		86.2	30-120	5.66	30	
2-Methylnaphthalene	1.58	0.500	"	2.00		79.0	0-200	4.97	200	
Surrogate: 2-Methylnaphthalene-d10	1.73		"	2.00		86.5	40-150			
Surrogate: Fluoranthene-d10	1.80		"	2.00		89.8	40-150			

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**Anions by EPA Method 300.0 - Quality Control**  
**Summit Scientific**

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

**Batch BFI0413 - General Preparation**

**Blank (BFI0413-BLK1)**

Prepared & Analyzed: 09/16/22

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

**LCS (BFI0413-BS1)**

Prepared & Analyzed: 09/16/22

Chloride	3.29	0.0600	mg/L	3.00	110	90-110
Sulfate	16.0	0.300	"	15.0	107	90-110

**Duplicate (BFI0413-DUP1)**

Source: 2209225-01

Prepared & Analyzed: 09/16/22

Chloride	117	12.0	mg/L	124	5.79	20
Sulfate	791	60.0	"	823	3.94	20

**Matrix Spike (BFI0413-MS1)**

Source: 2209225-01

Prepared & Analyzed: 09/16/22

Chloride	697	12.0	mg/L	600	124	95.4	80-120
Sulfate	4110	60.0	"	3000	823	109	80-120

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

**Total Dissolved Solids by SM2540C - Quality Control**  
**Summit Scientific**

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

**Batch BFI0404 - General Preparation**

**Blank (BFI0404-BLK1)**

Prepared & Analyzed: 09/16/22

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BFI0404-DUP1)**

Source: 2209225-01

Prepared & Analyzed: 09/16/22

Total Dissolved Solids 1570 10.0 mg/L 1500 4.43 20

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

Project: Noble - Frank 1,12-02,7-4

Project Number: [none]  
Project Manager: Jacob Whritenour

**Reported:**  
09/20/22 14:01

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference