

FOURTH QUARTER 2020 SITE MONITORING DATA

DUNCAN D20-12, 20-13

COGCC SPILL TRACKING # 459804
COGCC REMEDIATION # 12461

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 West 119th Avenue
Broomfield, Colorado 80020

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - DUNCAN D20-12, 20-13

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.) ⁽¹⁾	Depth to LNAPL (ft.) ⁽¹⁾	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	08/23/19	4772.46	21.77	5.32	ND	ND	4765.17
BH01	11/15/19	4772.46	21.68	5.73	ND	ND	4764.76
BH01	02/05/20	4772.46	21.47	5.38	ND	ND	4765.11
BH01	05/04/20	4772.46	21.21	3.15	ND	ND	4767.34
BH01	08/05/20	4772.46	21.14	5.84	ND	ND	4764.65
BH01	11/25/20	4772.46	20.85	6.07	ND	ND	4764.42
BH02	08/23/19	4773.47	17.30	5.47	ND	ND	4765.14
BH02	11/15/19	4773.47	17.23	5.89	ND	ND	4764.72
BH02	02/05/20	4773.47	17.20	5.58	ND	ND	4765.03
BH02	05/04/20	4773.47	17.17	3.33	ND	ND	4767.28
BH02	08/05/20	4773.47	17.16	6.05	ND	ND	4764.56
BH02	11/25/20	4773.47	17.15	6.29	ND	ND	4764.32
BH03	08/23/19	4770.68	14.10	5.83	ND	ND	4765.26
BH03	11/15/19	4770.68	13.92	6.27	ND	ND	4764.82
BH03	02/05/20	4770.68	13.94	5.94	ND	ND	4765.15
BH03	05/04/20	4770.68	13.87	3.67	ND	ND	4767.42
BH03	08/05/20	4770.68	13.74	6.38	ND	ND	4764.71
BH03	11/25/20	4770.68	13.73	6.62	ND	ND	4764.47
BH04	08/23/19	4773.76	20.74	5.62	ND	ND	4765.20
BH04	11/15/19	4773.76	19.76	6.02	ND	ND	4764.80
BH04	02/05/20	4773.76	20.42	5.69	ND	ND	4765.13
BH04	05/04/20	4773.76	19.72	3.44	ND	ND	4767.38
BH04	08/05/20	4773.76	19.75	6.21	ND	ND	4764.61
BH04	11/25/20	4773.76	19.74	6.49	ND	ND	4764.33
BH05	08/23/19	4772.36	20.15	5.56	ND	ND	4765.12
BH05	11/15/19	4772.36	19.69	5.93	ND	ND	4764.75
BH05	02/05/20	4772.36	19.40	5.61	ND	ND	4765.07
BH05	05/04/20	4772.36	19.23	3.36	ND	ND	4767.32
BH05	08/05/20	4772.36	19.05	6.07	ND	ND	4764.61
BH05	11/25/20	4772.36	18.95	6.29	ND	ND	4764.39
BH06	08/23/19	4772.64	16.63	5.53	ND	ND	4765.18
BH06	11/15/19	4772.64	16.59	5.90	ND	ND	4764.81
BH06	02/05/20	4772.64	16.52	5.55	ND	ND	4765.16
BH06	05/04/20	4772.64	16.60	3.32	ND	ND	4767.39
BH06	08/05/20	4772.64	16.58	6.07	ND	ND	4764.64
BH06	11/25/20	4772.64	16.55	6.28	ND	ND	4764.43
BH07	02/05/20	4772.12	16.01	5.03	ND	ND	4765.00
BH07	05/04/20	4772.12	16.09	2.77	ND	ND	4767.26
BH07	08/05/20	4772.12	16.08	5.53	ND	ND	4764.50
BH07	11/25/20	4772.12	16.61	5.80	ND	ND	4764.23
BH08	02/05/20	4770.79	12.65	6.00	ND	ND	4764.86
BH08	05/04/20	4770.79	12.66	3.78	ND	ND	4767.08

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - DUNCAN D20-12, 20-13

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.) ⁽¹⁾	Depth to LNAPL (ft.) ⁽¹⁾	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH08	08/05/20	4770.79	12.60	6.48	ND	ND	4764.38
BH08	11/25/20	4770.79	12.61	6.75	ND	ND	4764.11

Notes:

BTOC = Below top of casing

ft. = Feet

ND = No LNAPL detected

AMSL = Above mean sea level

LNAPL = Light non-aqueous phase liquid

1) Depth to water measurements collected prior to third quarter 2019 were measured from top of well casing. Subsequent 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

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - DUNCAN D20-12, 20-13

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
GW01	12/10/18	970	3.2	560	3,800
BH01	08/23/19	440	<1.0	490	1,400
BH01	11/15/19	840	<1.0	420	1,200
BH01	02/05/20	<1.0	<1.0	<1.0	<2.0
BH01	05/04/20	1,100	<1.0	200	1,400
BH01	08/05/20	850	<1.0	800	1,700
BH01	11/25/20	700	<1.0	650	1,200
BH02	08/23/19	<1.0	<1.0	<1.0	<2.0
BH02	11/15/19	<1.0	<1.0	<1.0	<2.0
BH02	02/05/20	<1.0	<1.0	<1.0	<2.0
BH02	05/04/20	<1.0	<1.0	<1.0	<2.0
BH02	08/05/20	<1.0	<1.0	<1.0	<2.0
BH02	11/25/20	<1.0	<1.0	<1.0	<2.0
BH03	08/23/19	<1.0	<1.0	<1.0	<2.0
BH03	11/15/19	<1.0	<1.0	<1.0	<2.0
BH03	02/05/20	<1.0	<1.0	<1.0	<2.0
BH03	05/04/20	<1.0	<1.0	<1.0	<2.0
BH03	08/05/20	<1.0	<1.0	<1.0	<2.0
BH03	11/25/20	<1.0	<1.0	<1.0	<2.0
BH04	08/23/19	<1.0	<1.0	<1.0	<2.0
BH04	11/15/19	<1.0	<1.0	<1.0	<2.0
BH04	02/05/20	<1.0	<1.0	25	79
BH04	05/04/20	1.1	<1.0	5.9	14
BH04	08/05/20	1.2	<1.0	14	50
BH04	11/25/20	<1.0	<1.0	7.3	12
BH05	08/23/19	340	<1.0	500	1,700
BH05	11/15/19	530	<1.0	490	1,600
BH05	02/05/20	240	<1.0	450	1,100
BH05	05/04/20	380	<1.0	190	480
BH05	08/05/20	610	<1.0	740	1,900
BH05	11/25/20	320	<1.0	430	990
BH06	08/23/19	<1.0	<1.0	<1.0	<2.0
BH06	11/15/19	<1.0	<1.0	<1.0	<2.0
BH06	02/05/20	<1.0	<1.0	<1.0	<2.0
BH06	05/04/20	<1.0	<1.0	<1.0	<2.0
BH06	08/05/20	<1.0	<1.0	<1.0	<2.0
BH06	11/25/20	<1.0	<1.0	<1.0	<2.0
BH07	02/05/20	<1.0	<1.0	<1.0	<2.0
BH07	05/04/20	<1.0	<1.0	<1.0	<2.0
BH07	08/05/20	<1.0	<1.0	<1.0	<2.0
BH07	11/25/20	<1.0	<1.0	<1.0	<2.0
BH08	02/05/20	<1.0	<1.0	<1.0	2.5

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - DUNCAN D20-12, 20-13

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
BH08	05/04/20	<1.0	<1.0	<1.0	<2.0
BH08	08/05/20	<1.0	<1.0	<1.0	<2.0
BH08	11/25/20	<1.0	<1.0	<1.0	<2.0

Notes:

µg/L = Micrograms per liter

COGCC = Colorado Oil and Gas Conservation Commission

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

Highlighted results are equal to or exceed the COGCC Table 910-1 standard

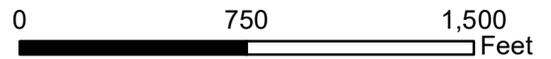
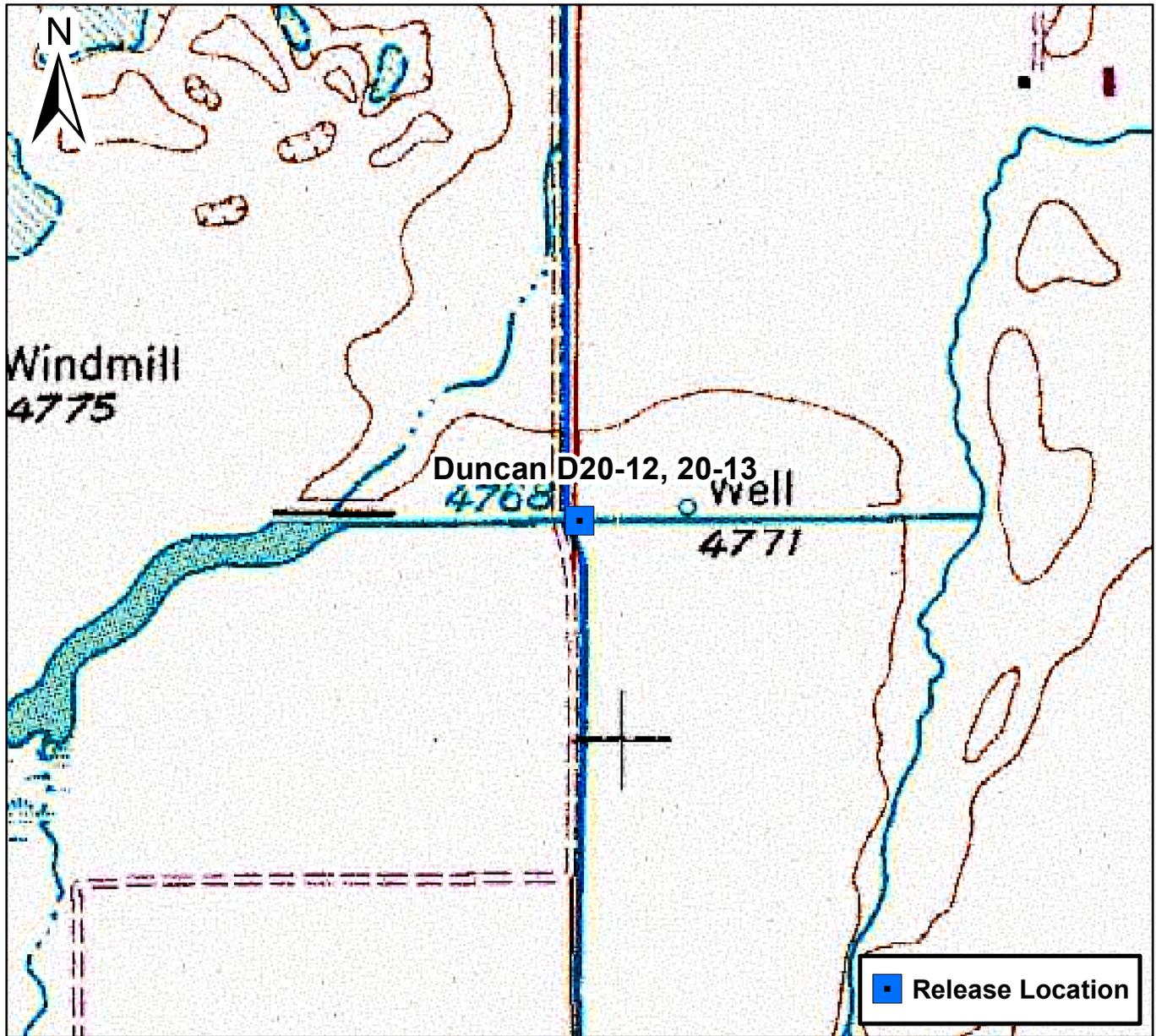


Figure 1

Site Location Map
 Duncan D20-12, 20-13
 NWSW S20 T3N R64W
 Weld County, Colorado





- Legend**
- - - Excavation Extent – June 2019 (Collected via Trimble GPS)
 - - - Excavation Extent – Dec. 2018 (Collected via Trimble GPS)
 - - - DCP Line (Collected via Trimble GPS)
 - Overhead Power Line (Collected via Trimble GPS)
 - + + + Property Fence (Collected via Trimble GPS)
 - X Release Location
 - ◆ Monitoring Well Location (Collected via Trimble GPS)

- Notes**
- 1) All locations are approximate unless otherwise noted
 - 2) Site infrastructure has been removed, shown for illustrative purposes only.

GPS – Global Positioning System

0 ft. 20 ft. 40 ft.

Image Source: Google Earth; Google 2016

DATE:	12/28/2020
DESIGNED BY:	JW
DRAWN BY:	TC

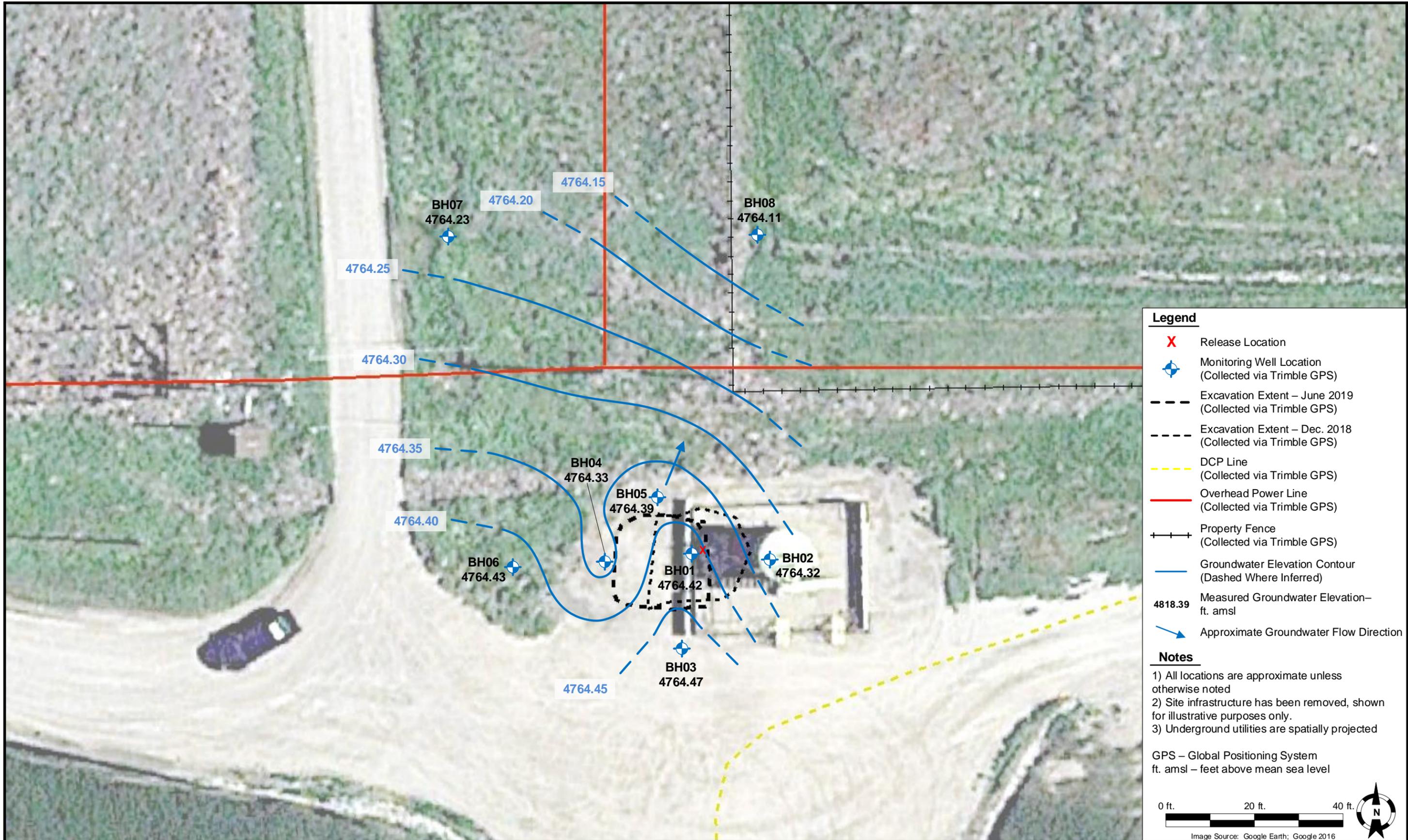
TASMAN
GEOSCIENCES

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

Noble Energy, Inc. – DJ Basin
Duncan D20-12, 20-13
NWSW, Section 20, Township 3 North, Range 64 West
Weld County, Colorado

Site Overview Map

FIGURE
2



DATE: 12/28/20

DESIGNED BY: JW

DRAWN BY: TC



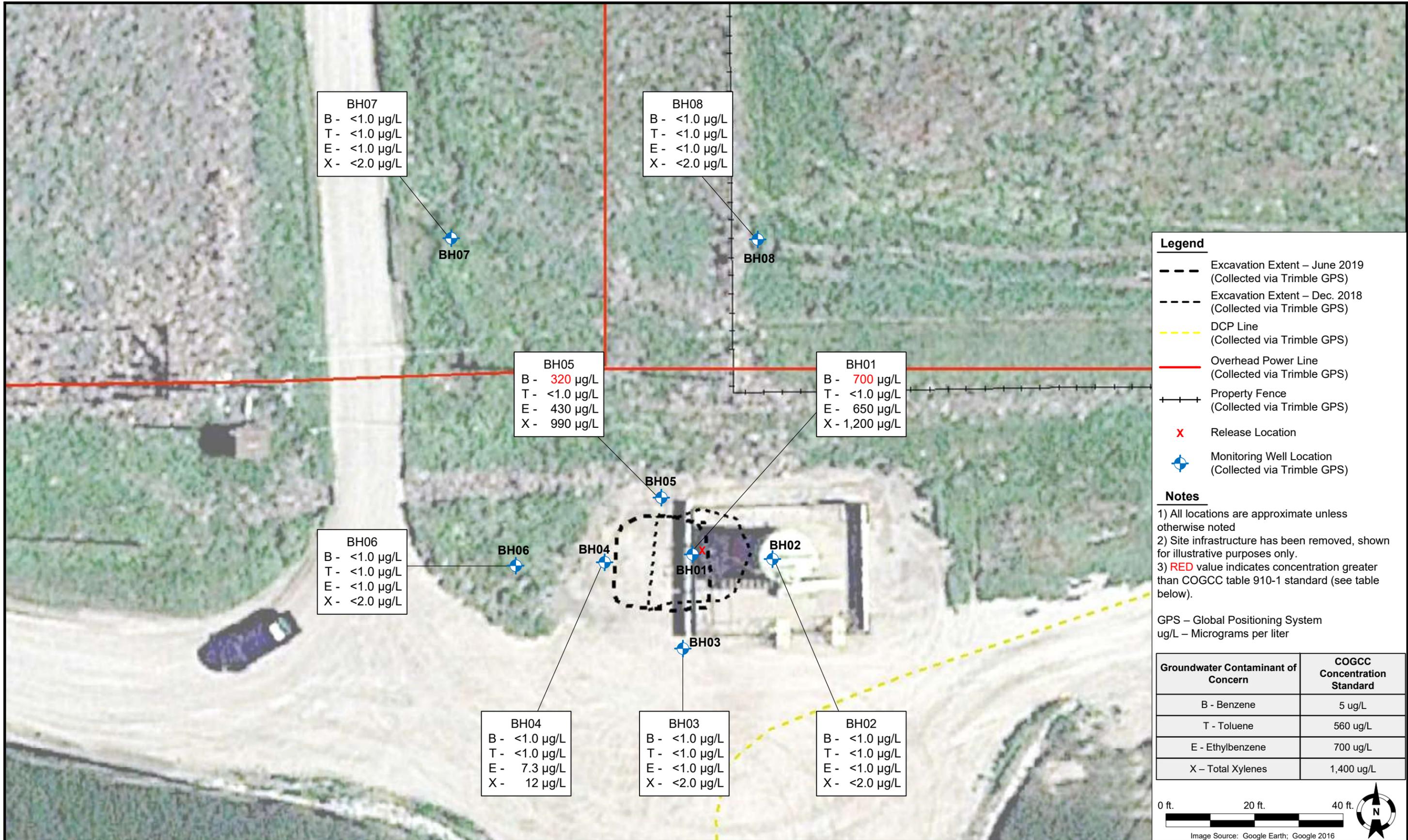
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GEOSCIENCES

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

Noble Energy, Inc. – DJ Basin
Duncan D20-12, 20-13
NWSW, Section 20, Township 3 North, Range 64 West
Weld County, Colorado

Groundwater Potentiometric
Surface/ Contour Figure
(11/25/2020)

FIGURE
3



Legend

- Excavation Extent – June 2019 (Collected via Trimble GPS)
- Excavation Extent – Dec. 2018 (Collected via Trimble GPS)
- DCP Line (Collected via Trimble GPS)
- Overhead Power Line (Collected via Trimble GPS)
- Property Fence (Collected via Trimble GPS)
- X Release Location
- Monitoring Well Location (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted
- 2) Site infrastructure has been removed, shown for illustrative purposes only.
- 3) RED value indicates concentration greater than COGCC table 910-1 standard (see table below).

GPS – Global Positioning System
ug/L – Micrograms per liter

Groundwater Contaminant of Concern	COGCC Concentration Standard
B - Benzene	5 ug/L
T - Toluene	560 ug/L
E - Ethylbenzene	700 ug/L
X – Total Xylenes	1,400 ug/L



DATE: 12/22/20

DESIGNED BY: JW

DRAWN BY: MG

TASMAN
GEOSCIENCES

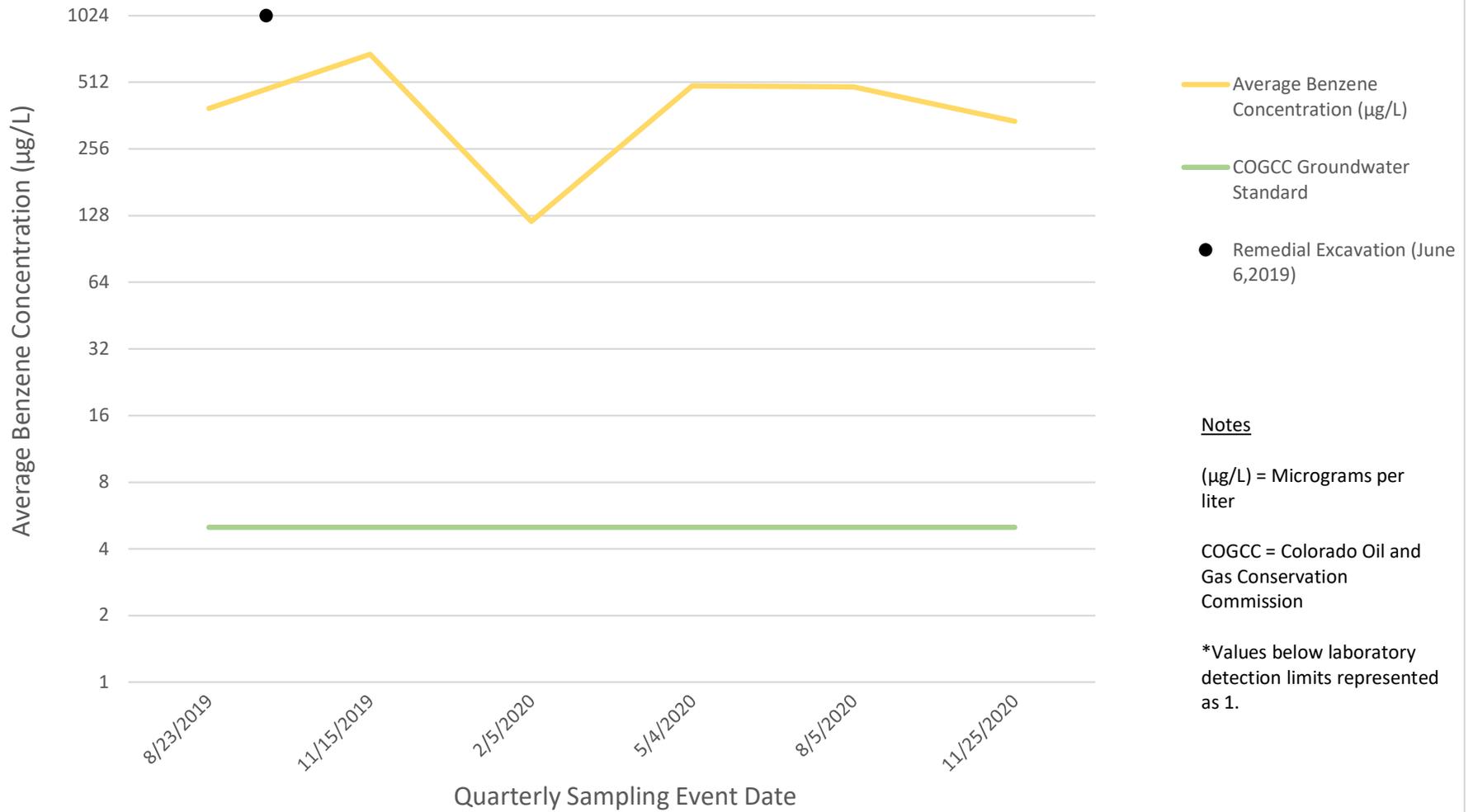
Tasman Geosciences, Inc.
6855 W. 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – DJ Basin
Duncan D20-12, 20-13
NWSW, Section 20, Township 3 North, Range 64 West
Weld County, Colorado

Groundwater Analytical Results
Map
(11/25/2020)

FIGURE
4

Figure 5
Duncan D20-12, 20-13
Average Quarterly Benzene Concentrations



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 04, 2020

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

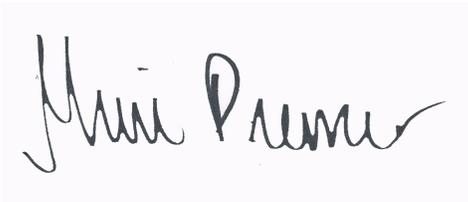
Broomfield, CO 80020

RE: Noble - Duncan D20-12, 20-13

Work Order #2011343

Enclosed are the results of analyses for samples received by Summit Scientific on 11/25/20 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light blue background. The signature reads "Muri Premer" in a cursive script.

Muri Premer For Paul Shrewsbury
President



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

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2011343-01	Water	11/25/20 11:00	11/25/20 17:00
BH02	2011343-02	Water	11/25/20 11:20	11/25/20 17:00
BH03	2011343-03	Water	11/25/20 11:10	11/25/20 17:00
BH04	2011343-04	Water	11/25/20 11:00	11/25/20 17:00
BH05	2011343-05	Water	11/25/20 10:50	11/25/20 17:00
BH06	2011343-06	Water	11/25/20 10:50	11/25/20 17:00
BH07	2011343-07	Water	11/25/20 10:40	11/25/20 17:00
BH08	2011343-08	Water	11/25/20 10:35	11/25/20 17:00

Summit Scientific

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

Summit Scientific

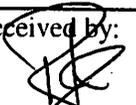
2011343

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

Page 1 of 1 ..

Client: Noble / Tasman Project Manager: Brandon Bruns, Invoice: Jacob Evans
 Address: 6855 W 119th Avenue E-Mail: Bbruns@tasman-geo.com
 City/State/Zip: Broomfield, CO, 80020
 Phone: 979-255-4235 Project Name: Duncan D20-12, 20-13
 Sampler Name: Max Garza Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	
1	BH01	11/25/20	11:00	3	X				X			X				
2	BH02		11:20													
3	BH03		11:10													
4	BH04		11:00													
5	BH05		10:50													
6	BH06		10:50													
7	BH07		10:40													
8	BH08		10:35													
9																
10																

Relinquished by: 	Date/Time: 11/25/20 15:15	Received by: Tasman's Lock Box	Date/Time: 11/25/20 15:15	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: <u>2.1</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 11/25/20 17:00	Received by: 	Date/Time: 11/25/20 17:00		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2011343

Client: NOBLE/TASMAN Client Project ID: DUNCAN D20-12, 20-13

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

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

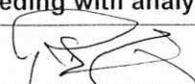
Temp (°C)	2.1
-----------	-----

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	✓			HCl
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.				

RICHARD ZENTNER

Custodian Printed Name or Initials


Signature of Custodian

11/27/2020
Date/Time



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

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH01
2011343-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	700	100	ug/l	100	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	650	100	"	100	"	"	"	"	
Xylenes (total)	1200	200	"	"	"	"	"	"	

Date Sampled: **11/25/20 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	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 - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH02
2011343-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 11:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/25/20 11:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		103 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		93.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

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

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH03
2011343-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 11:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/25/20 11:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		96.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		92.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %		21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH04
2011343-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	7.3	1.0		"	"	"	"	"	"	
Xylenes (total)	12	2.0		"	"	"	"	"	"	

Date Sampled: **11/25/20 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		97.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		97.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %		21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH05
2011343-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	320	100	ug/l	100	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
Ethylbenzene	430	100	"	100	"	"	"	"	
Xylenes (total)	990	200	"	"	"	"	"	"	

Date Sampled: **11/25/20 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

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

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH06
2011343-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 10:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/25/20 10:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		102 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		97.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

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Broomfield CO, 80020

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH07
2011343-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/25/20 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		96.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %		21-167		"	"	"	"	

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Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

BH08
2011343-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/25/20 10:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BDL0003	12/01/20	12/02/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **11/25/20 10:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		99.9 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		96.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %		21-167		"	"	"	"	

Summit Scientific

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Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BDL0003 - EPA 5030 Water MS

Blank (BDL0003-BLK1)

Prepared: 12/01/20 Analyzed: 12/02/20

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	2.0	"								
Surrogate: 1,2-Dichloroethane-d4	13.0		"	13.3		97.2	23-173				
Surrogate: Toluene-d8	13.0		"	13.3		97.3	20-170				
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		104	21-167				

LCS (BDL0003-BS1)

Prepared: 12/01/20 Analyzed: 12/02/20

Benzene	26.9	1.0	ug/l	33.3		80.6	51-132				
Toluene	27.8	1.0	"	33.3		83.5	51-138				
Ethylbenzene	28.0	1.0	"	33.3		84.0	58-146				
m,p-Xylene	58.7	2.0	"	66.7		88.0	57-144				
o-Xylene	30.2	1.0	"	33.3		90.8	53-146				
Surrogate: 1,2-Dichloroethane-d4	13.1		"	13.3		98.3	23-173				
Surrogate: Toluene-d8	12.3		"	13.3		92.2	20-170				
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.5	21-167				

Matrix Spike (BDL0003-MS1)

Source: 2011293-01

Prepared: 12/01/20 Analyzed: 12/02/20

Benzene	17.6	1.0	ug/l	33.3	ND	52.7	34-141				
Toluene	29.8	1.0	"	33.3	ND	89.6	27-151				
Ethylbenzene	29.4	1.0	"	33.3	ND	88.1	29-160				
m,p-Xylene	63.7	2.0	"	66.7	ND	95.6	20-166				
o-Xylene	32.7	1.0	"	33.3	ND	98.2	33-159				
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		100	23-173				
Surrogate: Toluene-d8	12.8		"	13.3		96.1	20-170				
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		101	21-167				

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Broomfield CO, 80020

Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
12/04/20 15:53

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BDL0003 - EPA 5030 Water MS

Matrix Spike Dup (BDL0003-MSD1)	Source: 2011293-01			Prepared: 12/01/20 Analyzed: 12/02/20					
Benzene	17.5	1.0	ug/l	33.3	ND	52.4	34-141	0.571	30
Toluene	27.7	1.0	"	33.3	ND	83.2	27-151	7.40	30
Ethylbenzene	29.2	1.0	"	33.3	ND	87.7	29-160	0.546	30
m,p-Xylene	60.8	2.0	"	66.7	ND	91.2	20-166	4.74	30
o-Xylene	32.2	1.0	"	33.3	ND	96.5	33-159	1.70	30
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		99.4	23-173		
Surrogate: Toluene-d8	12.4		"	13.3		93.2	20-170		
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		104	21-167		

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Project: Noble - Duncan D20-12, 20-13

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/04/20 15:53

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