

THIRD QUARTER 2021 SITE MONITORING DATA

MUNDS 13-29, DICKERSON 14-29A

COGCC SPILL TRACKING # 459197

COGCC REMEDIATION # 12255

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 W 119th Avenue
Broomfield, CO 80020

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - MUNDS 13-29, DICKERSON 14-29A



Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH16	04/07/21	4887.84	13.26	4.68	ND	ND	4883.42
BH16	06/15/21	4887.84	13.26	5.13	ND	ND	4882.97
BH16	09/21/21	4887.84	13.26	6.48	ND	ND	4881.62
BH17	04/07/21	4890.50	14.45	5.73	ND	ND	4885.09
BH17	06/15/21	4890.50	12.34	5.46	ND	ND	4885.36
BH17	09/21/21	4890.50	12.28	5.96	ND	ND	4884.86
BH18	06/15/21	Temporary Monitoring Well - Elevation Data Not Collected					
BH18	09/21/21	Guaging Pending New Monitoring Well - Elevation Data Not Collected					
BH19	06/15/21	4892.11	12.18	3.77	ND	ND	4888.69
BH19	09/21/21	4892.11	12.09	3.75	ND	ND	4888.71
BH20	06/15/21	4892.66	11.76	2.83	ND	ND	4890.00
BH20	09/21/21	4892.66	11.02	2.86	ND	ND	4889.97
BH21	06/15/21	4890.86	13.18	4.90	ND	ND	4886.18
BH21	09/21/21	Unable to Locate Monitoring Well - Elevation Data Not Collected					
BH22	06/15/21	4888.83	9.48	5.41	5.39	0.02	4883.64
BH22	09/21/21	4888.83	9.48	6.24	5.83	0.41	4882.81
BH23	06/15/21	4887.00	12.34	12.46	ND	ND	4874.88
BH23	09/21/21	4887.00	12.35	12.53	ND	ND	4874.81
BH24	06/15/21	4888.54	13.51	9.87	ND	ND	4878.84
BH24	09/21/21	4888.54	13.50	10.02	ND	ND	4878.69
BH25	06/15/21	4889.28	11.01	4.27	ND	ND	4885.27
BH25	09/21/21	4889.28	10.45	5.84	ND	ND	4883.70
BH26	06/15/21	4888.15	11.63	5.25	ND	ND	4883.06
BH26	09/21/21	4888.15	11.50	6.38	ND	ND	4881.93
BH27	06/15/21	4887.09	13.27			DRY	
BH27	09/21/21	4887.09	13.26			DRY	

Notes:

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 was 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 approximately 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. - MUNDs 13-29, DICKERSON 14-29A

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)	TDS (mg/L)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
COGCC Groundwater Standard ⁽¹⁾		5	560	700	1,400	140	67	67	<1.25 x Background	250 or <1.25 x Background	250 or <1.25 x Background
BH16	04/07/21	750	<1.0	69	430	4	60	76	1,740	251	283
BH16	06/15/21	1,500	<1.0	150	850	8	150	96	1,640	369	504
BH16	09/21/21	770	<1.0	11	12	<1.0	4.7	<1.0	Insufficient Water For Inorganic Analytes		
BH17	04/07/21	20	3	920	12,000	21	150	180	2,420	735	518
BH17	06/15/21	11	<1.0	470	6,400	15	500	400	1,500	339	321
BH17	09/21/21	48	3.2	2,000	33,000	10	3,500	3,000	938	247	21.4
BH18	06/15/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1,510	385	515
BH18	09/21/21	Not Sampled - Sample Pending New Monitoring Well									
BH19	06/15/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	805	184	178
BH19	09/21/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	765	194	195
⁽²⁾ BH20	06/15/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	820	171	206
⁽²⁾ BH20	09/21/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	821	222	231
BH21	06/15/21	350	<1.0	600	1,500	35	670	14	893	69	256
BH21	09/21/21	Not Sampled - Unable To Locate Monitoring Well									
BH22	06/15/21	1,800	38	94,000	36,000	43	630	490	1,570	426	449
BH22	09/21/21	Not Sampled - LNAPL Present									
BH23	06/15/21	Not Sampled - Monitoring Well Dry									
BH23	09/21/21										
BH24	06/15/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1,800	219	984
BH24	09/21/21	<1.0	<1.0	<1.0	4.2	<1.0	<1.0	<1.0	Insufficient Water For Inorganic Analytes		
BH25	06/15/21	420	<1.0	36	83	22	60	7.7	2,980	718	1,460
BH25	09/21/21	4,100	<1.0	740	3,200	19	480	190	2,320	847	496
BH26	06/15/21	2,500	<1.0	430	2,100	14	390	220	892	311	97.0
BH26	09/21/21	990	2.6	3.6	980	12	220	110	869	334	5.40
BH27	06/15/21	Not Sampled - Monitoring Well Dry									
BH27	09/21/21										

Notes:

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

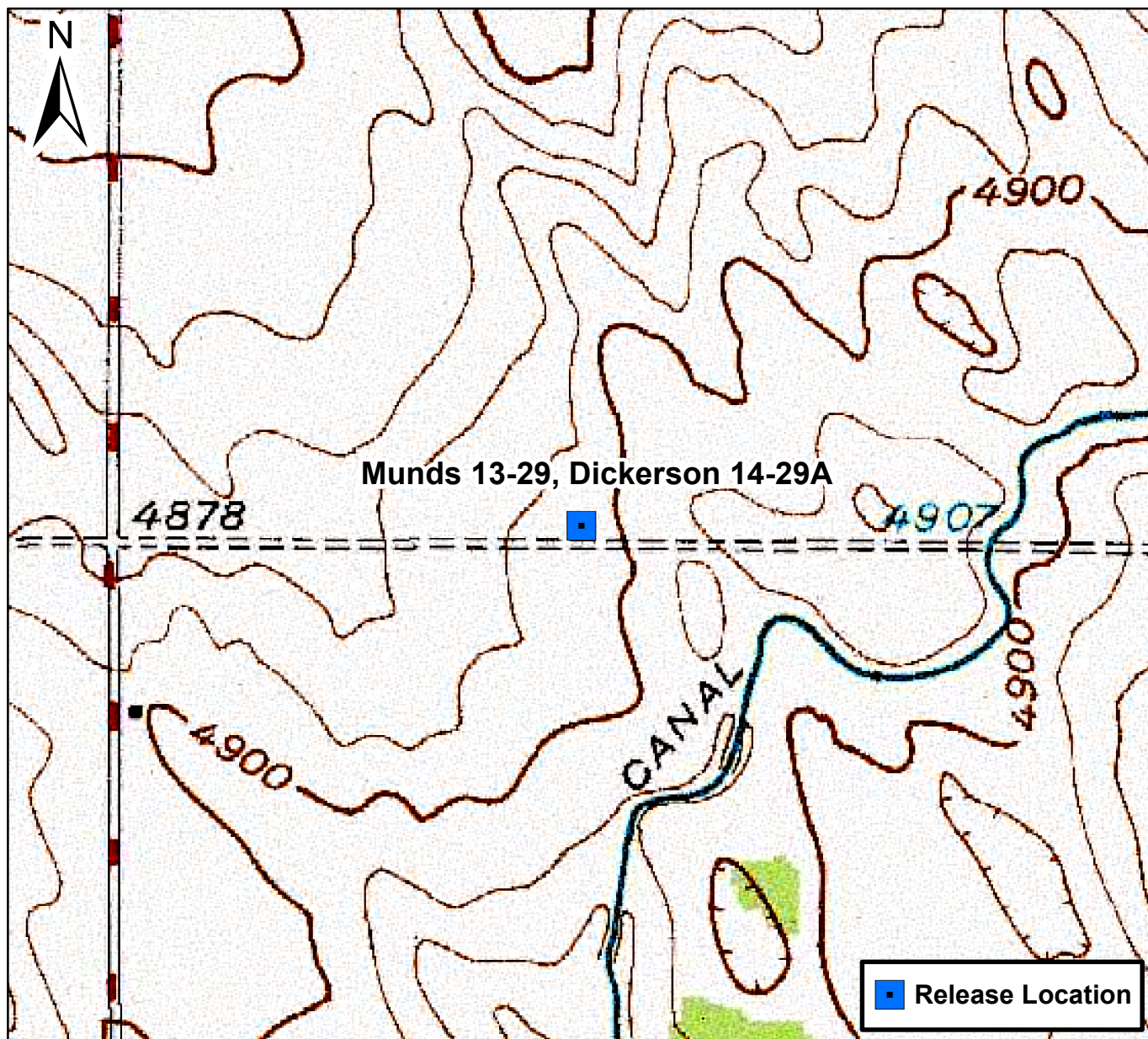
⁽²⁾ Monitoring well BH20 used to calculate background concentration limits

Definitions:

< = Analytical result is less than the indicated laboratory reporting limit
COGCC = Colorado Oil and Gas Conservation Commission
µg/L = Micrograms per liter
mg/L = Milligrams per liter
NA = Not analyzed
1,2,4 - TMB = 1,2,4 Trimethylbenzene
1,3,5 - TMB = 1,3,5 Trimethylbenzene
TDS = Total Dissolved Solids

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

Bold results exceed the COGCC Table 915-1 standard for groundwater inorganic parameters, site-specific background assessment is on-going for groundwater inorganic constituents.



0 750 1,500 Feet

Figure 1

Site Location Map
Munds 13-29, Dickerson 14-29A
SESW S29 T4N R65W
Weld County, Colorado





DATE:	7/9/2021
DESIGNED BY:	MG
DRAWN BY:	MG



TASMAN
GEOSCIENCES

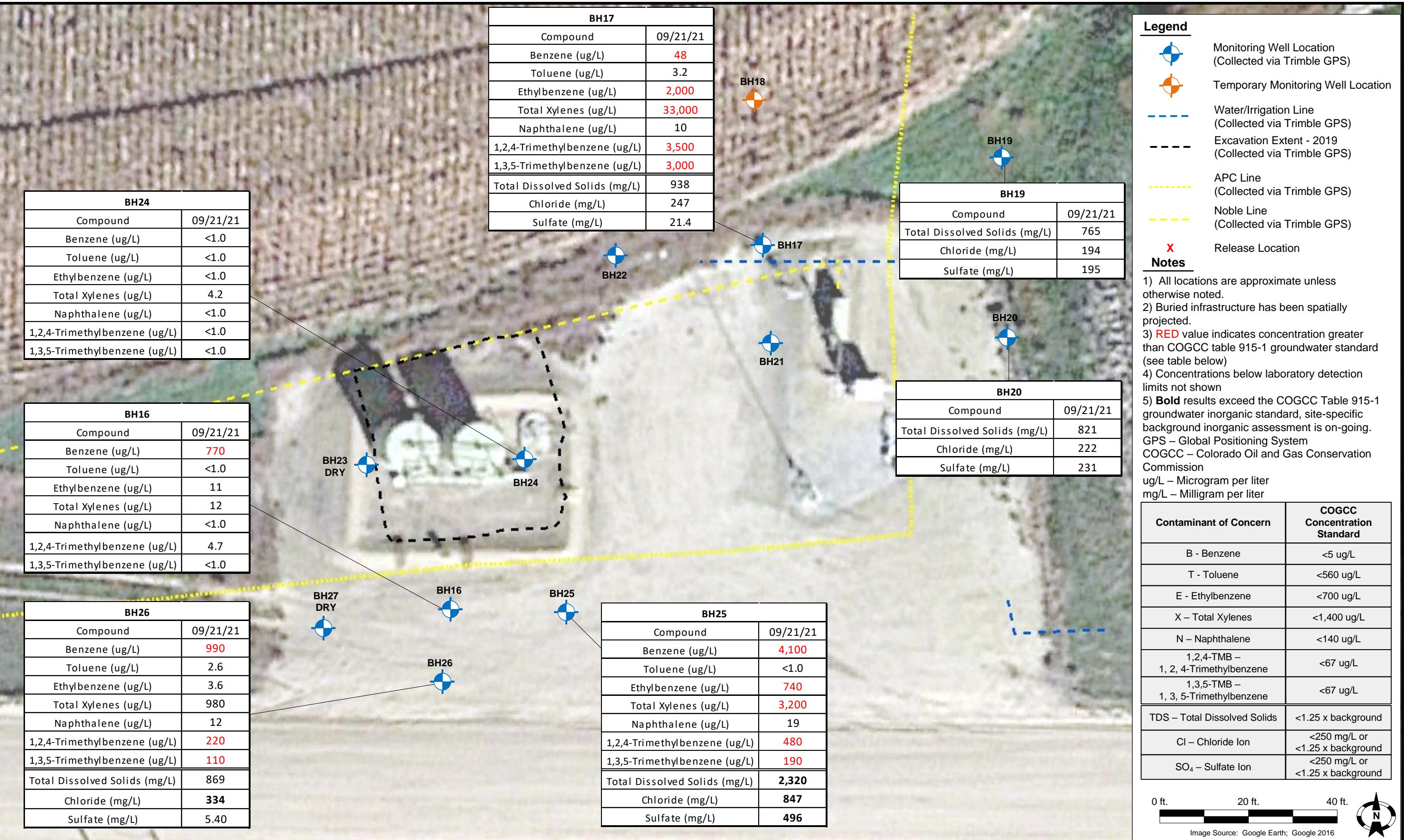
Tasman Geosciences, Inc.
6855 W. 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Munds 13-29, Dickerson 14-29A
SESW, Section 29, Township 4 North, Range 65 West
Weld County, Colorado

Site Overview Map

Figure
2





Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 30, 2021

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

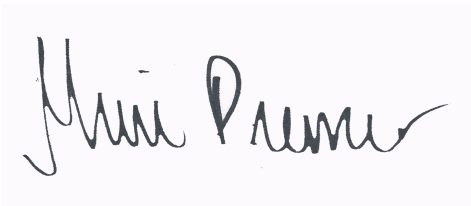
Broomfield, CO 80020

RE: Noble - Munds 13-29, Dickerson 14-29A

Work Order #2109356

Enclosed are the results of analyses for samples received by Summit Scientific on 09/21/21 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Muri Premier", is shown on a light purple rectangular background.

Muri Premier For Paul Shrewsbury

President



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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH16	2109356-01	Water	09/21/21 14:45	09/21/21 17:30
BH17	2109356-02	Water	09/21/21 14:05	09/21/21 17:30
BH19	2109356-03	Water	09/21/21 13:35	09/21/21 17:30
BH20	2109356-04	Water	09/21/21 13:50	09/21/21 17:30
BH24	2109356-05	Water	09/21/21 14:15	09/21/21 17:30
BH25	2109356-06	Water	09/21/21 14:43	09/21/21 17:30
BH26	2109356-07	Water	09/21/21 14:00	09/21/21 17:30

Summit Scientific

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

Summit Scientific 2109356

S₂

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

Page 1 of 1

Client: Noble / Tasman Geosciences	Project Manager: Jake Whritenour, Invoice:	
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com	
City/State/Zip: Broomfield / CO/ 80020		
Phone: 303-487-1228	Project Name: Munds 13-29, Dickerson 14-29A	
Sampler Name: Kilian Collins		Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	1,2,4-TMB	1,3,5-TMB	TDS	Chloride ion	Sulfate ion				
1	BH16	9/21/2021	1445	3	3				X					X	X	X						
2	BH17	9/21/2021	1405	4	3		1		X					X	X	X	X	X	X			
3	BH19	9/21/2021	1335	4	3		1		X					X	X	X	X	X	X			
4	BH20	9/21/2021	1350	4	3		1		X					X	X	X	X	X	X			
5	BH24	9/21/2021	1415	3	3				X					X	X	X						
6	BH25	9/21/2021	1443	4	3		1		X					X	X	X	X	X	X			
7	BH26	9/21/2021	1400	4	3		1		X					X	X	X	X	X	X			
8																						
9																						
10																						

Relinquished by: <i>Kilian Collins</i> Date/Time: <i>9/21/21 1655</i>	Received by: <i>Tasman's Lock Box</i> Date/Time: <i>9/21/21 1655</i>	Turn Around Time (Check) ___ Same Day ___ 72 hours ___ 24 hours <u>X</u> Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: <u>1.1</u> Samples Intact: <u>Yes</u> No
Relinquished by: <i>Tasman's Lock Box</i> Date/Time: <i>9-21-21 17:30</i>	Received by: <i>[Signature]</i> Date/Time: <i>9-21-21 17:30</i>	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	

S₂

Sample Receipt Checklist

S2 Work Order# _____

2109356

Client: POE TASMAN / NOBLE Client Project ID: MUNDS 13-2A, DICKERSON 14-29A

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

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

Temp (°C)	
-----------	--

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

Custodian Printed Name or Initials

Date/Time



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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

BH16
2109356-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/21 14:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	770	100		ug/l	100	BEI0537	09/24/21	09/25/21	EPA 8260B	
Toluene	ND	1.0		"	1	"	"	"	"	
Ethylbenzene	11	1.0		"	"	"	"	"	"	
Xylenes (total)	12	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	4.7	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **09/21/21 14:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		92.0 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %		21-167		"	"	"	"	

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 - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

BH17
2109356-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/21 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	48	1.0	ug/l	1	BEI0537	09/24/21	09/25/21	EPA 8260B	
Toluene	3.2	1.0	"	"	"	"	"	"	
Ethylbenzene	2000	100	"	100	"	"	"	"	
Xylenes (total)	33000	200	"	"	"	"	"	"	
Naphthalene	10	1.0	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	3500	100	"	100	"	"	"	"	
1,3,5-Trimethylbenzene	3000	100	"	"	"	"	"	"	

Date Sampled: **09/21/21 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **09/21/21 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	247	12.0	mg/L	200	BEI0544	09/24/21	09/24/21	EPA 300.0	
Sulfate	21.4	6.00	"	20	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **09/21/21 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	938	10.0	mg/L	1	BEI0501	09/23/21	09/23/21	SM2540C	

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

BH19
2109356-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/21 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEI0537	09/24/21	09/25/21	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: **09/21/21 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.3 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **09/21/21 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	194	12.0	mg/L	200	BEI0544	09/24/21	09/24/21	EPA 300.0	
Sulfate	195	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **09/21/21 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	765	10.0	mg/L	1	BEI0501	09/23/21	09/23/21	SM2540C	

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

BH20
2109356-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/21 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEI0537	09/24/21	09/25/21	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: **09/21/21 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		96.6 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.1 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **09/21/21 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	222	12.0		mg/L	200	BEI0544	09/24/21	09/24/21	EPA 300.0	
Sulfate	231	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **09/21/21 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	821	10.0		mg/L	1	BEI0501	09/23/21	09/23/21	SM2540C	

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

BH24
2109356-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/21 14:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEI0537	09/24/21	09/25/21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	4.2	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/21/21 14:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		94.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

BH25
2109356-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/21 14:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	4100	100	ug/l	100	BEI0537	09/24/21	09/25/21	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	740	100	"	100	"	"	"	"	
Xylenes (total)	3200	200	"	"	"	"	"	"	
Naphthalene	19	1.0	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	480	100	"	100	"	"	"	"	
1,3,5-Trimethylbenzene	190	100	"	"	"	"	"	"	

Date Sampled: **09/21/21 14:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		89.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.6 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **09/21/21 14:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	847	12.0	mg/L	200	BEI0544	09/24/21	09/24/21	EPA 300.0	
Sulfate	496	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **09/21/21 14:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	2320	10.0	mg/L	1	BEI0501	09/23/21	09/23/21	SM2540C	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

BH26
2109356-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/21 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	990	100	ug/l	100	BEI0537	09/24/21	09/25/21	EPA 8260B	
Toluene	2.6	1.0	"	1	"	"	"	"	
Ethylbenzene	3.6	1.0	"	"	"	"	"	"	
Xylenes (total)	980	200	"	100	"	"	"	"	
Naphthalene	12	1.0	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	220	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	110	1.0	"	"	"	"	"	"	

Date Sampled: **09/21/21 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		90.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.3 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **09/21/21 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	334	12.0	mg/L	200	BEI0544	09/24/21	09/24/21	EPA 300.0	
Sulfate	5.40	0.600	"	2	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **09/21/21 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	869	10.0	mg/L	1	BEI0501	09/23/21	09/23/21	SM2540C	

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

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 BEI0537 - EPA 5030 Water MS

Blank (BEI0537-BLK1)

Prepared & Analyzed: 09/24/21

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	13.7		"	13.3		103	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.6	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	21-167			

LCS (BEI0537-BS1)

Prepared & Analyzed: 09/24/21

Benzene	27.2	1.0	ug/l	33.3		81.5	51-132			
Toluene	33.8	1.0	"	33.3		101	51-138			
Ethylbenzene	26.1	1.0	"	33.3		78.3	58-146			
m,p-Xylene	58.2	2.0	"	66.7		87.3	57-144			
o-Xylene	34.8	1.0	"	33.3		104	53-146			
Naphthalene	28.3	1.0	"	33.3		84.9	70-130			
1,2,4-Trimethylbenzene	40.2	1.0	"	33.3		121	70-130			
1,3,5-Trimethylbenzene	27.1	1.0	"	33.3		81.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.3		109	23-173			
Surrogate: Toluene-d8	14.0		"	13.3		105	20-170			
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		104	21-167			

Matrix Spike (BEI0537-MS1)

Source: 2109339-01

Prepared & Analyzed: 09/24/21

Benzene	27.6	1.0	ug/l	33.3	ND	82.8	34-141			
Toluene	34.2	1.0	"	33.3	ND	103	27-151			
Ethylbenzene	24.6	1.0	"	33.3	ND	73.8	29-160			
m,p-Xylene	58.8	2.0	"	66.7	ND	88.1	20-166			
o-Xylene	35.4	1.0	"	33.3	ND	106	33-159			
Naphthalene	25.7	1.0	"	33.3	ND	77.0	70-130			
1,2,4-Trimethylbenzene	40.9	1.0	"	33.3	ND	123	70-130			
1,3,5-Trimethylbenzene	39.3	1.0	"	33.3	ND	118	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.3		111	23-173			
Surrogate: Toluene-d8	14.1		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		104	21-167			

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

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 BEI0537 - EPA 5030 Water MS

Matrix Spike Dup (BEI0537-MSD1)

Source: 2109339-01

Prepared & Analyzed: 09/24/21

Benzene	27.5	1.0	ug/l	33.3	ND	82.5	34-141	0.399	30	
Toluene	33.6	1.0	"	33.3	ND	101	27-151	1.80	30	
Ethylbenzene	24.3	1.0	"	33.3	ND	72.8	29-160	1.31	30	
m,p-Xylene	58.1	2.0	"	66.7	ND	87.1	20-166	1.11	30	
o-Xylene	34.9	1.0	"	33.3	ND	105	33-159	1.51	30	
Naphthalene	29.6	1.0	"	33.3	ND	88.9	70-130	14.3	30	
1,2,4-Trimethylbenzene	40.2	1.0	"	33.3	ND	121	70-130	1.85	30	
1,3,5-Trimethylbenzene	39.7	1.0	"	33.3	ND	119	70-130	0.987	30	
Surrogate: 1,2-Dichloroethane-d4	15.3		"	13.3		115	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		102	21-167			

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

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 BEI0544 - General Preparation

Blank (BEI0544-BLK1)

Prepared & Analyzed: 09/24/21

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

LCS (BEI0544-BS1)

Prepared & Analyzed: 09/24/21

Chloride	3.21	0.0600	mg/L	3.00	107	90-110
Sulfate	16.5	0.300	"	15.0	110	90-110

Duplicate (BEI0544-DUP1)

Source: 2109339-01

Prepared & Analyzed: 09/24/21

Chloride	287	12.0	mg/L	286	0.349	20
Sulfate	2460	60.0	"	2460	0.171	20

Matrix Spike (BEI0544-MS1)

Source: 2109339-01

Prepared & Analyzed: 09/24/21

Chloride	898	12.0	mg/L	600	286	102	80-120
Sulfate	5830	60.0	"	3000	2460	112	80-120

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

Total Dissolved Solids by SM2540C - Quality Control
Summit Scientific

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

Batch BEI0501 - General Preparation

Blank (BEI0501-BLK1)

Prepared & Analyzed: 09/23/21

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BEI0501-DUP1)

Source: 2109355-01

Prepared & Analyzed: 09/23/21

Total Dissolved Solids 2910 10.0 mg/L 2910 0.138 20

Summit Scientific

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

Project: Noble - Munds 13-29, Dickerson 14-29A

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
09/30/21 12:58

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